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An emotion regulation-theoretic perspective on IS use stress and user resistance during an IS implementation

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ABSTRACT

Knowing that user resistance is a common reason for IS implementation failure, we examine how emotion regulation influences whether IS use stress is transformed into user resistance. We distinguish between two types of IS use stressors, challenge and hindrance IS use stressors, and two types of emotion regulation strategies, cognitive reappraisal and expressive suppression. Using empirical data from 185 employees facing an IS implementation initiative, we found clear evidence that cognitive reappraisal and expressive suppression influence the relationship between stressors and resistance. We contribute to the IS stress and resistance literature by theorizing affective resistance formation as a preimplementation process shaped by IS use stressors and emotion regulation.

1. Introduction

User resistance remains one of the main critical reasons why information systems (IS) implementation fails to realize its intended benefits [1]. Previous IS research typically has considered user resistance as employees' adverse reactions or opposition to a new IS or associated work changes [2]. From that perspective, this research has generated important explanations for why employees resist new systems. The dominant line of work explains user resistance through cognitive evaluation of the new IS and the status quo, concluding that employees resist when they perceive threats from the new IS [3], expect losses from changing established work routines [4,5], or prefer existing systems because of sunk costs, habit, and status quo bias [2].

This cognitive perspective explains important sources of user resistance without pointing to how employees' ongoing affective experiences with current IS use influence user resistance toward a new IS. We argue that employees do not enter IS implementation from an emotionally neutral starting point; rather, ongoing IS use creates a preimplementation affective baseline that can shape resistance toward the new IS [6]. Because early impressions and reactions during implementation can influence subsequent responses to the new IS [7,4], user resistance may reflect what employees cognitively expect from the new IS, as well as how prior IS use experiences make them feel before the IS implementation. Related work on quitting and switching digital services similarly suggests that dissatisfaction and shocks can disrupt ongoing use patterns and trigger distancing responses toward a technology or service [8].

IS use stressors provide a theoretical basis for explaining this affective starting point [6]. IS use stress refers to the stress that employees experience while using IS in their daily work [9,10]. Prior research shows that IS-related demands can result in strain and influence behaviors [11,12]. Building on the challenge–hindrance stressor framework [13,14], IS research distinguishes challenge IS use stressors from hindrance IS use stressors [15–17]. Challenge IS use stressors are demanding but manageable IS-related requirements that can signal learning, achievement, and competence gains. In contrast, hindrance IS use stressors are IS-related obstacles that constrain goal attainment and are difficult to resolve through effort, such as system breakdowns, unclear functionalities, inadequate resources, and IS-related conflicts.

This distinction matters because challenge and hindrance IS use stressors should create different affective reactions. Appraisal theory supposes that affect emerges from how employees evaluate demands in relation to goals and resources [18]. Challenge IS use stressors should influence positive affect when employees appraise IS-related demands as manageable and gain-relevant, whereas hindrance IS use stressors should influence negative affect when employees appraise IS-related

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demands as obstacles to goal attainment [15,17]. Therefore, positive and negative affect are proximal responses to IS use stressors and plausible mechanisms through which ongoing IS use experiences carry over into resistance toward a new IS [15,19,20]. Accordingly, we ask:

How do challenge and hindrance IS use stressors influence employees' resistance toward a new IS implementation through positive and negative affect?

IS use stressors should influence affect and user resistance differently across employees, however. Employees differ in how they regulate emotions, and these differences can influence how IS use stressor-related affect emerges and how it is then translated into behavior. Emotion regulation theory explains how individuals influence which emotions they experience and how they express them [21–23]. Gross's process model distinguishes strategies that operate before an emotional response unfolds from strategies that operate after affect has been generated [21,24]. Cognitive reappraisal changes how individuals interpret a situation and should influence the IS use stressor–affect relationship. Expressive suppression inhibits emotional expression after affect has emerged and thus should influence the affect–resistance relationship [23,25].

This emotion regulation perspective addresses a second limitation in current accounts of IS use stress and user resistance. IS stress research explains how IS-related demands result in strain and behavioral outcomes [11,12] but provides a limited theoretical explanation for why comparable IS use stressors generate user resistance for some employees but not for others. By integrating emotion regulation theory with IS use stress research, we explain heterogeneity in affective resistance formation and respond to calls for cross-disciplinary theorizing in general IS research as well as technostress research [26]. Accordingly, we further ask:

How do cognitive reappraisal and expressive suppression shape the affective process through which IS use stressors influence user resistance?

This study makes three contributions to IS research on user resistance and IS use stress. First, we advance user resistance research by complementing cognitive explanations of resistance [2–5] with an affective perspective. This turns attention from what employees cognitively expect from the new IS or value about the status quo to how current IS use experiences make them feel before implementation begins. Second, we advance IS use stress research by specifying affect as the underlying reason through which challenge and hindrance IS use stressors influence user resistance. We extend recent work that distinguishes challenge from hindrance IS use stressors [15–17] by theorizing and showing that positive affect and negative affect explain how these stressors result in resistance during the preimplementation phase. Third, we introduce emotion regulation by drawing on Gross's process model and by theorizing that cognitive reappraisal and expressive suppression influence different points in the process. In detail, cognitive reappraisal alters how stressors translate into affect, whereas expressive suppression alters how affect translates into resistance. This contributes to a precise process understanding of user resistance before regular use of the new IS begins.

2. Theoretical foundation and research model development

In this paper, we theorize affective resistance formation as a process that connects ongoing IS use stressors with user resistance toward a new IS. This process complements cognitive explanations of resistance, which emphasize perceived threats, switching costs, sunk costs, habit, status quo bias, and disrupted routines [2–5]. These explanations specify why employees cognitively oppose a new IS or prefer the status quo. They explain less well how ongoing affective experiences with current IS use shape resistance before regular use of the new IS begins.

To specify this process, we integrate three theoretical components. The IS stress process perspective explains why IS-related demands generate strain reactions and downstream outcomes [9–12]. Appraisal theory explains why challenge and hindrance IS use stressors elicit different affective responses because employees evaluate demands as gain-relevant or obstacle-relevant relative to goals and resources [15,17,18]. Gross's process model of emotion regulation explains why employees differ in how stressors result in affect and how affect influences user resistance [21–23,25]. Summing up, these components explain when and for whom IS use stressors translate into resistance through affect in the preimplementation phase.

IS use stress refers to the stress that employees experience while using information systems at work [9,10]. IS use stressors are commonly categorized as challenge stressors and hindrance stressors [15–17], as defined above. Emotion regulation denotes cognitive and behavioral strategies that individuals use to influence which emotions they experience and how they express them [21,23]. We focus on cognitive reappraisal and expressive suppression, which Gross's process model characterizes as antecedent-focused versus response-focused strategies [21,25].

Challenge and hindrance IS use stressors relate to affective and behavioral outcomes, yet existing accounts provide limited theoretical insight into why employees exposed to similar IS use stressors develop different affective reactions and user resistance levels in preimplementation phases. Integrating the IS stress process perspective [11] and appraisal theory [18] with Gross's [21] process model addresses this explanatory problem by specifying where emotion regulation changes the translation of stressors into affect and the translation of affect into user resistance. Cognitive reappraisal should influence how strongly stressors translate into affect because it changes meaning before emotions are fully generated, whereas expressive suppression should influence how strongly affect translates into user resistance because it inhibits emotional expression after affect is generated [21,23,25]. Table A1 (Appendix) summarizes representative prior work and indicates that existing studies typically examine only parts of this logic rather than integrating IS use stressors, affect, resistance, and both strategies in one implementation-specific model. We address this by testing the full sequence in the preimplementation phase and by specifying how cognitive reappraisal and expressive suppression influence the stressor to affect and affect to user resistance relations.

