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Technostress creators and inhibitors on employee job satisfaction: A digital transformation perspective of an Indonesian shipping company

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Abstract
Digitalization is the process of using technology in a company in its operational activities, and in the process, this digitalization involves management and employees in a company and can cause additional workload on the team that is the front line for the occurrence of digitalization. The purpose of this study is to see whether the workload on employees in a shipping company with digitalization crowned technostress (technostress creators and technostress inhibitors) during the digitization process and how it affected job satisfaction mediated by employee engagement. This study found that technostress creators and technostress inhibitors did not influence job satisfaction directly, but both variables would have a positive and significant influence if mediated by employee engagement. Hence, it can be concluded that employee engagement is fully mediating between technostress creators and technostress inhibitors on job satisfaction in the shipping company.
Keywords: Digital transformation, Technostress creators, Technostress inhibitors, Job satisfaction, Employee engagement.

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1. Introduction

Shipping companies are one of the businesses that have had to adapt to technological changes, particularly in light of the COVID-19 pandemic. Because shipping companies play an important role in the supply chain, they must be able to ensure that all processes continue to run even if the pandemic strikes (Sun & Zhang, 2022). Of course, it is possible because technology exists to support the process. As a result, shipping company procedures must be converted to digital technology-based procedures. Of course, this digital transformation is likely to cause technostress, but it is also possible that the ease of use of the application increases employee engagement because they feel able to adapt to digitalization and educate customers on how to use it. When this engagement is felt with a well-defined process, the division of "job description" becomes clear, and performance appraisals become more objective. Employees are more likely to be satisfied with their jobs when they are engaged.

According to the findings of a number of earlier studies, some people believe that technostress improves job happiness, while others say the opposite. For instance, Aktan & Toraman (2022) reported that technostress had a good influence on productivity and job happiness, but Kot (2022) observed that creator technostress had a negative effect on job satisfaction. Researchers are curious to learn more about the staff of PT XYZ and their journey towards digitalization in light of this conflict.

The technological revolution has brought about substantial alterations in organizational procedures and structures, while simultaneously modifying employee behavior and enhancing their skills. However, the complete effectiveness can be achieved only if employees are motivated and actively involved in the process of adopting new systems and processes. Given the circumstances, the examination of employee engagement assumes growing significance. Engagement correlates with decreased work satisfaction and increased retention. The reference is from Goswami and Upadhyay's publication in 2019. Nevertheless, this research does not encompass the technostress component. Employee engagement is the state in which employees experience satisfaction, enthusiasm, and commitment towards their company's beliefs and goals. This circumstance will serve as an incentive for them to actively participate in the achievement of the company's accomplishments (Riyanto & Endri, 2021). However, when stress arises from performing technology-related tasks, additional evaluation must be conducted. The field of human resource management has been actively addressing the matter of employee engagement, including its measurement and the consequential effects. Reissová and Papay (2021) conducted study exploring the relationship between employee engagement, work satisfaction, and prospective turnover. Their findings indicate that there is sometimes confusion between employee satisfaction and employee engagement.

Meanwhile, digital transformation at PT XYZ was marked by the launch of the XYZ Application in 2017, which was the first application in the shipping and logistics industry in Indonesia to provide a better customer experience and then continued to experience changes for the better to ensure the best service to current customers. have become more accustomed to using the application. In the past, the counter staff in Jakarta and Surabaya consisted of four computer specialists and two cashiers who examined payments made every day through ATM transfers or cash deposits at the bank. The finance staff will do a check in accordance with the proof of payment. The documents will be supplied by the CS team if the money has been received.

Currently, the counter handles only 10% of clients who still complete transactions manually, and there are only 2 (CS) and 1 (CS) staff members remaining in Surabaya and Jakarta, respectively, and the cashier has left due to payment transfer and XYZ application VA (Virtual Account) are used to do this. Naturally, this has an impact on the workloads of the CS and FAD teams, but these two groups must also be able to adapt to new technologies while still engaging with customers. The researcher noticed that both departments were having difficulties as a result of this change, so the researcher was only interested in conducting research in these two departments.

2. Literature Review and Hypotheses Development

Technostress Creators and Technostress Inhibitors

The term "technostress" combines technology and stress. Returning to Brod, he defined technostress as a condition caused by individuals' and organizations' failure to adapt to the introduction of new technology or information technology. (Kim & Lee, 2021). Technostress refers to the feelings of stress, worry, and anxiety associated with changes in information and communication technology (Aktan & Toraman, 2022). (Tarafdar et al., 2019) discovered five groups of technostress creators (technostress creators) in an organization. These are some examples: (a) Techno-overload describes situations in which employees work longer, faster, and more intensively than they did before ICT, (b) Techno-invasion is a situation in which employees are available at any time due to the presence of smartphones and laptop computers, (c) Techno-complexity arises as a result of annual changes that make technology more complex, (d) Techno insecurity is a state in which employees fear losing their jobs as people become more adept at using technology, and (e) Techno uncertainty is caused by rapid technological development, which causes some things to change very quickly.

