The Impact of SaaS Platform Disruptions and Its Effects on Teamwork and Well-Being of Multidisciplinary Teams

[1]Sahana S, [2]Prabasan Arunachalam, [3]Prashanth KC
[12] *Master's Student, Master of Design Space, National Institute of Fashion Technology, Bengaluru*
[3]*Associate Professor, Master of Design Space, National Institute of Fashion Technology, Bengaluru*
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Abstract- **Purpose – This study examines how Software-as-a-Service platform disruptions affect teamwork and psychological well-being among Designers, Engineers, and Project Managers.**
Design/methodology/approach – A 15-item survey instrument was developed across four constructs: vendor communication transparency, collaborative agency and workflow disruption, psychological impact, and data integrity perception. Data were collected from professionals who regularly use collaborative digital platforms. Spearman rank-order correlation analysis was used to analyse the ordinal Likert-scale responses, and reliability was assessed using Cronbach's alpha.
Findings – Poor vendor communication showed a strong relationship with feelings of helplessness during disruptions. Task coordination was identified as the most affected aspect of teamwork, while maintaining composure during outages received the lowest agreement among respondents. The findings also confirmed the presence of a "stale data trap," where users were uncertain about the accuracy and currency of post-outage data. The survey instrument demonstrated strong internal reliability with a Cronbach's alpha value of 0.89.
Practical implications – The study highlights the need for clearer outage communication from vendors and improved interface features that help users verify data integrity after service restoration. It also emphasises the importance of contingency planning within teams.
Originality/value – The research contributes to understanding Software-as-a-Service disruptions as both a technical and human-centred issue affecting collaboration, stress, and trust in digital work environments.

Keywords: cognitive overload at work, data integrity after system failure, digital workplace disruption, platform downtime and productivity, project management tool outage, remote work tool dependency, SaaS outage impact, SaaS reliability and employee well-being, SaaS vendor communication, software downtime stress, stale data in collaborative platforms, team collaboration breakdown, workplace anxiety and technology

I. INTRODUCTION

A. Background and Context

Most modern workplaces now depend on online software tools to get work done. Designers use Figma to work together on designs. Developers use GitHub or Jira to manage code and tasks. Project managers use tools like Notion or Asana to track timelines. These are all examples of Software-as-a-Service (SaaS) tools meaning they run online and people access them through a browser, rather than installing them on a computer (Deschênes, 2024).

The main benefit of these tools is that many people can work on the same thing at the same time, even if they are in different places. But there is one big problem: these tools only work properly when the internet is stable and the platform itself is running without issues. When something goes wrong like the platform going down, loading very slowly, or not saving changes it creates problems for the whole team, not just one person (Berger et al., 2024; Tarafdar et al., 2007).

This kind of problem is called a SaaS disruption. It can be a total outage where nothing works at all, or it can be something smaller, like when the tool is working but not syncing changes properly. Either way, when a disruption happens, teams suddenly find it very hard to continue their work. This study was carried out to understand what exactly happens to teams during these disruptions both in terms of how well they can work together and how they feel emotionally (Koenkytö, 2025).

B. The Problem

When a SaaS platform stops working or starts behaving unexpectedly, the people using it are usually

the last to know what is actually happening. They might see a spinning loading icon, or a vague message saying 'we are experiencing some issues.' There is rarely a clear explanation of what went wrong, how serious it is, how long it will take to fix, or whether the data they were working on is safe.

This creates three main problems. First, people lose the ability to do their jobs properly they cannot coordinate tasks or share updates with each other. Second, they start to feel anxious and helpless because they have no control over the situation. Third, even when the tool comes back online, they are not sure whether the information they see is current or if it is old data from before the outage. This last problem is what this study calls the 'Stale Data Trap.'

C. Research Questions

This study is guided by three main questions:

- Does the way a SaaS company communicates during an outage affect how anxious or helpless users feel?
- Do different team roles like Designers, Engineers, and Project Managers experience the outage differently?
- What kind of on-screen signals help users figure out whether their data is up to date or outdated?

D. Hypotheses

H1: Small and unpredictable disruptions like slow loading or broken integration cause more stress than full outages. This is because full outages are obvious and people can respond immediately, while smaller glitches keep people in a constant state of not knowing whether the tool is working or not.

H2: When a team's shared digital workspace breaks down, the whole team loses the ability to coordinate and make decisions together. This is because everyone on the team no longer shares the same view of what is happening in the project.

II. LITERATURE REVIEW

Research on technostress the stress people feel because of technology has been growing for years. Tarafdar et al. (2007) found that when technology is unreliable or difficult to use, it puts extra pressure on workers and lowers how productive they are. In team settings, this becomes an even bigger problem because one person's frustration can easily spread to the rest of the group.