Our research model integrates three complementary theoretical components (see Fig. 1). First, the IS stress process perspective explains why IS use stressors influence implementation-related outcomes through strain reactions such as affect [11]. Second, appraisal theory explains why challenge and hindrance stressors elicit different affective reactions because employees evaluate demands as gain-relevant versus obstacle-relevant relative to goals and resources [18]. Third, Gross's [21] process model explains why cognitive reappraisal and expressive suppression influence the extent to which stressors translate into affect and the extent to which affect translates into user resistance. Specifically, cognitive reappraisal operates through cognitive change and thus pertains to stressors to affect relations, whereas expressive suppression operates through response modulation and thus pertains to affect to resistance relations [21,23]. Together, these components explain when IS use stressors translate into user resistance through affect in the preimplementation phase.

2.1. IS use stressors and affect

Challenge IS use stressors and positive affect. Challenge IS use stressors should increase positive affect because they are evaluated as gain-relevant demands that signal opportunities for achievement and competence [18]. Under appraisal theory, positive affect arises when individuals interpret demands as conducive to valued goals and as manageable with available resources. In IS use contexts, challenge IS use stressors capture demanding requirements that users plausibly can address through effort and learning (e.g., mastering complex features, adapting routines during training), which makes these demands likely to elicit enthusiasm, interest, and a sense of progress rather than frustration [15,17]. The mechanism is therefore a gain appraisal: users interpret

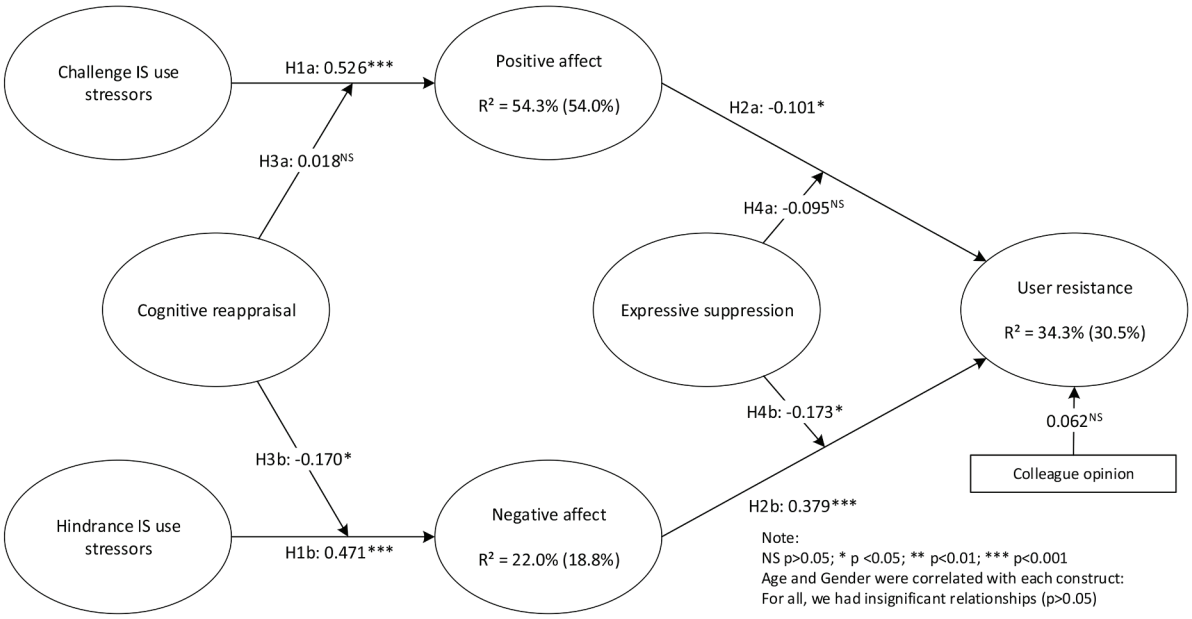

Fig. 1. Results of the SEM analysis (Note: Age and gender were not significantly associated with any model variable; colleague opinion was not significantly associated with user resistance).

challenge stressors as offering potential benefits and competence gains, which increases positive affect.

H1a. Challenge IS use stressors have a positive influence on positive affect.

Hindrance IS use stressors and negative affect. Hindrance IS use stressors should increase negative affect because they are evaluated as obstacle-relevant demands that constrain goal attainment and signal loss, disruption, or lack of control [18]. Under appraisal theory, negative affect arises when demands are interpreted as blocking valued goals and exceeding available resources. In the context of IS use, hindrance IS use stressors often reflect constraints that users cannot easily resolve through effort alone (e.g., breakdowns, unclear functionality, delayed responses, incompatible processes), which increases frustration, irritation, and helplessness [15,17]. The mechanism is therefore an obstacle appraisal, as users interpret hindrance stressors as preventing effective task completion and reducing perceived control, which increases negative affect.

H1b. Hindrance IS use stressors have a positive influence on negative affect.

2.2. Affect and user resistance

Affect should shape user resistance in the preimplementation phase because affect provides an immediate evaluation of whether a situation supports or threatens goal attainment, and these evaluations influence behavior [18]. In IS implementations, resistance reflects employees' adverse reaction or opposition to the change or refusal to cooperate with implementation-related demands [2]. Resistance toward upcoming implementations reflects cognitive evaluations (e.g., cost–benefit considerations and perceived threats) and affective action tendencies, and appraisal theory implies that affect is a proximal driver of action tendencies in response to evaluated demands. The mechanism in our model is therefore an affective action tendency. Positive affect is associated with approach-oriented tendencies, whereas negative affect is associated with avoidance-oriented tendencies, which should translate into lower versus higher resistance.

Positive affect and user resistance. Positive affect should reduce resistance because it increases willingness to engage and supports approach-oriented activities toward implementation activities (e.g., training participation, experimentation, cooperation). When employees experience enthusiasm, interest, or confidence in IS-related situations, they are more likely to interpret upcoming implementation demands as manageable and worth engaging with, which lowers user resistance toward the change [15,20]. Accordingly, we propose:

H2a. Positive affect has a negative influence on user resistance.

Negative affect and user resistance. Negative affect should increase resistance because it increases avoidance-oriented activities and motivates attempts to reduce exposure to perceived obstacles and disruptions. When employees experience negative affect in IS-related situations, they are more likely to engage in avoidance-oriented behaviors such as withdrawing from participation or opposing the change. Suppression should weaken this translation because it constrains the expression and enactment of affect-consistent response tendencies [15,20]. Accordingly, we propose:

H2b. Negative affect has a positive influence on user resistance.

2.3. Emotion regulation influences IS use stressors, affect, and user resistance

Cognitive reappraisal involves reinterpreting a situation to change its emotional impact, whereas expressive suppression involves inhibiting emotional expression once an emotional response is underway [21,23]. This distinction aligns with Gross's [21] process model and motivates why the two strategies should shape different parts of the stressor–affect–resistance relationships. IS use stress reflects a process in which IS-related demands shape strain reactions and, through these reactions, influence downstream outcomes such as attitudes and behaviors [11,12]. In this process, affect is a proximal strain response that reflects how individuals evaluate demands in relation to goals and resources [18]. However, appraisal theory also implies that individuals can influence their affective reactions by regulating how they interpret and respond to demands. Emotion regulation refers to cognitive and behavioral strategies individuals use to influence which emotions they experience and how they express them [21,22]. Individuals systematically differ in the extent to which they use specific regulation strategies, and these strategies can alter affective responses and subsequent

behavioral tendencies [23,25,27]. Importantly, this theoretical lens directly addresses a limitation of many IS use stress accounts: even when users face comparable IS-related demands, their affective strain reactions and resulting resistance can differ because regulation changes the appraisal–affect and affect–behavior translation.