In addition to technostress creators, (Tarafdar et al., 2019) discovered technostress inhibitors which protect employees from technological pressure. These are some examples: (a) Literacy facilitation entails equipping employees with the knowledge and expertise required to use technology in their placement departments, (b) Technical support provision denotes that the company's IT team provides adequate support or assistance if an employee encounters a problem with the technology they use, and (c) Involvement facilitation; participation employees can be involved in the process of creating flows until the use of new technology, so facilitation can be done during the process of implementing new technology in the company.

According to Balamurugan & Selvalakshmi (2019), some of the factors that contribute to increased stress as a result of technological advancement are: rapid rate of change, lack of proper preparation for the use of technology, increased workload, and software and hardware reliability.

Digital Transformation

Not only does digital transformation include the automation or streamlining of back-office tasks, but it also includes the adoption of advanced technologies that support every aspect of a company's growth and efficiency (Aguiar, 2020). Digital transformation is the process of considering business transformation, organizational activities, business competencies, business processes, and innovative models to gain influence and assist in bringing about change, as well as gaining digital technology opportunities and their accelerating impact on society and stakeholders (Goswami & Upadhyay, 2019). Digitalization is becoming more strategic in

logistics and supply chain management (L&SC) as it impacts established business models, industry boundaries, and paradigms (Cichosz et al., 2020).

Job Satisfaction

Job satisfaction, according to Siagian & Khair (2018), is a pleasant or unpleasant emotional state in which an employee is satisfied with their job. As a result, an organization or company must comprehend and meet the needs of its employees. Finally, because job satisfaction has such a broad definition, it cannot be seen through a single lens. Job satisfaction can also refer to positive or happy emotions that arise as a result of evaluating one's work and work experience (Permana et al., 2021). Job satisfaction is based on a sense of comfort at work. Job satisfaction deteriorates at work, affecting mood and emotions. Mood states are typically short-lived, have causal objects, and last for a longer period (Riyanto et al., 2021).

Employee Engagement

The Gallup Institute coined the term "employee engagement," which is defined as a positive employee condition related to their company or work environment. Employee engagement, as measured by the effective implementation of various changes, is a critical component of the success of a shared organization. Today, low employee engagement can be a barrier for many businesses. Employee engagement, according to research, is a synthesis of various motivators. These motivators will be used by managers to influence employee engagement. As a result, the motivators do not occur in isolation; company circumstances and culture will have a lesser or greater influence on employee engagement (Shahid, 2021). Employee engagement is encouraged by a positive office work culture, inspiring leadership, meaningful work, professional development, freedom, and recognition or appreciation.

Workload

A study (Nurvianida Nasrul et al., 2023) found that workload can be defined as a collection of tasks or activities assigned to workers or organizational units to complete at a certain time using their abilities and knowledge. Employees must have a balanced workload because excessive workload affects their health and psychology (Johan & Satrya, 2023). Furthermore, Johan cited previous research findings, which stated that Anasi stated that overall workload can be defined as employees' perception of the amount and intensity of workload that must be completed by employees in a certain period. Workload, as defined by Arshad et al. (2020), is an activity that a worker must complete within a specific time frame by using technical analysis of positions or other management techniques to obtain information about work efficiency and effectiveness, which can harm employee health.

2.1. The Relationship of Technostress Creators, Technostress Inhibitors, Employee Engagement, and Job Satisfaction

Today's world is extremely stressful as a result of the rapid development of ICT. This issue is especially prevalent in the workplace, where the use of ICT is an essential part of the job. According to a meta-analysis of technostress research, the international scientific community is becoming increasingly interested in this issue. Working in an environment where IT and communication devices are always present can have an impact on the technostress user experience (Bondanini et al., n.d.). Previous research indicates that workplace stress can lower job satisfaction and employee engagement (Kot, 2022). Kot's new research in Poland is also

attempting to determine how technostress creators and inhibitors, as well as their interrelationships, affect the job satisfaction of ICT employees. The phenomenon of technostress investigates how and why the use of information systems results in various demands that people perceive as threats that cannot be met and have negative consequences. This demonstrates the theoretical relationship between work stress literature and information systems (Tarafdar et al., 2019). The author was also curious to see how the influence of technostress, both creators and inhibitors, on job satisfaction was mediated by employee engagement. According to previous research, employee engagement as a mediator has a positive effect on the dependent variable. Previous research (Djoemadi et al., 2019) has established that employee engagement plays an important role in mediating the effect of job satisfaction on employee performance. This is because employee involvement as an individual mental representation of employees and job satisfaction as a reflection of organizational policies and the work environment must be interrelated and support job performance achievement.