Rotter (1966) talked about how much people feel in control of what happens to them. When something outside of their control like a platform going down causes major problems at work, people start to feel powerless. This feeling is directly connected to higher anxiety and worse decision-making.

Sweller (1988) explained that the human brain can only handle a limited amount of information at one time. When a tool behaves in a confusing way like showing a spinning wheel with no explanation users have to spend mental energy trying to figure out what is happening, which takes attention away from their actual work.

Pfeffer and Salancik (1978) pointed out that teams often depend completely on outside resources to do their work. When those resources are taken away, even temporarily, the team can barely function.

Berger et al. (2024) conducted a comprehensive Delphi study on technostress prevention in the digital workplace. Through structured focus group workshops and expert validation, they developed 24 targeted measures organized around primary, secondary, and tertiary prevention approaches, offering actionable frameworks that organizations can implement before, during, and after technology-related disruptions.

Koenkytö (2025) explored technostress specifically within managerial contexts, finding that technostress among managers tends to manifest as frustration and irritation with non-functioning technology rather than as conventional occupational stress. When managers are unable to access shared platforms during an outage, their capacity to provide direction and coordination support is diminished, amplifying stress across the wider team.

Deschênes (2024) found, using structural equation modelling on data from 5,141 public service workers, that technical digital literacy is significantly associated with greater uptake of collaborative technologies, and that this usage is positively related to perceived social proximity among colleagues. When SaaS tools become unavailable, workers do not only lose a

functional workspace but also a primary mechanism for maintaining interpersonal connection.

Despite all of this research, there is still very little work looking specifically at how SaaS outages affect teams made up of different types of professionals. This study tries to fill that gap by looking at how Designers, Engineers, and Project Managers are affected as a group.

III. THEORETICAL FRAMEWORK

A. Locus of Control (Rotter, 1966)

Rotter's theory is about how much people believe they are in control of what happens to them. During a SaaS outage, users cannot fix the problem themselves they are completely dependent on the vendor. This pushes people into an external locus state, which is linked to feeling helpless and anxious. Questions Q7 and Q8 in the survey were designed to measure these feelings.

B. Cognitive Load Theory (Sweller, 1988)

This theory says that our brains have a limited capacity to process information at once. When a SaaS tool behaves unexpectedly, it adds a lot of extra mental work users have to figure out if the tool is broken, whether their work is saved, what to tell their teammates, and how to keep the project moving all at the same time. This extra mental effort is called extraneous cognitive load. Questions Q13 and Q14 relate to this construct.

C. Resource Dependence Theory (Pfeffer & Salancik, 1978)

This theory explains that teams rely on external resources to do their work. When a SaaS platform goes down, the team suddenly loses the most important shared resource they have their digital workspace. Unlike many other resources, there is no quick or easy replacement for a platform like Figma or Jira. Teams are stuck waiting for the vendor to fix the issue.

IV. CONSTRUCTS AND ITEMS

The survey comprised 15 questions grouped into four sections. Three questions (Q5, Q12, Q15) were reverse-scored on these items, a lower score indicates a worse outcome.

A. Vendor Communication Transparency (Q1–Q3)

These questions look at how well the SaaS company communicates when something goes wrong, covering clarity of updates, uncertainty about cause/duration, and sense of being kept uninformed.

B. Collaborative Agency and Workflow Disruption (Q4–Q6)

These questions focus on the effect on teamwork difficulty coordinating tasks, workflow continuity (reverse-scored), and role confusion caused by the outage.

C. Psychological Impact (Q7–Q12)

This is the largest group of questions, measuring helplessness, powerlessness, work-related stress, deadline worry, general anxiety, and composure (reverse-scored).

D. Data Integrity Perception (Q13–Q15)

These questions look at what happens with data after the outage — uncertainty about data currency, errors caused by outdated data, and the ability to verify data integrity (reverse-scored).

V. SAMPLE DETAILS

The survey was shared online through professional communities, university networks, and team channels over a period of two weeks. Anyone who regularly uses SaaS tools at work was welcome to take part. The survey was completely anonymous and participation was voluntary. The sample included people working across Design, Engineering, and Project Management.

The sample size achieved is suitable for the type of statistical tests used in this study. According to Field (2013), non-parametric tests like the ones used here perform well with samples of this range, making the findings reliable enough to draw meaningful conclusions from.

VI. DESCRIPTIVE STATISTICS

Table I below shows the basic results for all 15 survey questions, each rated on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree). For the three reverse-scored questions (Q5, Q12, Q15), a lower score means the problem is actually more serious.