Cognitive reappraisal and the relationships between IS use stressors and affect. Gross's process model distinguishes strategies that operate early in the emotion generation sequence from those that operate later [21,22]. Cognitive reappraisal is an antecedent-focused strategy that changes the meaning of a situation before an emotion is fully generated [21,24]. Because reappraisal operates at the meaning assignment stage, theory implies that it should alter the strength of stressor to affect relationships rather than relationships that occur after affect has already emerged. Therefore, from an appraisal perspective, reappraisal should alter whether a demand is evaluated as gain-relevant versus obstacle-relevant and whether it is evaluated as manageable with available resources [18]. Applied to IS use stressors, reappraisal should strengthen gain-relevant interpretations of challenge IS use stressors (e.g., interpreting demanding learning requirements as opportunities for competence gains), thereby increasing positive affect. In contrast, reappraisal should weaken obstacle-relevant interpretations of hindrance IS use stressors (e.g., interpreting disruptions as temporary and manageable through alternative actions or support), thereby reducing negative affect. Empirical syntheses in the emotion regulation literature are consistent with the expectation that reappraisal is associated with more adaptive affective outcomes than alternative strategies [25,28]. The mechanism is meaning change, such that cognitive reappraisal alters the appraisal of a demand, which changes the affective response and finally changes how strong the same stressor translates into affect. Thus, we propose:

H3a. Cognitive reappraisal strengthens the positive relationship between challenge IS use stressors and positive affect.

H3b. Cognitive reappraisal weakens the positive relationship between hindrance IS use stressors and negative affect.

Expressive suppression and the relationship between affect and resistance. Expressive suppression is a response-focused strategy that inhibits emotional expression after affect has been generated [21,22]. Because suppression targets response tendencies after affect is underway, theory implies that it should primarily influence the extent to which affective states translate into behavior, rather than the initial stressor to affect relationships. When employees experience negative affect in IS-related situations, they are more likely to form avoidance-oriented activities such as withdrawing from participation or opposing the change suppression should weaken this translation because it constrains the expression and enactment of affect-consistent response tendencies. Similarly, when employees experience positive affect, they are more likely to engage in approach-oriented behaviors that reduce resistance. Suppression should attenuate the extent to which positive affect translates into such lower resistance by limiting emotional expression and associated approach tendencies. Meta-analytic evidence indicates that suppression tends to be less effective than reappraisal in shaping affective outcomes but is systematically related to behavioral and interpersonal consequences, supporting the idea that it can influence how affect is translated into behavior-relevant outcomes [25,28]. The mechanism is response inhibition, such that expressive suppression constrains the performance of affect-consistent response tendencies, which reduces how strong affect translates into resistance. Accordingly, we propose:

H4a. Expressive suppression weakens the negative relationship between positive affect and user resistance.

H4b. Expressive suppression weakens the positive relationship between negative affect and user resistance.

3. Methodological approach

This study tests an affect-based IS stress process explanation of user resistance in the preimplementation phase and examines emotion regulation that shapes when and for whom IS use stressors translate into resistance through affect.

Characteristics of the Organization and the IS Implementation Initiative. To collect the data needed to evaluate the research model, we collaborated with an organization to survey employees affected by the IS implementation. The organization is headquartered in Germany and operates in the automotive industry. Approximately 5000 employees work for the organization at different factories around the globe. The organization relies heavily on enterprise systems, particularly SAP, and other industry-specific technologies to manage its operations.

The company works in a competitive environment with many competitors, which prompts it to support its employees with as much real-time data as possible and to make processes transparent. In response to increasing market pressures and the need for enhanced operational efficiency, the organization launched an IS implementation project in 2020 to modernize its enterprise systems. A group of employees then developed a proposal for the IS by, among other things, discussing current problems and interviewing and surveying individual colleagues about their wishes and needs. Based on these findings, the company decided to (1) optimize and streamline existing business processes, (2) replace legacy IS with modern enterprise systems, and (3) deploy new IS with expanded functionalities, including AI-driven decision support tools. For example, manual workflows were redesigned to be digitalized and accessible via multiple platforms, including tablets and smartphones, to provide greater flexibility for employees in various work settings.

The objective of the IS implementation was to enhance data accessibility, automate workflows, and integrate predictive analytics to improve decision-making. The new IS included AI-based forecasting tools, automated data entry, and real-time reporting functionalities not available in the previous system. Unlike the legacy systems, which were largely on premises and had limited cross-device functionality, the new IS was designed to be cloud-based, allowing employees access from anywhere. In contrast to digital transformation initiatives, which involve fundamental changes to business models and value creation mechanisms [29], the organization's initiative focused on IS replacement and process optimization. While it introduced significant changes in employees' daily work, it did not change the company's core value propositions or revenue streams.

The first employees were allowed to test the new IS in training sessions at the beginning of the second quarter of 2021. Then the organization implemented the IS in daily operations in the third quarter of 2021.

Data Collection The organization had completed other IS implementation projects that changed how employees worked. In the last IS implementation projects, the responsible C-level employees saw increased user resistance behavior among the employees. This became visible in employees' complaints and resistance behavior, their development of workarounds, and their use of shadow IT. Particularly during the start of the IS implementation phase, an increasing number of employees became ill and stayed at home.

Based on these prior experiences, the organization sought to proactively study employees' reactions to the new IS implementation. One of the authors was invited to investigate employees' IS use stress, affective responses, and user resistance toward the new IS before its implementation. At this point, the organization had already provided employees with information about the new IS functionalities and intended benefits, and thus employees were aware of the upcoming changes but had not yet been required to fully transition to the new IS. Thus, the study was conducted during the preimplementation phase of the IS implementation. This timing is particularly relevant because it represents a period in which employees form expectations and evaluate

potential disruptions to their work routines. Early-stage resistance and stress perceptions can shape long-term adoption outcomes [7].

Measures. We used established measurement scales to ensure validity and reliability. All items were measured using a seven-point Likert scale. Table A2 (Appendix) provides an overview of all measurement items and their loadings.

IS Use Stressors. We measured challenge IS use stressors using eight items derived from the IS literature [17], building on the challenge-hindrance stressor framework [13,14]. These items capture the extent to which employees experience high workloads, time pressure, and skill demands while using IS in their daily work; for example, "I have to complete a lot of work using ICT." We also used seven items from Maier et al. [17] to measure hindrance IS use stressors. These items, such as "I have conflicts with peers about using ICT," reflect constraints caused by IS use, such as unclear system functionalities, system failures, and conflicts related to IS use. Both measures have been used in IS research and have demonstrated high construct validity [17], so we did not modify them.

Affect. We measured affect using the Positive and Negative Affect Schedule (PANAS) developed by Watson et al. [20], which is commonly used in IS research (e.g., [15]) to assess how individuals have felt over the previous several days. Positive affect was measured using five items (e.g., enthusiastic, excited, inspired), as was negative affect (e.g., nervous, irritable, distressed). Both subscales have demonstrated high reliability and construct validity in previous studies [15], so we did not modify them.

Emotion regulation. Cognitive reappraisal was measured using six items from the Emotion Regulation Questionnaire [23], a well-established measure in psychology. It captures the extent to which individuals reframe or reinterpret stressful situations to regulate their emotions; for example, "when I want to feel more positive emotion, I change the way I'm thinking about the situation." We used four items to measure expressive suppression [23], such as "I keep my emotions to myself." This scale assesses the extent to which individuals suppress the outward expression of emotions. Both scales did not need any modifications.

User Resistance. We measured user resistance with a four-item scale [2]. This scale captures the extent to which employees oppose the IS implementation, refuse to cooperate, or actively resist the system change. An example item is "I will not comply with the change to the new IS." As this measurement has been validated in IS research, no modifications were made to the scale.