As a result, the author is curious whether this mediation variable will have a positive impact on employees at PT XYZ. The author formulates the following hypothesis based on this condition:

H1: Technostress Creators have a positive and significant effect on Employee Engagement.

H2: Technostress Creators have a positive and significant effect on Job Satisfaction.

H3: Technostress Creators have a positive and significant effect on Job Satisfaction mediated by Employee Engagement.

H4: Technostress Inhibitors have a positive and significant effect on Employee Engagement.

H5: Technostress Inhibitors have a positive and significant effect on Job Satisfaction

H6: Technostress Inhibitors have a positive and significant effect on Job Satisfaction mediated by Employee Engagement.

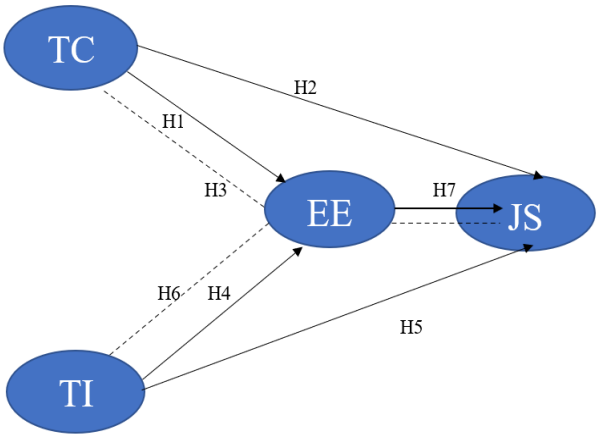
2.2. Employee Engagement and Job Satisfaction

Even though the technological revolution has resulted in significant changes in organizational processes and structures, it is changing employee behavior and improving their skills. However, full utility can be realized if employees are motivated and involved in adapting new systems and processes. In this context, the study of employee engagement becomes even more important. Engagement is associated with lower job satisfaction and higher retention. (Goswami & Upadhyay, 2019). Employee engagement is a major issue in today's digital transformation era (Goswami & Upadhyay, 2019), according to Raj's 2018 research. According to studies, digital transformation has influenced employees' transactional relationships with organizations. Companies' and employees' transactional relationships are now more satisfying and goal oriented. Employee engagement occurs when employees are satisfied, enthusiastic, and committed to the values and goals of their company. This condition will motivate them to contribute to the company's success (Riyanto & Endri, 2021).

For a long time, the field of human resource management has been preoccupied with issues of employee engagement, how to measure it, and, most importantly, the subsequent impact. Employee satisfaction is sometimes confused with employee engagement, according to research conducted by Reissová & Papay (2021) on the relationship between employee engagement, job satisfaction, and potential turnover. Although the two are related, job satisfaction is one factor that influences employee engagement positively. Previous research (Djoemadi et al., 2019) discovered that job satisfaction is one of the most important factors in job satisfaction, along with employment relationships, the likelihood of promotion, and work

conditions (Perreault & Mask, 2020). According to the study's findings (Reissová & Papay, 2021), it is always necessary to clarify terminology and operationalize methodologies because what is referred to here as "job satisfaction" may also be referred to as "employee engagement" elsewhere. Regardless, it is clear that all of these components are critical in the field of human resource management. To that end, the author proposes the following hypothesis:
H7: Employee engagement has a positive and significant effect on job satisfaction.

Given the elucidation of theoretical studies and the correlation between variables mentioned earlier, this research presents a research conceptual framework, depicted in Figure 1.



**Note: TC=Technostress creators; TI=Technostress inhibitors; EE=Employee engagement; JS=Job Satisfaction*

Figure 1. Conceptual Framework

3. Method

To conduct quantitative research, the model's goal is to determine how each variable interacts with or is related to each other. The researchers only looked at the phenomena that occurred in this study. There was no action or experimentation on the subject or object of the study; only observation was performed. A research proposal or design is an outline of the steps that researchers must take when conducting research. It is necessary to consider various resources that can help or hinder the research when developing the research design. The beginning point of research is a problem or a deviation. The issue is "deviation" between plan and implementation, theory and practice, and rules and implementation. Problems arise at specific times and locations (Sugiyono, 2013). In quantitative research, a population is defined as a generalized area consisting of subjects or objects with specific qualities and traits that the researcher has chosen to study, and then the researcher concludes the problem (Sugiyono, 2013). The population can be defined as all sample units included in the generalization of research results, regardless of time, space, scope, or combination constraints.
The population in this study is 97 finance and administration (FAD) department staff and customer service (CS) department staff in Jakarta and Surabaya because these two departments use the XYZ application/website extensively in their daily tasks and deal directly with customers. These two departments have seen significant changes in their daily lives as a result of using the XYZ application, as fewer customers come to the counter to take documents or make payments to the cashier. Previously, there were four customer service representatives and