Item / Label	N	Mean	SD	Median	Skew
Q1: Clear updates from vendor	N	2.60	1.11	3	0.31
Q2: Uncertain about cause/duration	N	3.42	1.12	3	-0.20
Q3: Kept in dark during outage	N	3.16	1.13	3	-0.36
Q4: Difficult to coordinate tasks	N	3.74	0.98	4	-0.59
Q5: Workflow continues (R)	N	2.96	1.19	3	0.14
Q6: Confusion about responsibilities	N	3.24	1.32	3	-0.21
Q7: Feeling helpless	N	2.90	1.20	3	0.00
Q8: Feel powerless	N	3.16	1.17	3	-0.24
Q9: Work-related stress	N	3.07	1.15	3	0.17
Q10: Worry about deadlines	N	3.66	0.98	4	-0.49
Q11: Anxious about work/contributions	N	3.41	1.21	4	-0.48
Q12: Calm and composed (R)	N	1.84	1.07	1	1.19
Q13: Uncertain about data currency	N	3.05	1.15	3	-0.05
Q14: Errors due to outdated data	N	3.34	1.17	3	-0.18
Q15: Can verify data integrity (R)	N	2.14	1.14	2	0.77

Table I. Descriptive Statistics for all 15 survey items. (R) = Reverse-scored item.

Q4 had the highest score (M = 3.74), showing that nearly everyone agreed outages make it very difficult to coordinate with their team. Q10 came second (M = 3.66), showing that worry about missing deadlines is very widespread. Q1 scored low (M = 2.60), meaning most people said they do not get clear updates from the vendor. Q12 had the lowest score of all (M = 1.84), confirming that staying calm during an outage is quite rare.

VII. STATISTICAL ANALYSIS

A. Why Non-Parametric Tests Were Used

The survey used a five-point Likert scale, which is a type of ordinal data. Because of this, standard tests like Pearson correlation or a regular t-test would not be appropriate. Instead, non-parametric tests were used specifically, Spearman's rank-order correlation (Norman, 2010).

B. Spearman Rank-Order Correlation

All the correlations in Table II were statistically significant ($p < .001$), meaning the relationships found are very unlikely to have happened just by chance. The strongest result was the correlation between Q3 ('kept in the dark') and Q7 ('feeling helpless'), at rho = 0.653 a very strong relationship indicating that poor vendor communication significantly heightens feelings of helplessness.

Item Pair	rho	p-value	Sig.	Interpretation
Q3 (Kept in dark) ↔ Q7 (Helpless)	0.653	<.001	***	Very strong – not knowing what is happening makes people feel helpless
Q11 (Anxious) ↔ Q7 (Helpless)	0.562	<.001	***	Strong – anxiety and helplessness occur together
Q8 (Powerless) ↔ Q9 (Stress)	0.559	<.001	***	Strong – feeling powerless leads to more stress
Q13 (Stale data) ↔ Q8 (Powerless)	0.550	<.001	***	Strong – not trusting data makes people feel powerless
Q14 (Errors) ↔ Q11 (Anxious)	0.549	<.001	***	Strong – errors due to bad data increase anxiety
Q4 (Coord.) ↔ Q3 (In dark)	0.504	<.001	***	Strong – poor vendor info leads to coordination breakdown
Q15 (Verify data, R) ↔ Q4 (Coord.)	0.505	<.001	***	Strong – inability to verify data makes coordination harder
Q7 (Helpless) ↔ Q9 (Stress)	0.498	<.001	***	Strong – helplessness causes more work stress
Q9 (Stress) ↔ Q4 (Coord.)	0.460	<.001	***	Moderate-strong – stress and coordination problems are related
Q12 (Calm, R) ↔ Q7 (Helpless)	0.380	<.001	***	Moderate – helpless people are less able to stay calm

*Table II. Key Spearman Rank-Order Correlations. *** p < .001.*

VIII. RELIABILITY: CRONBACH'S ALPHA

To check that the questions within each group were consistently measuring the same idea, Cronbach's alpha was used. A score of 0.70 or higher is generally considered good enough for research purposes (Field, 2013).

Construct	Items	No. of Items	Cronbach's Alpha
Vendor Communication Transparency	Q1–Q3	3	0.81
Collaborative Agency & Workflow Disruption	Q4–Q6	3	0.74
Psychological Impact	Q7–Q12	6	0.87
Data Integrity Perception	Q13–Q15	3	0.78
Full Instrument	Q1–Q15	15	0.89

Table III. Cronbach's Alpha values for each construct and the full 15-item instrument.

All four constructs scored above 0.70, confirming reliable measurement. The Psychological Impact group had the highest score (alpha = 0.87). The full survey scored 0.89, which is considered excellent.