Sample Characteristics. To collect data for our survey, we collaborated with C-level managers of the organization. Our study was conducted during the lockdown phases of the COVID-19 pandemic. In response to COVID-19 restrictions preventing employees from working in their office, the organization implemented a policy requiring employees to self-administer COVID-19 tests. Those who tested negative were allowed to work in their office, provided that they followed established safety guidelines. At the time of our study, the organization had 212 employees working on-site. In the summer of 2021, the C-level manager approved our request to include certain employees in our survey. Although we could not extend this invitation to remote workers, this approach helped us maintain a stable and consistent work environment for all participating employees. Of those 212 invited employees, 185 completed the survey, and we used their responses to test our hypotheses. As a result, we achieved a response rate of 87.3% based on our target group of employees working in the office only. The demographics of the participants are illustrated in Table 1. Overall, 65% were male (in line with the organizational distribution), and the average age was 37.5 years. All employees worked at least 25 h a week.

Table 1
Demographics of the survey participants (N = 185).

Demographics (in%)		
Sex	35% female, 65% male	
Age (mean 37.5)	<20	1.6
	20–29	30.1
	30–39	42.1
	40–49	15.8
	50–59	7.7
	>59	2.7
Education level	High school	28.6
	Bachelor's degree	11.9
	Post-graduate degree	59.5
Employment	Part-time (>25 h)	27.0
	Full-time (>35 h)	73.0
Profession	IS professional	45.9
	other	54.1

4. Results and hypothesis testing

We tested our hypotheses using partial least squares path modeling (PLS) and SmartPLS. Our data sample is large enough to evaluate the research model when adhering to the widely accepted rule of 10, as well as when meeting the requirements of Steiger's gamma (with $\gamma = 0.95$; $\alpha = 0.05$; power = 0.90; calculated minimum sample size = 114.1) and RMSEA ($\alpha = 0.05$; power = 0.90; calculated minimum sample size = 81.0). Apart from that, we conclude that common method bias (CMB) and reverse causality might not distort our results (Appendix).

Measurement model. Reflective indicators measure all constructs. We validated the measurement model by ensuring content validity, indicator reliability, construct reliability, and discriminant validity [30]. Concerning content validity, we used items from existing research that have proven valid (Appendix). Concerning indicator reliability, which indicates the proportion of an indicator's variance attributable to the latent variables, we ensured that at least 50% of an indicator's variance originated from the latent variables. All factor loadings exceeded the recommended threshold of 0.7 [31] and were highly significant (Appendix). We also performed an exploratory factor analysis (EFA), which revealed seven distinct constructs: challenge IS use stressors, hindrance IS use stressors, positive affect, negative affect, cognitive reappraisal, expressive suppression, and user resistance. We focused on composite reliability (CR) and average variance extracted (AVE) to assess construct reliability. To ensure construct reliability, CR should be higher than 0.7 and AVE higher than 0.5 [32]. The calculated CR and AVE values exceeded those thresholds (Table 2). Discriminant validity refers to the extent to which measurement items differ from each other [33]. We illustrate the square root values of AVE in the diagonal of the bivariate correlations (Table 2) and show that these values were greater than the corresponding construct correlations [32,34]. We also used the heterotrait-monotrait (HTMT) ratio of correlations criterion to assess discriminant validity [35]. We used the absolute HTMT 0.85 criterion, which indicated that discriminant validity is not an issue, as the highest value was 0.736 and occurred between positive affect and challenge IS use stressors. In addition, we tested for multicollinearity and used the variance inflation factor (VIF). We adhered to existing recommendations that VIF values should be lower than 5 and, in our case, the highest outer VIF value was 4.273 (item 2 of positive affect), and the highest inner VIF value was below 3 (negative affect and hindrance IS use stressor). Based on the foregoing, we conclude that our measurement model is valid for presenting the structural model.

Structural model. We used the coefficient of determination (R^2), the significance levels of each path coefficient, the moderation effects, and the standardized root mean square residual (SRMR) to evaluate the structural model. As illustrated in Fig. 1, the R^2 values indicate that we explain 54.3% of the variance of positive affect, 22.0% of the variance of negative affect, and 34.3% of the variance of user resistance. Concerning the path coefficient, we conclude that challenge IS use stressors have a significant influence on positive affect (H1a supported; β=0.526, $p < 0.001$) and that hindrance IS use stressors significantly influence negative affect (H1b supported; β=0.471, $p < 0.001$). We further see that positive affect (H2a supported; β=−0.101, $p < 0.05$) and negative affect

Table 2
Cronbach's alpha, CR, AVE, and bivariate correlations.

#	Construct	Mean	SD	C. α	CR	AVE	1	2	3	4	5	6	7
1	Challenge IS use stressor	4.93	1.44	0.92	0.94	0.65	0.81						
2	Hindrance IS use stressor	4.34	1.64	0.92	0.93	0.66	0.46	0.81					
3	Positive affect	4.97	1.58	0.92	0.94	0.76	0.67	0.42	0.87				
4	Negative affect	3.26	1.61	0.92	0.94	0.76	0.00	0.29	−0.01	0.87			
5	Cognitive reappraisal	4.74	1.36	0.88	0.91	0.62	0.46	0.48	0.58	−0.14	0.79		
6	Expressive suppression	4.83	1.38	0.87	0.91	0.72	0.42	0.55	0.47	0.02	0.59	0.85	
7	User resistance	3.97	1.77	0.88	0.92	0.73	0.09	0.27	0.09	0.39	0.15	0.39	0.85

Note: Square root of AVE is listed on the diagonal

(H2b supported; β=0.379, $p < 0.001$) have a significant influence on user resistance. The interaction between challenge IS use stressors and cognitive reappraisal was not statistically significant (β=0.018, $p > 0.05$), so H3a is not supported. A possible explanation for this insignificant finding is that challenge stressors are appraised as beneficial by default [17], leaving little room for cognitive reappraisal to further enhance their emotional impact. In such cases, users may already experience positive affect regardless of how they cognitively frame the situation. In contrast, the interaction between hindrance IS use stressors and cognitive reappraisal was statistically significant and negative (β=−0.170, $p < 0.05$), which supports H3b. The interaction between positive affect and expressive suppression was not statistically significant (β=−0.095, $p > 0.05$), so H4a is not supported. Here, one explanation might be that positive affect, once experienced, directly fosters the use of new IS regardless of whether it is outwardly expressed, and expressive suppression may be more relevant in downregulating negative emotions. The interaction between negative affect and expressive suppression was statistically significant and negative (β=−0.173, $p < 0.05$) which supports H4b. Concerning the moderation effects, we then assess the strength of moderating effects and follow the recommendation to use ΔR^2 or effect size (f^2) [36]. ΔR^2 quantifies the additional variance in the dependent variable explained by the interaction term, while f^2 measures the magnitude of the moderation effect. Fig. 1 reports the ΔR^2 value, showing an increase in the R^2 of negative affect of 3.2 percentage points and an increase in the R^2 of user resistance of 3.8 percentage points. Corresponding f^2 values dropped between 0.041 and 0.058. Following Kenny [37], who recommended using thresholds for moderation effect sizes of small (0.005), medium (0.01), and large (0.025), the moderation effects had a large strength of effect. As positive and negative affect are central to our research model, we also ran a mediation analysis, which showed that challenge IS use stressors had a negative indirect effect on user resistance via positive affect ($\beta = -0.06$, $p < 0.05$), and that hindrance IS use stressors had a positive indirect effect on user resistance via negative affect (β=0.18, $p < 0.01$). Finally, an SRMR value of 0.061, less than the recommended maximum value of 0.10 or 0.08 [38], demonstrates a good fit.