two cashiers at the counter to serve customers in Jakarta and Surabaya, who checked payments made through cash deposits at the bank or ATM transfers daily. The finance team will investigate based on proof of payment. The CS team will provide documents if payment has been received. With the application, almost all of these activities are carried out through the application, and the counter currently serves only about 10% of customers who are still making manual transactions, with only 1 staff member in Jakarta (CS) and 2 (CS) in Surabaya remaining, while the cashier is no longer present because payments are made via transfer and VA (Virtual Account) in the application. Of course, this affects the workload of the CS and FAD teams; on the other hand, these two teams must be able to adapt to new technology while also socializing with customers. Researchers see that because of these changes, both departments are having difficulties, so researchers are only interested in conducting research in these two departments. This study's population will consist of 97 employees.

The author distributes questionnaires online to collect primary data from respondents, which will later be measured and analyzed to determine how valid and reliable the hypothesis is. The author used the structural equation model (SEM) as an analysis method in this study, with smart PLS (partial least square) as a statistical tool to calculate questionnaire data, which will then be processed into statistical data. SEM is used to assess the relationship between the independent and dependent variables. As a result, SEM is an excellent choice for this study because it evaluates three independent variables, one dependent variable, and one mediating variable. We know the loading factor in the outer model. The loading factor value shows the correlation between the indicator and its construct. With a low loading value, the indicator shows that it does not work well on its measurement model. The expected load value is more than 0.7. (Sugiyono, 2013) defines validity as the accuracy or precision of a measurement tool when the data reported by the researcher is compared to the data collected in the field. The researcher will look into whether the variables used in the study are correct.

They divided the questionnaire's validity into two categories: factor validity and item validity. Factor validity can be measured by correlating the factor score (number of items in a factor) with the total score (total number of factors) when items are arranged using more than one factor or when there are similarities between factors. An addition factor of ≥ 0.5 is used to evaluate the validity of SEM-PLS. Reliability depends on how consistent and stable the data or findings are (Sugiyono, 2013). This indicates whether the instruments used will produce the same results in various studies at different times. Because this study used questionnaires and multilevel scales, reliability was measured by Cronbach Alpha scores.

Table 1. Operationalization Variable

No.	Statement
Technostress	
Technostress Creator (X1)	
Techno Overload	
1	I am forced by technology to work much faster
2	I need to change my work habits to adapt to new technologies
3	I have a higher workload because of increased technology complexity

No.	Statement
Techno Invasion	
4	I spend less time with my family because of technology
5	I stay in touch with my work even on vacation due to technology
6	I feel my personal life is being invaded by technology
Techno Complexity	
7	I need a long time to understand and use new technologies
8	I think that new recruits to this organization know more about computer technology than I do.
Techno Insecurity	
9	I feel a constant threat to my job security due to new technologies
10	I am threatened by colleagues who have more technology skills
Techno Uncertainty	
11	There are always new developments in technology that we use in our organization.
12	There are constant changes in computer software in our organization
Technostress Inhibitors (X2)	
Literacy Facilitation	
13	Our organization encourages knowledge sharing to help deal with new technology
14	Our organization emphasizes teamwork in dealing with new technology-related problems
15	Our organization emphasizes teamwork in dealing with new technology-related problems
Technical Support Provision	
16	Our end user help desk does a good job of answering questions about technology
17	Our end user help desk does a good job of answering questions about technology
18	Our end user help desk is responsive to end user requests
Involvement Facilitation	
19	Our end user help desk is responsive to end user requests
20	Our end users are involved in technology change and/or implementation
21	Our end users are involved in technology change and/or implementation
Job Satisfaction (Y1)	
22	I love my job.
23	I find happiness at work
24	I am content with my current job
25	I find my job enjoyable.
26	I find my job enjoyable.
Employee Engagement (Z)	
27	Digital transformation has helped in strategic decision making in my job
28	Digital transformation has helped in strategic decision making in my job
29	I feel embarrassed when my performance falls below the standard
30	All my colleagues are fully committed to better work

