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Communication dynamics in SAP ERP teams: An empirical exploratory study

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Abstract: This paper investigates the critical role of communication in SAP ERP teams, exploring the communication dynamics, the balance between technical and communication skills, the dynamics within cross-functional teams, and how often technical issues are mistakenly blamed for project setbacks due to communication failures. Drawing on empirical data collected from SAP professionals, this study examines how communication failures impact project outcomes and identifies key areas for improvement in SAP project management and team collaboration. We used descriptive statistics, frequency counts, and distributions, as well as marginal probability from contingency tables to investigate the association between variables. We measured the relationships by applying chi-squared tests with the Yates adjustments ($p<0.05$) and applied Cramer's V as an effect size. We performed hypothesis tests to check for the association between the perception of communication dynamics and variables such as professional role, professional level, working time experience, SAP business line, having international contact at work, and gender. Findings: In our sample, the communication dynamics are, in general, uniform among the SAP teams and are not associated with the professional role, professional level, years of experience, the SAP business line, or having international contacts at work. It seems to be associated with gender, with males having a more critical perception of communication issues affecting project performance. The communication dynamics within cross-functional teams are predominantly positive, although there is room for improvement, as 23% consider it ineffective or challenging. The perception is that there are almost always technical issues mistakenly blamed on communication failures, with 82% of the respondents.

Keywords: *Communication, ERP, Professional perception, Project, SAP.*

1. Introduction

1.1. Background on SAP ERP

ERP systems are more than important in business nowadays, and are essential, in modern enterprises. No one would say that global companies could even exist without ERPs in today's fast-paced world. SAP ERP is one of the three biggest in the world, with some sources saying that SAP attends an estimated 75% of big companies and is responsible for managing around 78% of the global GDP. SAP Official Statements claim that 98 of the top 100 largest companies globally are their customers, with approximately 80% of their customer base being SMEs (small and medium-sized enterprises).[1] Still in the words of SAP, their customers generate 84% of total global commerce. It's important to note that "commerce" is broader than GDP, which focuses on the value of finished goods and services produced within a country's borders[2]. It is impossible to know exactly how big is SAP ERP in the world, but it is clear that it is big.

sap.com[1]
https://www.sap.com/brazil/[2]

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The complexity and scale of SAP implementations and support are, for sure, proportional. Highly skilled professionals are demanded to understand the business needs, to configure and bring adequate solutions to businesses, and they are hard to find and expensive to maintain. Moreover, they are humans, so, they are not uniformly built and distributed. They do not progress in a linear and balanced way. And, the differences matter. The bigger the differences in progress, and the balance between the range of skills needed to perform in SAP ERP teams, the bigger the impact on implementation projects' success.

1.2. Problem Statement

There is an increasing recognition of communication as a critical factor in IT project success. In all kinds of IT projects, communication is critical to success, but in SAP ERP, it emerges as essential for the understanding and harmony of the teams and the adequacy of the final solution to the business's needs. It involves significant amounts of money, a long time, and a wide spectrum of consequences in cases of unsuccessful implementation.

There is a research gap, with a need for empirical studies focusing on communication dynamics within SAP environments. This research, although recognizing its limitations, intends to bring numbers to enlighten the communication dynamics in SAP teams and open doors for new and more advanced research.

With this in mind, we elaborated a set of questions and conducted research to answer them.

1.3. Research Questions

1. How do SAP professionals perceive the balance between technical and communication skills in SAP teams?
2. Does perception of the communication dynamics relate to the professional role?
3. Does perception of the communication dynamics relate to the professional level?
4. Does perception of the communication dynamics relate to years of experience?
5. Does the perception of the communication dynamics relate to the SAP business line?
6. Does perception of the communication dynamics relate to having international contacts?
7. Does perception of the communication dynamics relate to the professional's gender?
8. What are the communication dynamics within cross-functional teams in SAP working environments?
9. How often are technical issues mistakenly blamed for project setbacks that are due to communication failures?