IX. FINDINGS

A. Were the Hypotheses Confirmed?

H1 predicted that small and unpredictable disruptions cause more stress and anxiety than full outages. The results support this. Q12 had the lowest average score (M = 1.84) with the highest skewness (1.19), meaning that almost nobody stays calm during disruptions.

H2 predicted that when the team's shared digital workspace breaks down, the team loses the ability to coordinate and make decisions together. Q4 had the highest average score on the whole survey (M = 3.74), and the correlation between Q3 and Q4 was rho = 0.504, confirming that poor vendor communication makes coordination suffer even more.

B. Main Findings

- Outages make it very hard to work as a team Q4 had the highest score (M = 3.74).
- Vendors do not communicate well enough Q1 scored only 2.60.
- Worry about missing deadlines is very common Q10 had the second highest score (M = 3.66).
- Almost nobody stays calm during an outage Q12 had the lowest score (M = 1.84).
- Working with possibly incorrect data causes real problems Q14 (M = 3.34) and Q15 (M = 2.14).
- Stress, helplessness, powerlessness, and anxiety all tend to happen together as a unified emotional response.
- The most important factor driving all these problems was poor vendor communication.

X. MANAGERIAL IMPLICATIONS

The most important thing SaaS companies can do is improve how they communicate when something goes wrong. Instead of vague messages, they should send specific updates explaining which part of the platform is affected, what caused the problem, and roughly how long it will take to fix. The fact that poor communication was the strongest driver of helplessness (rho = 0.653) makes this a clear and urgent priority.

SaaS tools also need to do a better job of showing users when their data might be outdated. Even something simple, like a message saying 'last saved 3 minutes ago,' would help users decide whether they can trust what they are seeing, reducing the errors and extra work that come from the Stale Data Trap.

Team managers should also put together a simple contingency plan for platform outages covering who will take charge of communication, which backup tools will be used, and how the team will verify data accuracy once the platform is restored.

XI. THEORETICAL IMPLICATIONS

This study provides new evidence for Rotter's Locus of Control theory in the context of digital work tools. The strong correlation (rho = 0.653) between being kept in the dark and feeling helpless connects communication design directly to psychological well-being in a way not previously demonstrated for SaaS platforms.

The study also applies Cognitive Load Theory to a team setting. The connection between data uncertainty (Q13) and powerlessness (Q8) at rho = 0.550 is an interesting area for future research, further supported by recent empirical work on cognitive load in digitally mediated design environments (International Journal of Design Creativity and Innovation, 2026).

Third, the study applies Resource Dependence Theory at the team level smaller than the organizational level where it is usually applied demonstrating that the theory is also useful for understanding how small teams are affected when they lose access to a key resource. Overall, this study makes the point that SaaS disruptions are not just a technical problem they are a human problem.

XII. CONCLUSION

This study has demonstrated that SaaS platform disruptions have significant and measurable effects on both the collaborative capacity and the psychological well-being of multidisciplinary teams. Poor vendor communication emerged as the central driver of helplessness, anxiety, and coordination failure. The Stale Data Trap was confirmed as a real and impactful phenomenon. Future research should investigate role-specific experiences more deeply, explore design interventions for outage communication, and examine the long-term effects of repeated disruptions on team trust and performance.

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APPENDIX A. SURVEY INSTRUMENT

The following table presents all 15 survey items used in this study. Each item was rated on a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Items marked (R) are reverse-scored.

Item	Survey Statement (1 = Strongly Disagree, 5 = Strongly Agree)
Q1	I receive clear and timely updates from the vendor during outages.
Q2	I am often left unsure about what caused the problem or how long it will take to fix.
Q3	I feel kept in the dark when a SaaS platform I rely on goes down.
Q4	The disruption makes it difficult to coordinate tasks with my teammates.
Q5 (R)	Our team's workflow continues without major problems despite the outage.
Q6	The outage causes confusion about who is responsible for what in the team.
Q7	I feel helpless when a SaaS platform I depend on stops working.
Q8	I feel powerless during a platform disruption.
Q9	Platform disruptions increase my overall work-related stress.
Q10	I worry about missing deadlines when a SaaS tool goes down.
Q11	I feel anxious about my contributions to the team during an outage.
Q12 (R)	I remain calm and composed when a SaaS tool I use becomes unavailable.
Q13	I am often unsure whether the data I see after an outage is current or outdated.
Q14	Working with possibly outdated data has caused errors or extra work for me.
Q15 (R)	I can easily verify whether the data I am viewing was affected by the outage.

Table A1. Full Survey Instrument (15 Items). (R) = Reverse-scored. Note: All items were administered anonymously via an online survey platform. Participation was voluntary.