4. Results

Based on respondent characteristic as shown in Table 2, it is known that the majority of respondents are women, namely 50 people, or 51.5%, followed by men, as many as 47 people, or 48.5%. The majority of respondents aged 20-30 years have as many as 47 people, or 48.5%, followed by respondents aged 31-40, who are as many as 46 people, equivalent to 47.4%, followed by respondents aged 41-50, who have as many as 3 people, or 3.1%, and the smallest age group over 50 years has as many as 1 person, or 1%. Looking at the educational background,

the majority of respondents had economic education backgrounds, namely 54 people or 55.7%, followed by technical education as many as 7 people or 7.2%, then IT/informatics education 6 people or 6.2%, followed by social science education as many as 6 people or 6.2%, followed by teacher training and humanities 1% or 1% each, and there were 22 people or 22.7% with other educational backgrounds that were not described by researchers. For the education level, the majority of respondents have a bachelor's degree, which is 69 people, or 71.1% followed by diploma education levels both D1 and D3 as many as 17 people, or 17.5%, followed by high school with as many as 9 degrees, or 9.3%, and the smallest is the post graduate education level, which is as many as 2 people, or 2.1%.

The majority of respondents have worked at PT XYZ for 0-5 years, namely 53 people or 54.6%, followed by those who have worked for 11-15 years, which is 21 people or 21.6%, followed by those who have worked for 6-8 years, namely 18 people or 18.6%, followed by those who have worked for 16-20 years, which is 4 people or 4.1%, and then the smallest is those who have worked for more than 20 years, which is 1 person or 1%. The study population is limited to the Customer Service (CS) and Finance and Administration (FAD) departments because these two departments serve customers directly through the application and work with the application in their daily lives. Based on Table 4.1, it is known that the majority of respondents were from the FAD department, which was 50 people, or 51.5%, followed by the CS department, as many as 47 people, or 48.5%. Based on location, the majority of respondents were located in the Jakarta office, which was 54 people, or 55.7% followed by Surabaya, which was 43 people, or 44.3%. Based on respondent characteristics data, it was found that the majority of respondents were young, namely 20-30 years old, and had worked for 5 years, followed by those who had worked for 11-15 years, which means they had worked long before digital transformation in the company was carried out.

Table 2. Respondent Characteristic

No.	Characteristic		Frequency	Percentage
1	Gender	Male	47	48.5%
		Female	50	51.5%
2	Age	20 - 30	47	48.5%
		31-40	46	47.4%
		41-50	3	3.1%
		Above 50	1	1.0%
3	Educational Background	Economic	54	55.7%
		Engineering	7	7.2%
		Information technology	6	6.2%
		Teaching	1	1.0%
		Science	0	0.0%
		Humanities Science	1	1.0%
		Social science	6	6.2%
		Others	22	22.7%
4	Education level	High School	9	9.3%
		Diploma	17	17.5%
		Bachelor	69	71.1%
		Postgraduate	2	2.1%

No.	Characteristic		Frequency	Percentage
5	Length of work	0-5	53	54.6%
		6-10	18	18.6%
		11-15	21	21.6%
		16 -20	4	4.1%
		Above 21	1	1.0%
6	Department	Customer Service	47	48.5%
		Finance and Administration (FAD)	50	51.5%
7	Location	Jakarta	54	55.7%
		Surabaya	43	44.3%

After processing the data for outer loading, it is discovered that there are invalid indicators because the resulting value is less than 0.7. According to the theory, indicators with outer loading less than 0.7 can be removed if they increase the AVE value and composite reliability above the limit (Hair, 2022). The results of the outer loading are shown in Table 3.

Table 3. Outer Loading

Indicator	Employee Engagement	Job Satisfaction	T Creators	T Inhibitors
EE1	0.7958			
EE2	0.8740			
EE3	0.8178			
EE4	0.8221			
JS1		0.8570		
JS2		0.8889		
JS3		0.8126		
JS4		0.9222		
JS5		0.7937		
TI1			0.7601	
TI2			0.7839	
TI3			0.8266	
IF1				0.8324
IF2				0.8307
LF1				0.7610
LF2				0.7997
TSP2				0.8393
TSP3				0.7748

The indicator passed the outer loading test with a value greater than 0.7. However, during the process, researchers conducted some testing and eliminated some indicators because testing all indicators revealed that: (1) There are 12 indicators with a value of less than 0.7, so they are invalid and worth discarding if the value is less than 0.7, (2) After the researchers discarded 12 indicators, the AVE value rose. Based on this, the researchers decided to discard the 12 indicators, namely: TO1, TO2, TO3, TC1, TC2, TIC1, TIC2, TU1, TU2, LF3, TSP1, and IF3. Because this research instrument is in the form of questionnaires and stratified scales, the Alpha Cronbach formula was used to test the instrument's reliability. The reliability result is shown in Table 4. If the alpha value is greater than 0.7, this indicates sufficient reliability, whereas alpha greater than 0.80 indicates that all items are reliable, and all tests consistently have strong

reliability. If the alpha > 0.90, then reliability is perfect. If the alpha is between 0.70 – 0.90, then reliability is high. If alpha 0.50 – 0.70, then reliability is moderate. If the alpha is < 0.50, then reliability is low. From the survey results, it was found that the alpha value was >0.7, so the variables used in this survey are reliable and can be used for future surveys. Related to technostress and job satisfaction mediated by employee engagement.