1.4. Objectives

- To identify and analyze the communication dynamics in SAP teams.
- To assess the perceived importance of communication skills among SAP professionals.
- To investigate the variables that mostly influence the perception of communication dynamics in SAP teams.
- To examine the dynamics of communication within cross-functional SAP teams.
- To estimate the frequency with which communication failures are misattributed to technical issues.

2. Literature Review

2.1. Communication in IT Projects

Reviewing the existing literature on the role of communication in IT project success, we found many works that bring important knowledge around the central theme of this research. Investigating critical factors for ERP implementation, Fui-Hoon Nah, Lee-Shang Lau, and Kuang (2001) through a comprehensive review of the literature, found 11 factors to be critical to ERP implementation success —

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among them, ERP teamwork and composition and effective communication. Even if the system 'is' or 'is not' effective for the company, in the words of Anjum (2011) "User satisfactions have a positive and significant relationship with perceived usefulness of ERP system, perceived ease of use of ERP, internal support and compatibility of ERP system whereas as results demonstrability of ERP system is found to insignificantly related to ERP user satisfaction."

In the work of Frank Cervone (2014) he found that "while communication failures in projects are caused by many factors, the project team ultimately bears the burden of ensuring successful communication within a project." Moreover, he states, "There are several common causes of communication failures."

Observing critical success factors of ERP implementation in Indonesia, Akmila, Fadilah, and Dewi (2023) found that five critical factors influenced ERP implementation: Management Commitment and Support, User Involvement, Team Communication, Hardware and Equipment, and Education and Training.

Also researching critical factors in the ERP implementation, Ferreira and Kuniyoshi (2015) found that the support of the top management, the communication process for the clear evidence of this support, and the project team expertise, training, and qualification processes of the team are significantly relevant factors for a successful implementation.

2.2. SAP Implementations and Challenges

There are big challenges associated with SAP implementations, such as technical complexities, integration issues, and change management.

In the literature, we found many examples, such as the study of Syauqie, Puspitasari, and Septiningrum (2023) which observed the ERP implementation failure at Revlon, which resulted in a lawsuit. Revlon admitted that it had identified weaknesses in its internal controls, due to the implementation of the new ERP system in the US. The disruption caused by the failure led to a loss of $294.2M in 2018. In the words of Clinton Jones, a technical consultant, "What this story does tell, is a cautionary tale for businesses embarking on digital transformation. It is not clear what went wrong here but these are often the result of poor executive sponsorship, weak project governance, or over-ambitious digital renewal plans that are not considered carefully enough for their impact."

Sometimes, it is not clear what is causing the problems, so it is close to impossible for a manager to deal with the trouble during the implementation. In an evaluation of SAP implementation acceptance, Syauqie et al. (2023) found that "attitude (attitude) had a positive and significant effect on behavioral intentions (intentions), behavioral intentions had a positive and significant influence on behavior, subjective norms, and behavioral control hurt behavioral intentions in using SAP."

Although there is a significant number of scientific works investigating communication issues influencing SAP ERP project implementation, there is limited research focusing specifically measuring on communication-related challenges in SAP projects. This research intends to contribute to this matter.

3. Methodology

3.1. Data Collection

Our research is based on a Dillman's Total Design Method (TDM) questionnaire sent via Google-forms, responded to by 56 SAP professionals from Brazil, with different backgrounds and experience levels, aged from 25 to 61 years, both genders, who work with different SAP business lines, for different business industries.

Survey-Based Perception Study: Our approach collects data on SAP professionals' perceptions based on their work experiences.

Observational Study: Our observational study gathers qualitative data on professionals' experiences without altering their environment. We analyzed perceptions and experiences, which could be influenced by various factors such as organizational culture, project dynamics, or individual roles, rather

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than controlled experimental conditions. Using closed single-choice and multiple-choice questions to count for frequency. The survey questions are directly aligned with the research questions, to permit a demographic overview, descriptive statistics, clear analysis, and construction of contingency tables to observe the relationship between the variables.

3.2. Data Analysis

We used descriptive statistics to profile the respondent's characteristics and working experience. Frequency counts and distributions provided a basic snapshot of how often certain categories or values occur in the dataset. Marginal probability from contingency tables showed the association between the variables.

