MANAGEMENT PROBLEMS IN REMOTE WORK AT THE BRAZILIAN SOFTWARE INDUSTRY

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Abstract. *In recent years, remote work has become a defining feature of the modern workplace. The software industry, known for its adaptability, has embraced this trend, allowing professionals to collaborate across borders and time zones. To gain deeper insights into the dynamics of remote work in the software industry, it was conducted a survey aimed at understanding the challenges and experiences of those engaged in remote software development.*

1. Introduction

IT industry has a strong background in remote working and geographically distributed software development [Pashchenko, 2020]. It is also known that some problems are faced by the managers of the software production and the developers when working remotly, those problems will be shown as afirmations in the following sections. This survey clarify some aspects and doubts about management of remote work in brazilian software industry by validating those affirmations using a likert scale. The aim with this clarification is to improve the understanding of management at remote work in brazilian software development industry, by showing some problems the manager migth face.

The survey collected responses from 30 individuals engaged in remote work within the software industry. This group included not exclusively developers but also managers that worked as developers before, offering a well-rounded perspective. Respondents had diverse educational backgrounds, including master's (13,3%) and doctoral (8,3%) degrees. It was used a 5-point Likert scale to gauge their opinions on various aspects, from "Strongly Agree" to "Strongly Disagree.". Although there are arguments in favour of scales with seven, or with an even number of response categories [Jamieson and Susan, 2004]. The analyses of Likert-type and Likert scale data require unique data analysis procedures.[Boone Jr, Harry N., and Deborah, 2012].

This survey was the product of a brainstorm session among master and doctorate students in a classroom, where all participants had extensive experience working remotely. The unique insights and shared experiences from this diverse group of individuals enriched the survey's design and analysis.

The affirmations key finds in section 2 ware related to MPS-SW a framework that is purpose-built for evaluating and enhancing software development processes within organizational contexts. Its core emphasis lies in elevating process maturity, streamlining operations, and elevating software quality. MPS-SW offers a systematic approach to assist software development teams and organizations in recognizing and rectifying process deficiencies, culminating in more standardized, dependable, and superior software development practices.

The following section of this paper will present the survey results in terms of percentages. Furthermore, it will delve into an analysis and interpretation of responses to the earlier mentioned statements. This analysis strives to offer valuable insights into the challenges, benefits, and overall dynamics of remote work in the software industry, as perceived by professionals actively immersed in this mode of work.

2. Affirmation and Key Findings

First Affirmation: *"There is a delay in system configuration of the workspace and permissions."* It was found that 63.3% of respondents agree, at least partially, with the presence of delays in configuring workspaces and permissions. These delays can stem from communication issues and message loss. Addressing these delays promptly is crucial to maintaining productivity. MPS-SW Expectation: Delay in system configuration and workspace setup could be seen as a process maturity issue. In a mature software development process (as encouraged by MPS-SW), efficient and well-defined processes for workspace configuration and permissions management should exist. Delays may indicate a lack of process maturity or the need for process improvement.

Second Affirmation: *"There is a difficulty in communication and interaction between the team."* Approximately 53.3% of respondents agreed, at least partially, that team communication presented challenges. Notably, only 10% strongly agreed, indicating

that while communication can be improved, it might not be as dire as perceived initially. Strengthening team communication remains a priority. MPS-SW Expectation: Effective communication is a fundamental aspect of process maturity. MPS-SW emphasizes the need for well-communicated roles and responsibilities within a software development organization. Difficulty in communication between team members can be viewed as a process weakness, and MPS-SW would encourage organizations to address this issue through improved processes and communication channels.

Third Affirmation: *"There is a difficulty in learning new techniques, practices, and tools."* 53.3% of respondents, the majority, believe that learning new techniques and tools in the remote work environment is not significantly challenging. This indicates that remote work has adapted to support continuous learning effectively. MPS-SW Expectation: A mature process, as advocated by MPS-SW, should incorporate continuous learning and adaptation. If there is a difficulty in learning new techniques and tools, it suggests a potential process gap. In a mature process, there should be provisions for training and skill development to ensure that team members can readily adapt to new technologies and practices.

Fourth Affirmation: *"There is difficulty knowing the status of other activities on which mine depends."* Despite communication challenges, most respondents disagreed, at least partially (53,3%), with the idea that they have difficulty tracking their team members' progress. This suggests that despite communication challenges, feedback on task progress is still achievable. MPS-SW Expectation: MPS-SW emphasizes the need for clear visibility into project and task status. A mature process should ensure that all team members have access to up-to-date information about project activities. Difficulty in knowing the status of dependencies may point to gaps in tracking and reporting mechanisms, which MPS-SW would encourage addressing.

Fifth Affirmation: *"The large number of management meetings makes it difficult to carry out my technical activities."* The survey revealed that most respondents agreed, at least partially (56,7%), that the volume of management meetings can hinder technical work. Balancing meetings and focused work time is essential in remote settings. MPS-SW Expectation: A mature software development process, as encouraged by MPS-SW, should strike a balance between management activities and technical work. Excessive management meetings that hinder technical work could indicate a lack of process maturity in terms of managing workloads and meetings.

