Patterns of Remote Work Environments

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People are more and more in a position to work remotely. They face the same problems of establishing and running remote work environments over and over again. In order to help them a bit, six organizational patterns of remote work environments are presented in this paper: *Unofficial Meetings*, *Remote Mentor*, *Unified Communication Channels*, *Standard Operating Procedures*, *Information Hub*, and *Cut Meetings*. The patterns come from a firsthand remote work experience obtained in a company focusing on quality assurance through a crowd testing methodology where software companies get real users to test their newest products.

CCS Concepts: • **Human-centered computing** → **Empirical studies in collaborative and social computing**.

Additional Key Words and Phrases: organizational patterns, agile, remote work, distributed teams, communication, meeting

1 INTRODUCTION

People are more and more in a position to work remotely. They face the same problems of establishing and running remote work environments over and over again. In order to help them a bit, six organizational patterns of remote work environments are presented in this paper.

The patterns were observed by the first author of this paper while working remotely in a fully distributed team in company focusing on quality assurance through a crowd testing methodology where software companies get real users to test their newest products. There, he lead the onboarding program and was responsible for the training of new hires and promotions within the company structure. This included the creation of training materials and direct coaching. The team used agile approaches, mainly the PDCA cycle,[1] and they completely revamped the whole training on average every two to three months. During this, he experienced being a *Remote Mentor*.[2] But working remotely for an extended period of time, he started feeling disconnected from the team and felt the need for *Unofficial Meetings*. However, as the number of official meetings was increasing and he felt the need to *Cut Meetings*. In his work, he used more than five

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[1]Plan-Do-Check-Act cycle is an iterative design and management method.
[2]The text in italics represents the names of the patterns.

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different communication tools. Due to this, he felt a communication overhead and need for *Unified Communication Channels*. On the other hand, a shared source of critical information was missing for which he initiated creating an *Information Hub*. As the team grew and some of the work turned into regular activities, he created *Standard Operating Procedures*.

The rest of the paper presents the actual patterns (Sections 2–7), and it does so in Coplien's form [2]. The paper is ended by a summary (Section 8).

2 UNOFFICIAL MEETINGS
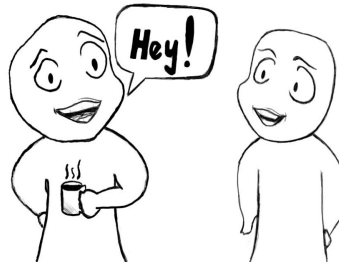
In a remote work environment, people interactions are limited to the usage of their communication tools and to their scheduled and planned communication activities. Random encounters are almost non-existing.

Context

You're working on some problems and you may be stuck on a problem you're unable to solve. In usual office environments you have the opportunity to have a small talk discussion with fellow colleagues about anything and they may suggest a quick solution to your task even though the conversation was never planned or scheduled.

Problem

Unplanned conversations are required in any work environment. In offices, these encounters are usually happening in a shared lobby, hang out area or cafeteria at a cup of coffee. These interactions between colleagues improve productivity and team motivation and it also keeps team members updated about events and product updates. In a remote work environment these random interactions are not possible due to the lack of physical contact.

Solution

A solution to this problem is to have a designated space and time for colleagues to interact. A concrete example is to set up a permanent chat room (e.g. on Discord, teamspeak or other chat room tools) where team members can join, leave at any time during their work hours and have an unofficial meeting. Joining and interacting in these rooms are completely voluntary.

Discussion

Communication is key in any work environment. In most remote work environments some communication channels are not existing, such as unofficial meetings. If a project or a team is expected to last only a short amount of time, meaning less than 3 or 6 months, it is acceptable that some channels are not being used and the team uses only real

time messaging tools or emails. For long term teams or projects, these channels are no longer enough. People still need to interact between each other not only on work related matters. For this reason it is extremely beneficial to have a way to communicate with each other in an unofficial manner. Unofficial meetings also strengthen relationships between coworkers, provide space for new ideas exploration and brainstorming.

Pattern *Unified Communication Channels* refines how the unofficial meetings are conducted. If your set communication tool does not support unofficial meetings, allowing to use a different tool to enable these unofficial meetings may be worth it. Pattern *Cut Meetings* could be considered a contradiction to *Unofficial Meetings* but there needs to be found a balance between these patterns.

Another example from a real life situation is where the company setup a "happy hour" meeting scheduled regularly as the last hour in a work week (usually between 4–5 PM on Fridays), where people can talk about their week, have a beer on camera with their colleagues and get ready for their weekend.

3   REMOTE MENTOR
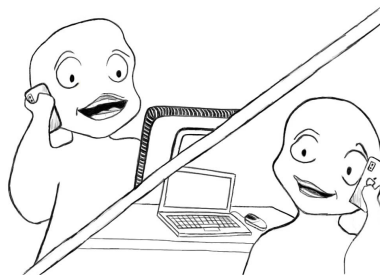
Working from home brings problems not only for well-established employees but also for new people who have been given the opportunity to work for the company. Starting a new job is more demanding without physical contact, a new employee does not have the opportunity to receive sufficient training. It often happens that new employees receive only some material in written/video form without proper explanation.

Context

A company has hired or promoted an employee to a new position. This position comes with new tasks, responsibilities, and ways to do work. To train and prepare the employee for the position, they must be onboarded and given sufficient training. In a remote work environment this training is more difficult due to lack of physical interaction.

Problem

The problem with hiring new people through remote work is the vague and tedious process of going through a lot of training materials or sometimes even a lack of such materials. There is often a lack of direct communication and there is a risk that the employee will be labeled as "done with the training," but will still have many questions and many shortcomings in practice. New employees hardly feel being a part of the team, as they have never seen their colleagues before. It is more difficult for them to make new friendships and acquaintances that are essential for mental well-being at work.