We built cross-tabulations (Contingency Tables) to measure the relationships between the variables, investigate the relationship between categorical variables, apply chi-squared tests with the Yates adjustments ($p<0.05$), and compare the results with works from the literature.

Applied Cramer's V as an effect size measure to assess the strength of association between two categorical variables when we performed the chi-square tests, to provide a measure of the practical significance of the findings, independent of sample size, allowing readers to assess the real-world implications of the research. We assumed Cramer's $V = 0.1$: Small effect, $V = 0.3$: Medium effect, and $V = 0.5$: Large effect.

We performed six hypothesis tests to check for the association between the perception of communication dynamics and other variables, such as professional role, professional level, working time experience, SAP business line, having international contact at work, and gender.

4. Results

4.1. Demographic Overview

We present a summary of the demographic characteristics of the survey respondents:
Regarding work in connection with SAP ERP (Figure 1), the roles were represented as follows:

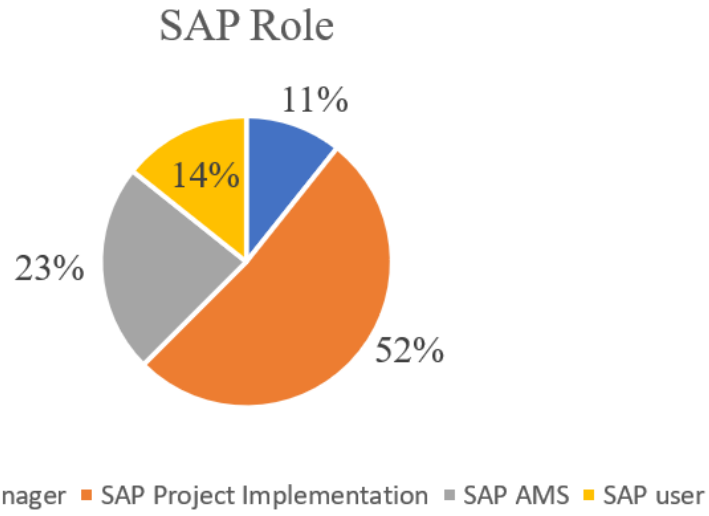

Figure 1.
SAP role of the respondents.

About the time of working experience with SAP ERP, considering all the that professionals may have played, the descriptive statistics of the profile of the respondents (Table 1 and Figure 2) show that these professionals are experienced workers, and are supposed to have stronger technical and communication skills.

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Table 1.
Years of working experience of the respondents.

Mean	16
Standard Error	1.09
Median	18
Mode	25
Standard Deviation	8.19
Sample Variance	67.07
Kurtosis	-1,08
Skewness	-0.52
Range	24
Minimum	1
Maximum	25
Count	56

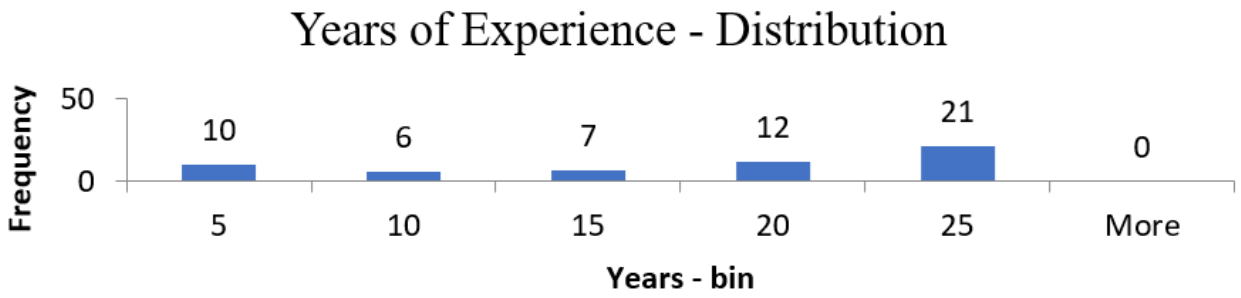

Figure 2.
Histogram of the respondents' experience.