Confirmation of results. We repeated our calculation to confirm the presented findings by adding control variables. While the organization restricted the possibility of collecting a large number of control variables, we included colleague opinion and some demographic variables, such as age and gender, in our survey. In line with the existing literature [2], we added colleague opinion as a statistical covariate reflecting user resistance. Furthermore, we considered age and gender as statistical covariates of all constructs included in our research model. When repeating the analysis with this adapted research model, we found that age and gender were not significantly associated with any of those constructs in this specification. Colleague opinion was not significantly associated with user resistance ($\beta = 0.062$, $p > 0.05$). The effects included in the main research model (Fig. 1) did not change in terms of significance levels, and the R^2 values of user resistance (R^2=34.8% with controls, R^2=34.3% without controls) increased only slightly.

Overall, these analyses increase confidence in the robustness of the identified effects, although future research should further examine them using alternative methods and additional variables. We ran several other models that confirmed our research model and approach (see the post hoc analysis in the Appendix).

5. Discussion

5.1. Theoretical contributions

Our results contribute to the user resistance literature, the IS use stress literature, and the emotion regulation literature. Our study advances user resistance research by adding an affective perspective to the dominant cognitive explanation of user resistance. Previous work has explained user resistance through perceived threats associated with the new IS [3], cognitive preferences for the status quo, such as sunk costs, habit, and status quo bias [2], and disruptions to work routines during implementation [4,5]. These explanations remain central without focusing attention on how employees' ongoing affective experiences with current IS use influence user resistance. Our findings complement this perspective by showing that IS use stressors influence user resistance through affect, challenge IS use stressors reduce resistance through positive affect, whereas hindrance IS use stressors increase resistance through negative affect. Resistance is therefore more than a cognitive response to expected losses, threats, or status quo preferences we provide empirical evidence and theoretical reasons demonstrating that it is also an affective response rooted in prior and ongoing IS use experiences.

Our study advances IS use stress research by identifying user resistance as an implementation-related outcome of affective responses. Prior technostress research has shown that IS-related demands influence strain and behaviors [9–12]. Moreover, more recent work distinguishes challenge and hindrance IS use stressors to explain different outcomes of IS use [15–17]. We extend this research stream by showing that challenge and hindrance IS use stressors also matter, especially for user resistance toward a new IS. This finding broadens IS use stress research from postadoption reactions to implementation-related user resistance and specifies affect as the underlying theoretical reason connecting IS use stress to preimplementation behaviors.

Our study introduces emotion regulation with cognitive reappraisal and expressive suppression that have influence at different points. So far, stressor–strain–outcome models often imply that comparable stressors produce comparable strain and behavioral outcomes. Our findings show why this varies across employees. Cognitive reappraisal influences the relationship between hindrance IS use stressors and negative affect, whereas expressive suppression influences the relationship between negative affect and user resistance. This finding supports Gross's process model in an IS implementation context [21–23,25] and leads us to conclude that emotion regulation explains when and for whom IS use stressors become resistance.

5.2. Future research implications

Our study informs future research by clarifying how IS use stress and resistance should be theorized more dynamically, contextually, and

precisely. First, future work should examine temporal dynamics across IS implementation phases. Because preimplementation impressions shape later support and behavior [4,5], longitudinal designs that repeatedly measure stressors, affect, regulation, and resistance would allow scholars to capture how affective baselines evolve and how spillover effects unfold over time. Such designs could clarify whether and how early IS-related affect persists, intensifies, or attenuates throughout implementation. In addition, future research should theorize more explicitly how organizational factors, such as support structures, training quality, and implementation communication [11], shape the stressor–affect–resistance process and interact with individual emotion regulation. This would embed regulation processes within the broader organizational context in which IS implementation unfolds.

Second, our findings call for a more systematic examination of how IS use stressors are perceived and differentiated. While prior work has extensively examined the causes and consequences of hindrance IS use stressors [9], research on challenge IS use stressors has focused primarily on their consequences [15–17]. Our study follows this pattern, but we argue that an important next step is investigating which factors influence challenge IS use stressors. Understanding why and under what conditions users experience IS-related demands as challenges rather than as hindrances could substantially advance stress theorizing. Future research could examine how technological characteristics [9,39], implementation design choices, and individual differences [40] shape these perceptions.

Third, our results highlight the importance of theorizing emotion regulation with greater conceptual precision. Future studies should clearly distinguish emotion regulation from broader coping constructs to increase construct validity and avoid theoretical overlap, given that regulation targets affect generation and expression rather than general demand management [21]. Beyond cognitive reappraisal and expressive suppression, research could explore additional regulation strategies and their potential synergistic or compensatory effects. For instance, examining how different strategies interact, particularly in contexts where users engage in mindful behavior [41], may provide deeper insight into how affective responses to IS use stressors can be optimized. Moreover, given that the interaction effects involving challenge stressors were not statistically significant in our study, future research should investigate the conditions under which positive affect translates into reduced resistance and whether regulation operates differently for challenge pathways versus hindrance pathways.

Together, these avenues encourage more temporally sensitive, contextually embedded, and construct-precise theorizing on why general IS use stress translates into resistance and how organizations can intervene early and effectively during IS implementations.

5.3. Practical implications

Our study implies that organizations should diagnose and reduce hindrance IS use stressors early because they increase negative affect, which in turn increases resistance. Practically, managers should identify recurring hindrance sources (e.g., breakdowns, unclear functionalities, process disruptions) and reduce them before major rollout, because hindrance stressors are consistently linked to negative affect and downstream adverse outcomes in IS use contexts [10,11,15]. This is especially relevant in the preimplementation phase, when employees form early impressions that shape subsequent participation and support [4,5].

Our study also implies that implementation planning should treat affect as an early indicator of resistance risk, not as a secondary byproduct. Because affect is a proximal response to appraised demands, organizations can use short pulse surveys during training, pilots, and communication waves to detect rising negative affect and address underlying hindrance stressors through targeted system fixes, workflow clarification, and user-facing guidance [11,15,18]. This approach supports earlier diagnosis rather than waiting for overt resistance behaviors after go-live [2,4].

Our study further implies that organizations can reduce resistance by supporting cognitive reappraisal during preimplementation activities. Because reappraisal changes how demands are interpreted before affect is fully generated, managers can encourage reappraisal through structured sensemaking and reframing (e.g., clarifying controllable next steps, explaining temporary constraints, highlighting mastery opportunities in training), which should attenuate negative affect under hindrance stressors [21,24,25]. Beyond reducing hindrance stressors, organizations may also foster users' digital mindset to help employees interpret demanding digital work situations as manageable and development-oriented rather than merely obstructive [42]

Finally, our study implies that managers should not infer low negative affect from low emotional expression during implementations. Expressive suppression inhibits emotional expression after affect is generated and can weaken the translation of negative affect into resistance, but suppression is also associated with costs, such as lower emotional awareness and reduced help-seeking [21,23]. Thus, organizations should provide low-cost feedback and support channels that reduce negative affect and hindrance stressors directly, rather than relying on suppression as a durable solution [11,15].

6. Limitations

We collected data from only one organization, and IS use stressors might have different effects in other organizations; for instance, other technologies might be used. We also collected data during the COVID-19 pandemic. Even though our survey participants worked in the organization (e.g., due to a test concept), the timing might influence how users evaluated the survey; for example, other aspects related to COVID-19 might be relevant for negative effects. These issues might influence the generalizability of our results, among other effects.

In addition, our study used self-reported data to measure user resistance. While subjective measures are commonly used in this field and provide valuable insights into individual perceptions and experiences, ideally, objective measures of participants' usage might complement those self-reported data. In our context, the organization does not systematically track relevant behavioral indicators to understand employees' user resistance behavior, such that future research could explore ways to integrate objective measures when feasible to enhance the robustness of findings. In this study, the organization selected the employees who were invited to participate. While the company's C-level executives confirmed that the sample represented a cross-section of employees, we were unable to validate its representativeness beyond those working only in the office, which might imply a potential selection bias, as employees included in the study might have been chosen based on factors related to their job roles, IT dependency, or remote work requirements. More specifically, our data were only collected from employees who participated in the survey, and no demographic or contextual information was available for nonrespondents, as the organization did not provide further information. As a result, we could not directly account for potential selection bias or perform further analyses (i.e., Heckman selection model test), such that future research should aim to replicate these findings. Despite this limitation, we emphasize that gaining access to organizational data on technostress during an IS implementation was a valuable opportunity, and future research might further confirm our findings. Hence, our data sample excluded remote workers, as data collection was restricted to onsite employees. While this approach ensured a consistent work environment among participants, it may limit the generalizability of our findings to hybrid or remote work settings.