Table 4. Reliability Test Result

Variable	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Employee Engagement	0.8466	0.8480	0.8970	0.6854
Job Satisfaction	0.9086	0.9181	0.9319	0.7331
T Creators	0.7070	0.7249	0.8333	0.6252
T Inhibitors	0.8926	0.8964	0.9179	0.6511

Based on coefficient of determination in Table 5 above it is found that the employee engagement (EE) variable was influenced by technostress creators and techno inhibitors only by 43.07%, the remaining 56.93% was influenced by other variables that were not studied in this study. Job satisfaction (JS) variables were influenced by technostress creators and technostress inhibitors and employee engagement by 41.75%, the remaining 58.25% was influenced by other variables that were not studied in the study.
Table 5. Coefficient of Determination

Table 5. Coefficient of Determination

Variable	R Square	R Square Adjusted
Employee Engagement	0.4307	0.4186
Job Satisfaction	0.4175	0.3987

Based on the results of direct and indirect effects in Table 6 explains that the results of research on EE - JS variables have a positive and significant effect because the p value is 0.0000 or < 0.05. The results of research on the TC - EE variable is influential and significant because the value is 0.0109 or <0.05. The results of the study on the TC-JS variable had no effect and were not significant because the p value was 0.0728 or >0.05. The results of research on the IT-EE variable have a positive and significant effect because the p value is 0.0000 or < 0.05. The results of the study on the IT-JS variable had no effect and were not significant because the p value was 0.9490 or > 0.05. The results of research on the variables TC – EE – JS have a negative and significant effect because the p value is 0.0298 or <0.05. The results of research on TI – EE – JS variables have a positive and significant effect because the p value is 0.0000 or <0.05.

Table 6. Direct and Indirect Effects

Path	T Statistics	P Values
Employee Engagement → Job Satisfaction	5.7687	0.0000
T Creators → Employee Engagement	2.5496	0.0109

Path	T Statistics	P Values
T Creators → Job Satisfaction	1.7950	0.0728
T Inhibitors → Employee Engagement	8.1592	0.0000
T Inhibitors → Job Satisfaction	0.0640	0.9490
T Creators →Employee Engagement -> Job Satisfaction	2.1742	0.0298
T Inhibitors → Employee Engagement -> Job Satisfaction	4.6228	0.0000

5. Discussion

Technostress Creators have a positive and significant effect on Employee Engagement

The hypothesis test analysis yielded p values of 0.0009 0.05 to determine the effect of technostress creator variables on employee engagement. This value indicates that H1 is accepted, and that technostress creators have an impact on employee engagement. Changes in technostress creators have a one-way influence on employee engagement, so if the level of technostress creators rises, so will employee engagement. This supports previous research by (Goswami & Upadhyay, 2019) that digital transformation, which can also generate technostress, can increase employee engagement in their companies.

According to (Tarafdar et al., 2019), there are five dimensions of technostress creators; namely techno overload, techno invasion, techno complexity, techno insecurity, and techno uncertainty. However, according to the indicators that pass the outer loading test, the techno creators who affect employee engagement in this shipping company are Techno invasion. According to (Balamurugan & Selvalakshmi, 2019), management must provide training and skill development so that employees can overcome technostress. This is because if employees feel well equipped, they will be more confident and feel closer to their company. The results of research in the field show that with the technology implemented through the Application-super app, there are many trainings, trainings and also road shows in several cities/branches owned by the company. This also means that employees at this shipping company feel that the existing digitalization makes their engagement higher. There has been no previous research on shipping companies in Indonesia, so the condition of PT XYZ as a national shipping company in Indonesia further strengthens some previous research in different fields on the effect of technostress on employee engagement.

Technostress Creators have a positive and significant effect on Job Satisfaction

The results of the hypothesis test analysis determine the effect of the technostress creator's variable on job satisfaction obtained p values of $0.0728 \geq 0.005$. From this value, it can be concluded that H2 is rejected, and technostress creators have no influence on job satisfaction. Changes in technostress creators do not have a direct effect on job satisfaction, so if the level of technostress creators increases, there will be no increase in job satisfaction. These results support previous research conducted by (Kot, 2022), which found that creators of technostress negatively affect job satisfaction; In other words, the effect of technostress creators on job satisfaction does exist, but it has a negative effect. In this study, the aspect of technology penetration that makes employees feel depressed is the factor that causes job dissatisfaction. This is because, according to (Siagian & Khair, 2018) job satisfaction or job satisfaction is a good or bad emotional state for a worker. As a result, there are unpleasant circumstances felt by employees in the CS and FAD departments of PT XYZ as a result of technology penetration.