Considering the SAP professional level of the respondents (Figure 3) we can see that there is a predominance of experienced workers in our sample:

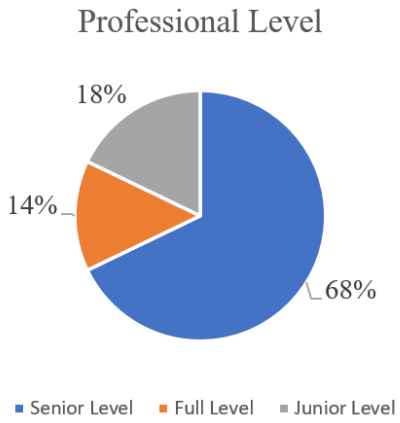

Figure 3.
Professional level of the respondents.

All the modules and SAP lines of business (Figure 4) are represented in our sample.

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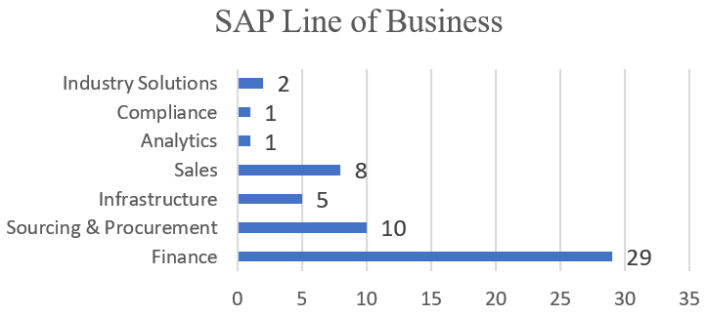

Figure 4.
SAP line of business of the respondents.

The descriptive statistics of the age profile of the professionals (Table 2 and Figure 5) show that they are mostly between their forties and fifties, so not only experienced workers but mature business professionals.

Table 2.
Age profile of the respondents.

Mean	45
Standard Error	1,16
Median	45
Mode	50
Standard Deviation	8,71
Sample Variance	75,90
Kurtosis	0,51
Skewness	-0,46
Range	41
Minimum	20
Maximum	61
Count	56

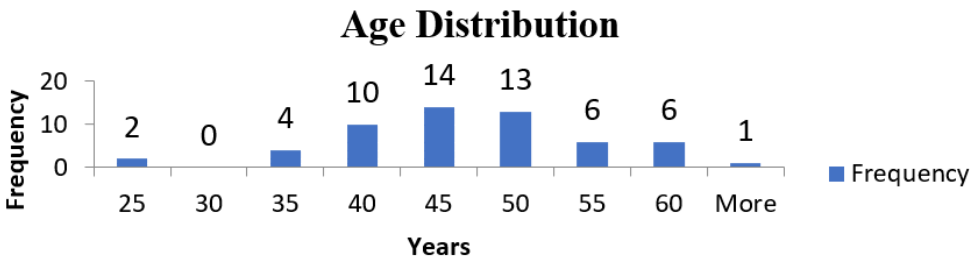

Figure 5.
Histogram of the respondents' age.

The gender distribution (Figure 6) is also well represented.

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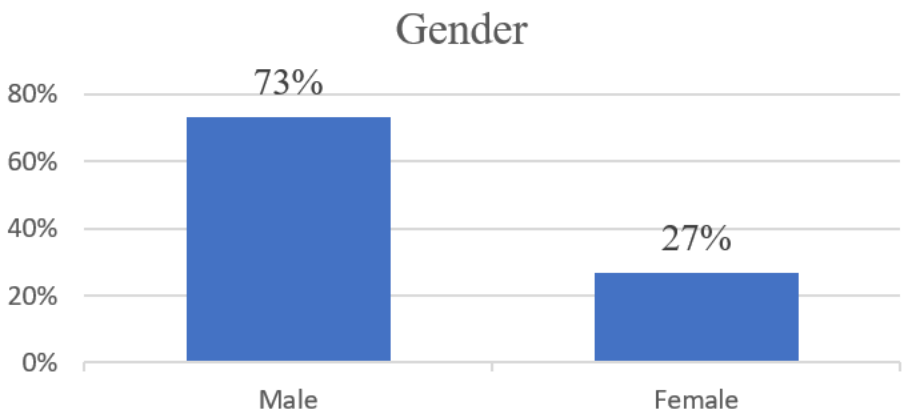

Figure 6.
Gender distribution of the respondents.