We suggest that remote workers may experience different IS use stressors, varying in their reliance on digital communication or autonomy, such that future research should explore whether the identified effects hold in remote or hybrid work environments. Apart from that, endogeneity is a potential concern in survey-based research that can

arise from reverse causality, omitted variable bias, and simultaneity bias. In our research model, endogeneity could be relevant in several relationships, such as the relationship between affect and user resistance, in which resistant users might experience stronger negative affect or reduced positive affect as a result rather than a cause of their resistance. To address these concerns, we tested alternative model specifications by reversing key causal directions, which did not yield significantly stronger model fits or theoretical plausibility. Given this, we conclude that although endogeneity cannot be ruled out entirely in nonexperimental designs, its impact on our findings should be minimal, especially because our research is based on well-known theoretical arguments and literature.

7. Conclusion

Here we provide evidence that emotion regulation shapes specific links in an affect-based IS stress process explanation of user resistance in the preimplementation phase. Cognitive reappraisal weakens the relationship between hindrance IS use stressors and negative affect, and expressive suppression weakens the relationship between negative affect and user resistance. These results increase the theoretical precision as to when and for whom IS use stressors translate into resistance through affect and support earlier diagnosis and intervention in IS implementation initiatives.

CRediT authorship contribution statement

Christian Maier: Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Sven Laumer:** Writing – review & editing. **Tim Weitzel:** Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix

The following table summarizes representative work that examines cognitive reappraisal and/or expressive suppression in stress- and affect-related contexts relevant to our theorizing.

Table A1
Previous research.

Article	Expressive suppression	Cognitive reappraisal	Context	Affect	IS use stress	Variables in detail	Main finding/s
[44]	X	X	Stress			Abusive Supervision, Emotional Exhaustion, Work withdrawal	Expressive suppression strengthens and cognitive reappraisal weakens the positive relationship between abusive supervision and both emotional exhaustion and work withdrawal.
[43]		X	Unethical behavior			Observed unethical behavior, Envy, Moral Disengagement, Unethical behavior	Individuals high in cognitive reappraisal experience less envy when observing unethical behavior and are therefore less likely to deviate from moral standards.
[45]	X	X	Relationship conflict			Relationship conflict, Team coordination, Interpersonal processes,	Teams with early-stage relationship conflict recover better over time when members use cognitive reappraisal to reinterpret threats
[46]	X		Leadership			Leadership type (charismatic vs. individually considerate)	Charismatic leadership promotes expressive suppression, whereas individualized consideration fosters emotional expression.
[47]	X		Anxiety			Covid-19 anxiety, Psychological Need fulfillment,	COVID-19-related anxiety increases emotion suppression, which in turn reduces psychological need fulfillment.
[48]		X	Organizational citizenship behaviors			Promotion focus, Prevention focus, Emotional exhaustion	Cognitive reappraisal buffers the relationship between prevention focus and emotional exhaustion, but has no effect for promotion focus.
[49]	X		Task performance			Persistence, avoidance	Neutral display rules lead to greater expressive suppression, which lowers task persistence and increases task avoidance.
[50]	x		Stress			Emotional culture, Job autonomy, Emotional exhaustion, Job satisfaction	Expressive suppression is positively related to emotional exhaustion across a wide range of occupations and countries.
[51]	x		Stress	x		Customer incivility, Positive affect, Emotional exhaustion, Psychological vitality	Expressive suppression harms psychological vitality and increases emotional exhaustion.
[52]	x	X	Stress			Work strain	Surface acting increases work strain, while the effect of deep acting depends on the type of emotion regulation, either increasing or decreasing strain.
[53]	x	X	Leadership			Attachment anxiety, Attachment avoidance, Leader-member exchange quality	Individuals with attachment anxiety form higher-quality leader–member exchange relationships when they use effective emotion regulation strategies.
[54]	x	X	Leadership	x		Attachment orientation (avoidance, anxiety), Affect, Job satisfaction	Leader anxiety reduces followers' negative affect when followers use reappraisal, but increases it when followers use suppression. In suppression cultures, subordinates with higher suppression

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Table A1 (*continued*)

Article	Expressive suppression	Cognitive reappraisal	Context	Affect	IS use stress	Variables in detail	Main finding/s
							tendencies perceive avoidant leaders as more leader-like.
[55]	x	X	Task performance			Event (task) performance, Well-being	Disengagement strategies such as suppression improve event performance but harm well-being, while engagement strategies like reappraisal improve well-being but reduce performance.
This study	x	X	Preimplementation	x	x	IS use stressors, positive and negative affect, user resistance	

Common method bias. Because self-reported survey designs can inflate common CMB [56], we assessed for CMB in our data. To determine the extent of CMB, we ran three different tests. The first was Harman's single-factor test, which indicates whether the majority of the variance can be explained by a single factor. We found that only 32.2% of the data variance was explained by one factor. Second, our research model includes a marker variable: "*I like chocolate much more than doing sport*". We tested that this marker variable was not highly correlated with other constructs considered in our study. To do this, we followed the technique suggested by Lindell and Whitney [57] and the recommendation of Chin et al. [58] of the a priori choice of a theoretically unrelated marker variable. We used the second-smallest positive correlation among the constructs measured and the marker variable (0.03), then developed a CMB-adjusted correlation matrix to examine the structural relationships in the research model. Our results indicate that the directions and significance levels of the paths remained unchanged. Third, we examined the correlation matrix, as Pavlou et al. [59] specified. Extremely high correlations ($r > 0.90$) indicate CMB, but our correlation matrix did not indicate such high correlations. Based on those three tests, we conclude that CMB does not significantly distort our findings.

Test for potential reverse causality. We then assessed potential reverse causality, estimating an alternative model in which user resistance influences affect, which in turn influences IS use stressors. This reversed specification resulted in a substantial decline in explained variance (R^2) for positive affect (R^2=4.5%) and negative affect (R^2=10.9%), among others. Moreover, the reversed paths lack theoretical arguments in the IS use stress literature. These results indicate that reverse causality is unlikely to account for our findings.

Robustness tests. To further assess the robustness of our results against potential omitted variable bias, we calculated the Impact Threshold for a Confounding Variable (ITCV). The ITCV represents the minimum correlation that an unobserved confounder would need to exhibit with both the independent variable and dependent variable to eliminate an observed effect. The effects ranged from 0.162 (e.g., the moderator of expressive suppression of the relationship between negative affect and user resistance) to 0.239 (e.g., negative affect to user resistance). The lowest value can be seen for user resistance and the moderating effect of expressive suppression, with an ITCV of 0.162, which means that an unobserved confounding variable would need to correlate at least 0.162 with expressive suppression and user resistance to fully attenuate the observed moderation effect. Taken together, these ITCV values support the conclusion that our key findings are reasonably robust to potential omitted variable bias.

Measures. Table A2 presents the measures and corresponding loadings.

Table A2
Constructs, items, and loadings.