Sixth Affirmation: *"There is a charge for activities already completed."* Respondents mostly disagreed(43,4%), at least partially, with the notion that completed tasks are

reassigned, while 20% did not agreed or disagreed. Clear communication and task tracking can help prevent unnecessary work duplication. MPS-SW Expectation: This affirmation may imply inefficiencies in task allocation and tracking. In a mature process, there should be clear mechanisms for tracking completed tasks, ensuring that they are not re-assigned or charged again. MPS-SW advocates efficient task management and accountability.

Seventh Affirmation: *"Activities without effective return or really needed are assigned, simply to keep the employee busy/not idle."* The majority of respondents completely disagreed with this statement (36,7%) while only 10% totally agreed with this affirmation, indicating that tasks are not assigned solely to keep employees occupied. MPS-SW Expectation: MPS-SW promotes efficient and value-driven processes. Assigning tasks solely to keep employees busy, without adding value, is not in line with mature software development processes. A mature process should ensure that tasks are assigned based on their contribution to project.

Eighth Affirmation: *"Differences in the technological infrastructure of each employee's workplace make meetings/teamwork difficult."* Half of the respondents (50%) agreed, at least partially, that technological differences can hinder teamwork and meetings. Ensuring that all team members have access to similar technology can improve collaboration. MPS-SW Expectation: In a mature software development process, there should be standards for technological infrastructure to ensure smooth collaboration and communication. Differences in infrastructure affecting teamwork may point to a need for standardization, which is encouraged by MPS-SW.

Ninth Affirmation: *"The stimuli/events of the remote workplace hinder the performance of activities."* Respondents showed mixed opinions regarding external stimuli affecting performance, with many selecting "Neither Agree nor Disagree"(33,3%). This diversity reflects the unique environments and experiences of each respondent. MPS-SW Expectation: Remote work challenges, such as distractions, should be addressed within a mature process framework. MPS-SW would encourage organizations to have measures in place to help employees manage and minimize distractions while working remotely.

Tenth Affirmation: *"There is a higher charge or load or work outside working hours than in the face- to-face model."* Most respondents agreed (53,3%), at least partially, that there is a higher workload outside working hours in the remote model. Maintaining work-life balance and clearly defining working hours in remote settings is crucial. MPS-SW Expectation: A mature process should respect work-life balance. If there's a higher workload outside working hours, it suggests that work-life boundaries are not well-defined. MPS-SW would recommend that organizations establish clear guidelines for working hours in remote settings to ensure a healthy work-life balance.

3. Interpretations and Implications

The survey findings unveil a multifaceted landscape of remote work within the software industry, encompassing perspectives from both employees and managers with diverse educational backgrounds. This comprehensive view offers valuable insights that can shape the future of remote work strategies.

Communication Challenges: While a significant portion of respondents acknowledged difficulties in team communication, the fact that only 10% strongly agreed with this statement suggests that many see room for improvement rather than insurmountable obstacles. This implies that proactive measures such as fostering clear communication channels and providing training in virtual collaboration tools can significantly enhance team interactions.

Management Meetings: The consensus among respondents that a high volume of management meetings can hinder technical work highlights the need for a balanced approach. Organizations should carefully consider the necessity and frequency of meetings to ensure that they do not impede productivity.

Task Allocation: The survey revealed that respondents generally disagreed with the notion of tasks being reassigned unnecessarily. This suggests that clear task assignment processes and effective communication are prevalent in remote work settings, preventing redundancy and frustration.

Technological Infrastructure: The acknowledgment that technological disparities among team members can hinder collaboration underscores the importance of standardizing technology or providing support to bridge such gaps. Addressing these disparities can lead to more efficient teamwork and meetings.

Work-Life Balance: The perception of a higher workload outside working hours in remote work indicates the need for setting clear boundaries. Organizations should promote a healthy work-life balance and establish guidelines for working hours, ensuring employees do not feel overburdened.

In conclusion, the survey results offer a nuanced understanding of remote work in the software industry, revealing both challenges and opportunities.

4. Conclusion

In an era marked by technological advancement and global connectivity, remote work is transforming the software industry. The survey, involving diverse professionals, reveals complex dynamics in remote software development.

The findings highlight challenges but also opportunities. Software professionals excel in clear communication, adaptability, and learning. However, achieving the balance is critical, as excessive meetings and blurred work-life boundaries hamper productivity.

To thrive in this evolving landscape, organizations must adapt. Open communication channels, virtual collaboration tools, and standardized technology are key to enhancing remote work. Recognizing the diversity and individual needs is equally vital.

These survey results can significantly enhance the operations and strategies of organizations. By understanding the challenges and opportunities in remote work, organizations can: Foster clear communication channels and provide training in virtual collaboration tools to improve team interactions, carefully consider the necessity and frequency of management meetings to ensure they do not impede productivity and promote a healthy work-life balance and establish guidelines for working hours in remote settings.

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