All the most prominent industries are also represented (Figure 7), and professionals are serving as IT consultants attending more than one at the same time.

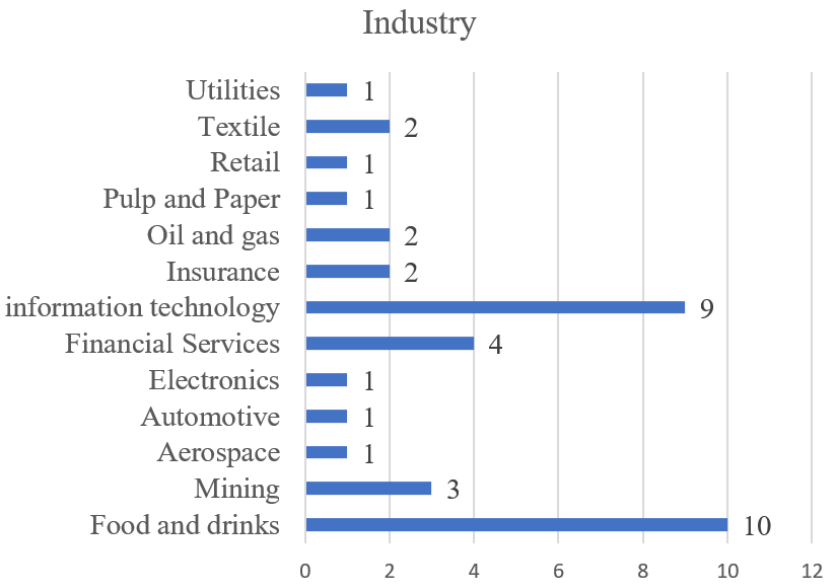

Figure 7.
Industry of the respondents.

4.2. Skills Balance

To investigate the perceived balance between technical and communication skills among SAP professionals we asked:

How do you see the balance between technical and communication skills in your colleagues' roles?

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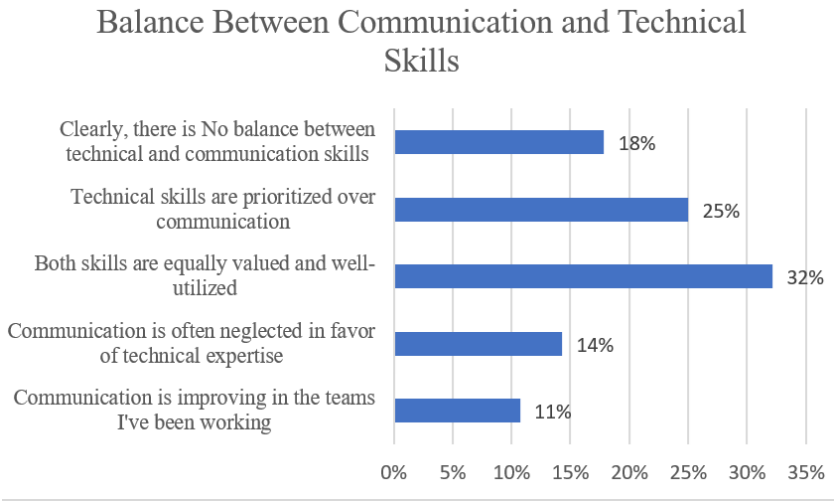

Figure 8.
Balance Communication vs. Technical Skills.

From those who 'see no balance between technical and communication skills' (18%), that 'technical skills are prioritized over communication' (25%), and that 'communication is often neglected' (14%), which totalizes 57% (Figure 8), we investigated marginal probabilities using contingency tables, chi-squared statistics with the Yates adjustment to test the hypotheses, and Cramer's V to check for the effect size in case of dependence between the variables.

4.3. Hypotheses Tests

Test 1: Association between the perception of the communication dynamics and the professional role

H_0: There is no association between the perception of the communication dynamics and the professional role.
H_1: There is an association between the perception of the communication dynamics and the professional role.