Construct	Item / Question	Loading
How often did you experience the following demands in your work during the last days.		
Challenge IS use stressor	I have to complete a lot of work using ICT.	0.740
	I have to work with very tight time schedules using ICT.	0.765
	I have to work at a rapid pace to complete all of my tasks using ICT.	0.817
	I have to perform complex tasks using ICT.	0.848
	I have to use a broad set of ICT-related skills and abilities.	0.813
	I have to balance several projects/tasks that require ICT use.	0.818
	I have to multitask assigned projects/tasks that require a lot of ICT use.	0.825
	I have high levels of ICT responsibilities.	0.813
Hindrance IS use stressor	I have several hassles using ICT (e.g., system breakdown, software updates)	0.702
	I have unclear instructions from my bosses on how to use ICT.	0.784
	I have to deal with unclear ICT features.	0.780
	I have conflicts using ICT.	0.865
	I have inadequate ICT resources to accomplish tasks.	0.802
	I have conflicts with peers about using ICT.	0.865
	I have disputes with coworkers about using ICT.	0.849
Indicate to what extent you have felt this way during the last days:		
Negative affect	Nervous	0.871
	Irritable	0.867
	Distressed	0.896
	Jittery	0.878
	Upset	0.859
Positive affect	Enthusiastic	0.845
	Excited	0.909
	Inspired	0.910
	Active	0.873
	Determined	0.829
Cognitive reappraisal	When I want to feel more positive emotions (such as joy or amusement), I change what I'm thinking about.	0.755
	When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about.	0.719
	When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.	0.776

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Table A2 (*continued*)

Construct	Item / Question	Loading
	When I want to feel more positive emotion, I change the way I'm thinking about the situation	0.836
	I control my emotions by changing the way I think about the situation I'm in.	0.822
	When I want to feel less negative emotion, I change the way I'm thinking about the situation	0.821
Expressive suppression	I keep my emotions to myself.	0.865
	When I am feeling positive emotions, I am careful not to express them.	0.835
	I control my emotions by not expressing them.	0.856
	When I am feeling negative emotions, I make sure not to express them.	0.839
User resistance	I will not comply with the change to the new IS.	0.852
	I will not cooperate with the change to the new IS.	0.857
	I oppose the change to the new IS.	0.881
	I do not agree with the change to the new way of working with the new IS.	0.826

Post hoc explanations. In addition to our findings, we further adapted the research model to test for alternative explanations. These tests revealed several interesting findings. First, IS use stressors also may have a direct influence on behavioral strain, such as user resistance [60]. Our findings indicate that hindrance IS use stressors (β=0.54, $p < 0.01$) significantly influence user resistance, while challenge IS use stressors (β=0.08, $p > 0.05$) were not significantly associated with user resistance in this model.

Second, there is an ongoing discussion on how far challenge IS use stressors can have negative effects and how hindrance IS use stressors might have positive effects [61]. We tested that by analyzing the influence of challenge IS use stressors on negative affect (β=0.03, $p > 0.05$) and hindrance IS use stressors on positive affect (β=−0.07, $p > 0.05$), revealing two insignificant influences.

Third, we base our argument on studies reporting that cognitive reappraisal and expressive suppression have only a moderate effect on different relationships. To provide a full understanding, we changed the moderators. We did not find statistically significant evidence indicating that expressive suppression moderates the relationships between IS use stressors on affect ($p > 0.05$) or supporting cognitive reappraisal as a moderator on the influence of affect on user resistance ($p > 0.05$). This indicates that the specificity of emotion regulation strategies matters, meaning that cognitive reappraisal targets antecedent-focused regulation of stressors and expressive suppression targets the level of emotional expression.

References

[1] H. Wimelius, L. Mathiassen, J. Holmström, M. Keil, A paradoxical perspective on technology renewal in digital transformation, Inform. Syst. J. 31 (1) (2021) 198–225.
[2] H.-W. Kim, A. Kankanhalli, Investigating user resistance to information systems implementation: a status quo bias perspective, MIS Q. 33 (3) (2009) 567–582.
[3] L. Lapointe, S. Rivard, A multilevel model of resistance to information technology implementation, MIS Q. 29 (3) (2005) 461–492.
[4] S. Laumer, C. Maier, A. Eckhardt, T. Weitzel, Work routines as an object of resistance during information systems implementations: theoretical foundation and empirical evidence, Eur. J. Inform. Syst. 25 (4) (2016) 317–343.
[5] L. Selander, O. Henfridsson, Cynicism as user resistance in IT implementation, Inform. Syst. J. 22 (4) (2012) 289–312.
[6] C. Maier, S. Laumer, J.B. Thatcher, J. Wirth, T. Weitzel, Trial-period technostress: a conceptual definition and mixed-methods investigation, Inform. Syst. Res. 33 (2) (2022) 489–514.
[7] A. Beaudry, A. Pinsonneault, Understanding user responses to information technology: a coping model of user adaptation, MIS Q. 29 (3) (2005) 493–524.
[8] C. Maier, S. Laumer, H. Sun, J.B. Thatcher, T. Weitzel, Proposing shocks and dissatisfaction to explain quitting and switching a service: an image theory perspective, J. Assoc. Inf. Syst. 25 (2) (2024) 362–406.
[9] R. Ayyagari, V. Grover, R. Purvis, Technostress: technological antecedents and implications, MIS Q., 35 (4) (2011) 831–A10.
[10] T.S. Ragu-Nathan, M. Tarafdar, B.S. Ragu-Nathan, Q. Tu, The consequences of technostress for end users in organizations: conceptual development and empirical validation, Inform. Syst. Res. 19 (4) (2008) 417–433.
[11] M. Tarafdar, C.L. Cooper, J.-.F Stich, The technostress trifecta - techno eustress, techno distress and design: theoretical directions and an agenda for research: theoretical directions and an agenda for research, Inform. Syst. J. 29 (1) (2019) 6–42.
[12] M. Tarafdar, C. Maier, S. Laumer, T. Weitzel, Explaining the link between technostress and technology addiction for social networking sites: a study of distraction as a coping behavior, Inform. Syst. J. 30 (1) (2020) 96–124.
[13] M.A. Cavanaugh, W.R. Boswell, M.V. Roehling, J.W. Boudreau, An empirical examination of self-reported work stress among U.S. managers, J. Appl. Psychol. 85 (1) (2000) 65–74.
[14] J.A. LePine, N.P. Podsakoff, M.A. LePine, A meta-analytic test of the challenge stressor-hindrance stressor framework: an explanation for inconsistent relationships among stressors and performance, Acad. Manage. J. 48 (5) (2005) 764–775.
[15] A. Benlian, A daily field investigation of technology-driven spillovers from work to home, MIS Q. 44 (3) (2020) 1259–1300.
[16] C.B. Califf, S [Saonee] Sarker, S [Suprateek] Sarker, The bright and dark sides of technostress: a mixed-methods study involving healthcare IT, MIS Q. 44 (2) (2020) 809–856.
[17] C. Maier, S. Laumer, M. Tarafdar, J. Mattke, L. Reis, T. Weitzel, Challenge and hindrance IS use stressors and appraisals: explaining contrarian associations in post-acceptance IS use behavior, J. Assoc. Inf. Syst. 22 (2021) 1590–1624.
[18] R.S. Lazarus, S. Folkman, Stress, appraisal, and Coping, Springer Pub. Co, 1984.
[19] L. Reis, C. Maier, J. Mattke, T. Weitzel, Why AI doesn't fly: a case study exploring the implementation failure of cognitive agents in healthcare, MIS Q. Executive (2020).
[20] D. Watson, L.A. Clark, A. Tellegen, Development and validation of brief measures of positive and negative affect: the PANAS scales, J. Pers. Soc. Psychol. 54 (6) (1988) 1063–1070.
[21] J.J. Gross, The emerging field of emotion regulation: an integrative review, Rev. General Psychol. 2 (3) (1998) 271–299.
[22] J.J. Gross, Emotion regulation: affective, cognitive, and social consequences, Psychophysiology 39 (3) (2002) 281–291.
[23] J.J. Gross, O.P. John, Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being, J. Pers. Soc. Psychol. 85 (2) (2003) 348–362.
[24] R.A. Thompson, Emotion regulation: conceptual foundations, in: J.J. Gross, J. J. Gross (Eds.), Handbook of Emotion Regulation, Guilford Press, 2007, pp. 3–24.
[25] T.L. Webb, E. Miles, P. Sheeran, Dealing with feeling: a meta-analysis of the effectiveness of strategies derived from the process model of emotion regulation, Psychol. Bull. 138 (4) (2012) 775–808.
[26] M. Tarafdar, R.M. Davison, Research in information systems: intra-disciplinary and inter-disciplinary approaches, J. Assoc. Inf. Syst. 19 (6) (2018) 523–551.
[27] O.P. John, J.J. Gross, Healthy and unhealthy emotion regulation: personality processes, individual differences, and life span development, J. Pers. 72 (6) (2004) 1301–1334.
[28] A. Aldao, S. Nolen-Hoeksema, S. Schweizer, Emotion-regulation strategies across psychopathology: a meta-analytic review, Clin. Psychol. Rev. 30 (2) (2010) 217–237.
[29] L. Wessel, A. Baiyere, R. Ologeanu-Taddei, J. Cha, T. Blegind Jensen, Unpacking the difference between digital transformation and IT-enabled organizational transformation, J. Assoc. Inf. Syst. 22 (1) (2021) 102–129.
[30] R.P. Bagozzi, The role of measurement in theory construction and hypothesis testing: toward a holistic model, in: O.C. Ferrell, S.W. Brown, C.W. Lamb (Eds.), Conceptual and Theoretical Developments in Marketing, American Marketing Assoc, 1979, pp. 15–32.
[31] E.G. Carmines, R.A. Zeller, Reliability and Validity Assessment, Sage publications, 1979.
[32] C. Fornell, D.F. Larcker, Evaluating structural equation models with unobservable variables and measurement error, J. Market. Res. 18 (1) (1981) 39–50.
[33] D.T. Campbell, D.W. Fiske, Convergent and discriminant validation by the multitrait-multimethod matrix, Psychol. Bull. 56 (2) (1959) 81–105.
[34] J.S. Hulland, Use of partial least squares (PLS) in strategic management research: a review of four recent studies, Strateg. Manage J. 20 (2) (1999) 195–204.
[35] J. Henseler, C.M. Ringle, M. Sarstedt, A new criterion for assessing discriminant validity in variance-based structural equation modeling, J. Acad. Market. Sci. 43 (1) (2015) 115–135.