Unlike the study (Aktan &; Toraman, 2022) which investigated faculty during the COVID-19 pandemic, it found that technological pressure has a unidirectional influence on job satisfaction, meaning if technology pressure increases due to the ability to do distance learning, job satisfaction also increases.

Technostress Creators have a positive and significant effect on Job Satisfaction mediated by Employee Engagement

The results of the hypothesis test analysis to determine whether technostress has an influence on job satisfaction and is mediated by employee engagement obtained a p value of 0.0298 ≤0.05, it can be concluded that H3 is accepted, and that technostress creators have an influence on job satisfaction mediated by employee engagement. Changes in technostress have a unidirectional effect on job satisfaction so if the level of technostress increases, job satisfaction will also increase but only if mediated by employee engagement. Highly engaged employees express these characteristics and are engaged in performing tasks, have a lot of mental and physical involvement, have high respect for their work and their duties, and have an emotional connection to their work (Lisabella & Hasmawaty, 2021). Respect will make employees do their jobs better and happier with the dynamics that occur in their work processes every day, even when there are changes to the systems or technologies used. This means PT XYZ must increase employee engagement within the company through training, skill development, and other methods that support employee engagement. Thus, the creators of technostress will increase job satisfaction, which in turn will increase productivity. Previous research by Djoemadi et al. (2019) found that employee engagement mediates job satisfaction significantly.

Technostress Inhibitors have a positive and significant effect on Employee Engagement

The results of the hypothesis test analysis to determine the effect of the technostress inhibitors variable on employee engagement obtained a p value of 0.0000 ≤0.05. From this value, it can be concluded that H4 is accepted, and that technostress inhibitors have an influence on employee engagement. Changes in technostress inhibitors have a unidirectional effect on employee engagement, if the level of technostress inhibitors increases, employee engagement will also increase. This backs up previous research by (Goswami & Upadhyay, 2019) that digital transformation, also known as technostress, caused by digitalization, can improve employee engagement in their workplaces. The three dimensions of technological pressure inhibitors/technology pressure inhibitors, according to data processing results, are literacy facilitation, technical support provision, and engagement facilitation. All of this is true at PT XYZ.

So, this also means that employees at PT XYZ feel that the existing digitalization makes their engagement higher because of the support from management to provide trainers for new technology that is run, emphasize teamwork, and also involve employees if there is application development carried out. At PT XYZ there are also awards for customer employees who become monthly employees. This award is given in the form of points in the XYZ application, which is a super application that can be used to improve GoPay and electricity payments. (Malik et al., 2022) also conducted a study that found that there is a significant relationship between technostress and employee engagement. This is in contrast to previous research by (Mohammed, 2022), which found that technostress harms employee engagement. However, the study did not mention the causes or inhibitors of technostress.

Technostress Inhibitors have a positive and significant effect on Job Satisfaction

The results of the hypothesis test analysis to determine the effect of the technostress inhibitors variable on job satisfaction obtained a p value of $0.9490 \geq 0.05$. From this value, it can be concluded that H5 is rejected, and technostress inhibitors have no influence on job satisfaction. Changes in technostress inhibitors do not have a direct effect on job satisfaction, so if the level of technostress inhibitors increases, there will be no increase in job satisfaction. According to previous research (Kot, 2022), technological stress blockers increase employee job satisfaction. This is different from the situation at PT XYZ because employees in the CS and FAD departments believe that the company does not support knowledge sharing, which reduces employee confidence, particularly among new employees. As a result, employees become dissatisfied, even though a sense of comfort at work is essential to job satisfaction.

Technostress Inhibitors have a positive and significant effect on Job Satisfaction mediated by Employee Engagement

The results of the hypothesis test analysis to determine whether technostress inhibitors have an influence on job satisfaction that is mediated by employee engagement obtained a p value of $0.0000 \leq 0.05$, it can be concluded that H6 is accepted, and that technostress inhibitors have an influence on job satisfaction that is mediated by employee engagement. Changes in technostress inhibitors have a unidirectional effect on job satisfaction, so if the level of technostress inhibitors increases, job satisfaction will also increase, but only if mediated by employee engagement. Interestingly, both technostress creators and inhibitors do not affect job satisfaction directly, but only if mediated by employee involvement. This shows that employee involvement is very important in the CS and FAD departments at PT XYZ. This is because high levels of employee engagement reduce stress caused by digital transformation. Both technostress inhibitors and creators will place greater emphasis on job satisfaction levels. This supports previous research findings that employee engagement can affect job satisfaction (Riyanto & Endri, 2021).