Table 3.
Contingency Table of the Respondents' Roles.

Observed	Project Implementation	AMS	Row Total
Technical skills are prioritized over communication	6	4	10
Communication is often neglected in favor of technical expertise + There is no balance between the skills	11	3	14
Column Total	17	7	24
Percentage points	71%	29%	

Although project implementation seems to be more critical (Table 3), it happens because of the proportion of respondents. There was no significant association between the perception of the communication dynamics and the professional role ($\chi^2(1) = 1.119$, $p = 0.05$, Critical value = 3.841), indicating that the variables are independent. No evidence to reject the null hypothesis.

Test 2: Association between the perception of the communication dynamics and the professional level

H_0: There is no association between the perception of the communication dynamics and the professional level.
H_1: There is an association between the perception of the communication dynamics and the professional level.

Table 4.
Contingency Table of the Respondents' Professional Level.

Observed	Junior Level	Senior Level	Row Total
Technical skills are prioritized over communication	2	9	11
Communication is often neglected in favor of technical expertise + There is no balance between the skills	6	10	16
Column Total	8	19	27
Percentage points	30%	70%	

Although senior-level professionals seem to be more critical (Table 4), it happens because of the proportion of respondents. There was no significant association between the perception of the communication dynamics and the professional level ($\chi^2(1) = 1.421$, $p = 0.05$, Critical value = 3.841), indicating that the variables are independent. No evidence to reject the null hypothesis.

Test 3: Association between the perception of the communication dynamics and the professional working time experience

H_0: There is no association between the perception of the communication dynamics and the working time experience. The variables are independent.

H_1: There is an association between the perception of the communication dynamics and the working time experience. The variables are dependent.

Table 5.
Contingency Table of the Respondents' Working Time Experience.

Observed	Low Exp: <= 5 years	High Exp: >=15 years	Row Total
Technical skills are prioritized over communication	2	8	10
Communication is often neglected in favor of technical expertise + There is no balance between the skills	4	12	16
Column Total	6	20	26
Percentage points	23%	77%	

Although highly experienced professionals seem to be more critical (Table 5), it happens because of the proportion of respondents. There was no significant association between the perception of the communication dynamics and the working time experience ($\chi^2(1) = 0.351$, $p = 0.05$, Critical value = 3.841), indicating that the variables are independent. No evidence to reject the null hypothesis.

Test 4: Association between the perception of the communication dynamics and the SAP business lines

H_0: There is no association between the perception of the communication dynamics and the SAP business lines. The variables are independent.

H_1: There is an association between the perception of the communication dynamics and the SAP business lines. The variables are dependent.

Table 6.
Contingency Table of the Respondents' SAP Business Lines.

Observed	Finance	Logistics (Sourcing & Procurement + Sales)	Row Total
Technical skills are prioritized over communication	8	2	10
Communication is often neglected in favor of technical expertise + There is no balance between the skills	11	6	17
Column Total	19	8	27
Percentage points	70%	30%	

Although finance professionals seem to be more critical (Table 6), it happens because of the proportion of respondents. There was no significant association between the perception of the communication dynamics and the SAP business lines ($\chi^2(1) = 0.974$, $p = 0.05$, Critical value = 3.841), indicating that the variables are independent. No evidence to reject the null hypothesis.

Test 5: Association between the perception of the communication dynamics and having international contact at work

H_0: There is no association between the perception of the communication dynamics and having international contact at work. The variables are independent.

H_1: There is an association between the perception of the communication dynamics and having international contact at work. The variables are dependent.

Table 7.
Contingency Table of the Respondents' International Contacts.

Observed	Intl Contact	No Intl Contact	Row Total
Technical skills are prioritized over communication	8	6	14
Communication is often neglected in favor of technical expertise + There is no balance between the skills	9	9	18
Column Total	17	15	32
Percentage points	53%	47%	

Although professionals who have international contact at work seem to be more critical (Table 7), it happens because of the proportion of respondents. There was no significant association between the perception of the communication dynamics and having international contact at work ($\chi^2(1) = 0.291$, $p = 0.05$, Critical value = 3.841), indicating that the variables are independent. No evidence to reject the null hypothesis.