[36] T.A. Carte, C.J. Russell, In pursuit of moderation: nine common errors and their solution, MIS Q. 27 (3) (2003) 479–501.
[37] D.A. Kenny, Mediation. http://davidakenny.net/cm/mediate.htm#ST, 2008.
[38] L. Hu, P. Bentler, Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives, Struct. Equ. Model. 6 (1) (1999) 1–55.
[39] N. Platzer, F. Stoeckl, C. Maier, A. Eckhardt, Why ex-users come back: revealing characteristics and patterns of information system use resumption, Inform. Manage. 62 (3) (2025) 104106.
[40] C. Maier, S. Laumer, J. Wirth, T. Weitzel, Technostress and the hierarchical levels of personality: a two-wave study with multiple data samples, Eur. J. Inform. Syst. 28 (5) (2019) 496–522.
[41] A. Khedhaouria, C. Maier, Same technostress situation but different responses: a trait activation theoretical perspective on IT mindfulness in remote work, Inform. Manage. 62 (5) (2025) 104136.
[42] M. Valta, Y. Hildebrandt, C. Maier, Fostering the digital mindset to mitigate technostress: an empirical study of empowering individuals for using digital technologies, Internet Res. 34 (6) (2024) 2341–2369.
[43] C.E. Thiel, J.M. Bonner, J.T. Bush, D.T. Welsh, R. Pati, Rationalize or reappraise? How envy and cognitive reappraisal shape unethical contagion, Pers. Psychol. 74 (2) (2021) 237–263.
[44] S.-C.S. Chi, S.-G. Liang, When do subordinates' emotion-regulation strategies matter? Abusive supervision, subordinate emotional exhaustion, and work withdrawal, Leadersh. Q. 24 (1) (2013) 125–137.
[45] C.E. Thiel, J. Harvey, S. Courtright, B. Bradley, What doesn't kill you makes you stronger: how teams rebound from early-stage relationship conflict, J. Manage 45 (4) (2019) 1623–1659.
[46] J.I. Menges, M. Kilduff, S. Kern, H. Bruch, The awestruck effect: followers suppress emotion expression in response to charismatic but not individually considerate leadership, Leadersh. Q. 26 (4) (2015) 626–640.
[47] J.P. Trougakos, N. Chawla, J.M. McCarthy, Working in a pandemic: exploring the impact of COVID-19 health anxiety on work, family, and health outcomes, J. Appl. Psychol. 105 (11) (2020) 1234–1245.
[48] J. Koopmann, R.E. Johnson, M. Wang, K. Lanaj, G. Wang, J. Shi, A self-regulation perspective on how and when regulatory focus differentially relates to citizenship behaviors, J. Appl. Psychol. 104 (5) (2019) 629–641.
[49] J.P. Trougakos, C.L. Jackson, D.J. Beal, Service without a smile: comparing the consequences of neutral and positive display rules, J. Appl. Psychol. 96 (2) (2011) 350–362.
[50] A.A. Grandey, G.M. Fisk, D.D. Steiner, Must "service with a smile" be stressful? The moderating role of personal control for American and French employees, J. Appl. Psychol. 90 (5) (2005) 893–904.
[51] J.M. Diefendorff, A.S. Gabriel, M.T. Nolan, J. Yang, Emotion regulation in the context of customer mistreatment and felt affect: an event-based profile approach, J. Appl. Psychol. 104 (7) (2019) 965–983.
[52] S. Côté, A social interaction model of the effects of emotion regulation on work strain, Acad. Manage. Rev. 30 (3) (2005) 509–530, https://doi.org/10.5465/amr.2005.17293692.
[53] D.A. Richards, R.D. Hackett, Attachment and emotion regulation: compensatory interactions and leader–member exchange, Leadersh. Q. 23 (4) (2012) 686–701.
[54] K. Kafetsios, M. Athanasiadou, N. Dimou, Leaders' and subordinates' attachment orientations, emotion regulation capabilities and affect at work: a multilevel analysis, Leadersh. Q. 25 (3) (2014) 512–527.
[55] R.C. Melloy, G.M. Sayre, A.A. Grandey, Emotion regulation during hostile interactions: optimizing regulation profiles for event performance and well-being, J. Manage. 52 (2) (2026) 828–861.
[56] P.M. Podsakoff, S.B. MacKenzie, J.-.Y. Lee, N.P Podsakoff, Common method biases in behavioral research: a critical review and recommended remedies, J. Appl. Psychol. 88 (5) (2003) 879–903.
[57] M.K. Lindell, D.J. Whitney, Accounting for common method variance in cross-sectional research designs, J. Appl. Psychol. 86 (1) (2001) 114–121.
[58] W. Chin, J.B. Thatcher, R.T. Wright, Assessing common method bias: problems with the ULMC technique, MIS Q. 36 (3) (2012) 1003–1019.
[59] P.A. Pavlou, H. Liang, Y. Xue, Understanding and mitigating uncertainty in online exchange relationships: a principal–agent perspective, MIS Q. 31 (1) (2007) 105–136.
[60] K. Pflügner, C. Maier, J. Thatcher, J. Mattke, T. Weitzel, Deconstructing technostress: a configurational approach to explaining job burnout and job performance, MIS Q. 48 (2) (2024) 679–698.
[61] M. Tarafdar, J.-F. Stich, C. Maier, S. Laumer, Techno-eustress creators: conceptualization and empirical validation, Inform. Syst. J. 34 (6) (2024) 2097–2131.

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