Employee Engagement has a positive and significant effect on Job Satisfaction

The results of the hypothesis test analysis to determine the effect of the employee engagement variable on job satisfaction obtained a p value of $0.0000 \leq 0.05$. From this value, it can be concluded that H7 is accepted, and that employee engagement has an influence on job satisfaction. Changes in employee engagement have a unidirectional effect on job satisfaction, so if the level of employee engagement increases, job satisfaction will also increase. This study supports previous research (Kot, 2022) which found that there is a significant relationship between employee engagement and job satisfaction. Another study (Reissová & Papay, 2021) also found similar results. From the results of data processing, employees stated that their performance became better with digitalization, and their colleagues were also committed to completing their work, so researchers can conclude that employee engagement variables have a significant influence on the CS and FAD departments at PT XYZ. This means management must focus more on activities or programs that can increase employee engagement.

6. Conclusions

To enhance employee engagement, management should offer training and skill development programs to help employees effectively manage and alleviate technostress, which has been

found to have a positive and significant impact on employee engagement. This is because when employees feel adequately prepared, they will exhibit greater confidence and develop a stronger sense of connection with their organization. The Application-Super app incorporates advanced technology to facilitate numerous training sessions and road shows across several locations and branches controlled by the organization. Regarding technostress makers, it can be stated that they do not exert a positive and significant impact on job satisfaction. There is no direct correlation between changes in technostress creators and job satisfaction. Therefore, an increase in the level of technostress creators will not lead to an increase in job satisfaction. The study found that employee engagement acts as a mediator between technostress and job happiness. Technostress has a one-way impact on job satisfaction, meaning that if technostress levels rise, job happiness will likewise rise, but only if employee engagement is involved as a mediator. Highly engaged employees exhibit these attributes and actively participate in task execution, demonstrating significant mental and physical commitment. They hold their work and responsibilities in high regard and establish an emotional connection with their job. This is similar to technostress inhibitors, which positively and significantly impact employee engagement. Therefore, an increase in technostress inhibitors has a positive impact on employee involvement, resulting in an increase in employee engagement. PT XYZ employees perceive that the current digitalization efforts have increased their level of engagement due to the management's provision of trainers for new technology implementation, emphasis on teamwork, and involvement of employees in application development. However, this study demonstrates that employee engagement does not operate as a mediator between technostress inhibitors and job satisfaction. Technostress inhibitors have a one-way impact on job happiness. If the level of technostress inhibitors rises, job satisfaction will likewise improve, but only if employee engagement acts as an intermediary. Employee engagement is essential in the CS and FAD departments of PT XYZ due to its ability to alleviate the stress associated with digital transformation. Moreover, the level of employee involvement in this research has a direct impact on job contentment. According to employees, digitalization has improved their performance, and their colleagues are likewise dedicated to finishing their task. Therefore, researchers can infer that employee engagement factors have a substantial impact on the CS and FAD departments at PT XYZ. Consequently, management should prioritize activities or programs that have the potential to enhance employee engagement.

6.1. Implications

As the theoretical implications, this study provides a theoretical contribution that enriches the antecedent of job satisfaction by demonstrating that technostress creators and technostress inhibitors can be examined as a joint study into independent variables in research on the shipping industry. Previous research has not used this independent variable simultaneously in the shipping industry. This study also provides a theoretical contribution that employee engagement can be investigated as a mediating variable between technostress creators and technostress inhibitors on job satisfaction because the results of the study show a significant influence. As the managerial implications for the industry, this study explains that the shipping industry in Indonesia and globally should carry out digital transformation not only for efficiency and effectiveness of the process but also to increase employee engagement, which will increase job satisfaction. In the process of digital transformation, management should ensure that there is support provided as a driver of employee engagement, such as: positive work culture in the office, inspiring leadership, meaningful work, professional development, freedom, and acknowledgment or award.

6.2. Limitations and recommendations for future study

This study has several limitations. First, this research was only conducted in Customer Service (CS) and Finance and Administration (FAD) departments that deal directly with customers and use the application in their daily work, with a headcount of 97. Second, the variables used in the study only include technostress creators, technostress inhibitors, employee engagement and job satisfaction. Third, the research was only conducted at PT XYZ, one of the domestic shipping companies in Indonesia and the first to carry out digital transformation and have XYZ applications as SuperApps.

Recommendations can be put forward for the shipping industry and regulators for subsequent research, such as this research model can be applied to empirical studies of other shipping companies in Indonesia or internationally, research objects and samples can be expanded to include all departments in one shipping company to be able to determine the overall impact of the company. The variable of productivity can be examined further for further research to see the correlation between a shipping company's productivity and the digital transformation carried out.

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