Test 6: Association between the perception of the communication dynamics and gender

H_0: There is no association between the perception of communication dynamics and gender.

H_1: There is an association between the perception of communication dynamics and gender.

Table 8.
Contingency Table of the Respondents' Gender.

Observed	Male	Female	Row Total
Technical skills are prioritized over communication	13	1	14
Communication is often neglected in favor of technical expertise + There is no balance between the skills	8	10	18
Column Total	21	11	32
Percentage points	66%	34%	

There was a significant association between the perception of communication dynamics and gender ($\chi^2(1) = 8.407$, $p = 0.05$, Critical value = 3.841, $V = 0.51$), (Table 8) indicating a large effect, with males having a more critical perception of communication issues over team performance, and that the variables are dependent. There is evidence to reject the null hypothesis.

4.5. Cross-Functional Team Dynamics

Examining the communication dynamics within cross-functional teams (Figure 9), including the frequency of miscommunication, conflict, and knowledge sharing, we found it predominantly positive, although there is room for improvement. Only 23% consider it not effective or challenging.

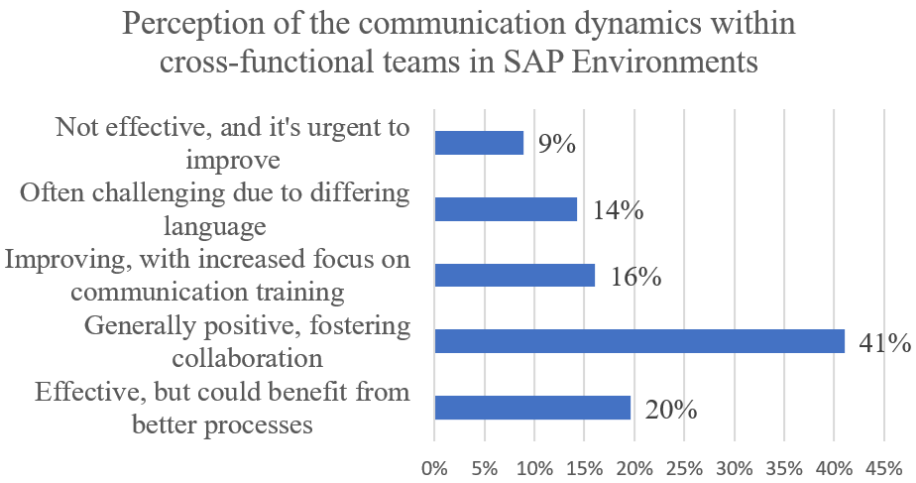

Figure 9.
Perception in cross-functional SAP teams.

4.6. Misattribution of Failures

Trying to estimate the frequency with which technical issues are mistakenly blamed for project setbacks that are actually due to communication failures, we found that surprisingly, the "Never" answer is zero. It may imply that the perception is that there are always technical issues mistakenly blamed on communication failures, the question is only how much, and in our sample, this is worrying 82% of cases.

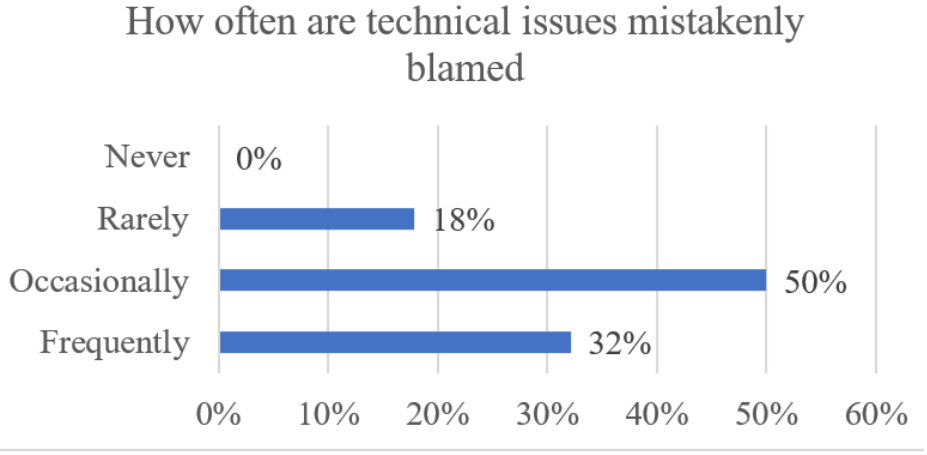

Figure 10.
Technical Issues Mistakenly Blamed by Communication Failures.

The implications of this misattribution of the issues for project management and problem-solving are that the real problems are not solved, and keep causing trouble.

5. Discussion

5.1. Perception of the Communication Dynamics in SAP Teams

The perception of the communication dynamics is, in general, uniform among the SAP teams, and does not have a significant association with the professional role, professional level, years of experience, the SAP business line, or having international contacts at work. It seems to have a significant

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association with gender, with males having a more critical perception of communication issues affecting project performance.

The communication dynamics within cross-functional teams (Figure 9), are predominantly positive, although there is room for improvement, as 23% consider it ineffective or challenging. Nevertheless, it is shown in the literature, such as in the work of Wei and Wei (2011) Communication effectiveness is among the three essential factors for ERP implementation success.

In our sample, the perception is that there are almost always technical issues mistakenly blamed on communication failures, with 82% of cases.

Some studies are observing these phenomena and trying to find solutions to close the skills gap, such as the one of Qiu, Xu, and Omojokun (2020) in which there is a very insightful finding about the "differences between academic backgrounds and professional qualifications that demand collaboration and professional communication skills at higher education and workplaces." The authors of this study suggest that "in addition, an alliance between higher education and industry is a promising way to advance education and training for enhancing students' right skills needed in the dynamic business environment." Still, as shown by Galvis, Aguilera-Castro, and Erazo (2020) "among the difficulties in the implementation of the ERP were failures in communication and dissatisfaction due to the lack of some functionalities."

Communication dynamics impact project outcomes and team performance. Our findings align with previous research.

5.2. Practical Implications

More research on the communication challenges in SAP ERP teams should be conducted. Providing recommendations for improving communication practices in SAP projects, we would suggest text interpretation contests among and between SAP teams, as a recreational and motivational activity, but with prizes to motivate participation, and with a target score to be achieved to be chosen for the larger and more important projects.

5.3. Limitations

This is an exploratory study that provides preliminary insights and generates hypotheses for future research. We acknowledge the limitations of the study, such as sample size, geographic scope, and potential biases. Our findings are not definitive conclusions, but rather a starting point for further investigation. We suggest that future research focuses on the challenges of communication vs technical skills faced by SAP professionals to address these limitations. We strongly suggest that future researchers perform Fisher's Exact Test or other appropriate statistical tests, using larger samples and/or by combining categories in a theoretically justified way, to address the limitations of this study. Our findings are descriptive and may not be generalizable.

6. Conclusion

6.1. Summary of Key Findings

In our sample, the communication dynamics is, in general, uniform among the SAP teams, and is not associated with the professional role, professional level, years of experience, the SAP business line, or having international contacts at work. It seems to be associated with gender, with males having a more critical perception of communication issues affecting project performance. The communication dynamics within cross-functional teams are predominantly positive, although there is room for improvement, with only 23% considering it not effective or challenging. The perception is that there are almost always technical issues mistakenly blamed on communication failures, with 82% of cases.

6.2. Future Research Directions

We suggest that potential avenues for future research are longitudinal studies, case studies, and experimental designs. And we highlight the need for continued research to address the evolving communication issues in SAP environments.

Data Availability Statement:

The data supporting this study's findings are openly available in the Mendeley Data repository at Hess, Aurelio (2025), "Communication Dynamics in SAP ERP Teams", Mendeley Data, V1, doi: 10.17632/7yf9839nxx.1. The data include raw and processed data files, as well as the scripts used for data analysis. All data are provided under the Creative Commons Attribution 4.0 International license.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Acknowledgments:

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