Solution

Onboarding employees and all the challenges that arise from this process can be solved by practices that will help the new employee feel more in the team, that can provide him with a quick and practical answer to all his questions and improve his overall onboarding to new work. The solution is to assign a mentor to each new employee who will take care of them throughout the training period and will be there for them to chat or speak in case of any questions. It is the mentor's responsibility for their mentee onboarding and thus they will do his best to make sure the mentee understands all new requirements.

Discussion

Although remote working can be a big reduction for companies expenses (building, electricity, internet, etc.), they should focus on achieving the highest possible work efficiency from their employees. This efficiency is also determined by how quickly and how well new hires are trained for their new positions. Having a dedicated mentor–mentee relationship has been verified as an efficient solution for training [4]. By having this relationship, new employees are more confident to be a part of the team and already have a trusted contact in the team whom they know they can ask questions, even outside the training itself. This relationship can be pushed further. For example, a live meeting where the team leader introduces a new member to the whole team and then they introduce themselves to the new member, giving this member a feeling of becoming a part of the team.

4 UNIFIED COMMUNICATION CHANNELS
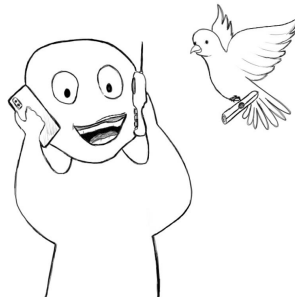
Communication in a remote environment has to be done via a communication medium. This medium is a tool or a set of tools to achieve smooth transfer of information. Teams and organizations have to come up with decisions which tools to use and how to use them.

Context

Currently there is a wide option of communication tools to be chosen from. Naturally, each tool is a little bit different and every person has their own preference. In teams and organizations, if unmanaged, there may be dozens of different tools used by everyone which creates unnecessary overhead. This overhead produces unnecessarily confusions and organizing which can be avoided.

Problem

By using more than one communication tool, overhead is created for people to follow where and how to communicate with different people within an organization or team. These tools require maintenance, such as keeping different logins,

running multiple programs, checking multiple notifications and meeting schedules which is time consuming for the employee.

Solution

Set a company or team wide policy of allowed communication tools. The goal is to select a tool which covers all communication needs. You need to consider messaging types, ability to look into history of communication, voice and video chats, meeting scheduling, operation system compatibility, capacity support and other more advanced requirements per team needs. Any other tool will not be allowed for company communications.

Discussion

Some people prefer using mobile applications, some prefer tools which may not be compatible on all operating systems or devices and if they can't connect, it becomes an overhead. The overhead is a negative influence on the whole structure's productivity. If for example you use two different tools, you may appear available on one but busy in the other and someone e.g. may call you, disturb you while being in an important meeting. This of course can be managed but this overhead is unnecessary. This pattern is also related with the *Unofficial meeting* pattern. By applying this pattern, all your unofficial meetings should happen in the officially set tool.

5   STANDARD OPERATING PROCEDURES

Processes are always established in any working environment and they do differ if they are on-site in a co-located team or in a distributed team. However this does not prevent the company or individual teams to setup Standard Operating Procedures to ensure high quality of work and compliance with industry regulations for routine operations.

Context

Standard operating procedures, or SOPs are written documents or work instructions that detail all of the steps involved in a procedure or process. The basis of Standard Operating Procedures is about systematizing processes and documenting them. Organizational activities and operations are aligned to work in accordance to industrial regulations and governmental regulations with the help of SOPs. It distinctly defines the roles and responsibilities of workers by proving descriptions of who does what and when, allowing for accountability and consistency throughout the workplace [3].

Problem

Even in software development, people do establish routines which are performed repeatedly, often even without realizing that the task performed is being repeated. Software developers have the advantage to automate a lot of the things in the development life cycle, like continuous deployment and testing, but they often forget to document and write instructions of their routine tasks. This creates a risk that a new employee who joins the organization or replaces another employee won't be able to pickup the processes already established.

Solution

SOPs should become an integral part of the company's documentations about their processes but ultimately they are being owned by the team and are not meant to be abused for micromanagement. There needs to be a process to explain the benefits of using and maintaining these documents to team members. Teach them how to write and update details about their actions and even improve them over time. Set up a rule to periodically document and update SOPs within teams or for individual roles. The team leader should be responsible for a regular update check and the adherence to the written SOPs by individuals. These can be maintained in Google Docs or by utilizing more advanced solutions like https://Notion.so.

Discussion

SOPs are extremely detailed instructions and templates that anyone can follow to perform a specific task with 99% accuracy. Teams can use them to either delegate tasks. train new employees, or simply to learn or utilize them as a helping tool to their day to day procedures. By applying this pattern, all routine work should be handled with better accuracy, higher quality and quicker turn around. We can compare these documents to airline pilot document checks they have to check during every single flight.

6   INFORMATION HUB
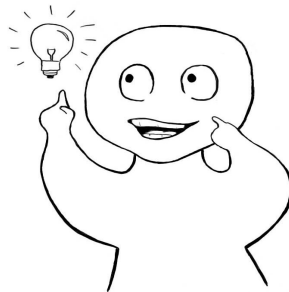
Storing, sharing and updating information is one of the most difficult barriers for remote team collaborations due to the lack of physical contact. Setting up an *Information hub* is one of the ways to ease and help becoming an effective remote team. Information needs to be available to the right people at all times to support the best possible decisions, but it is very easy for people to keep information to themselves without an *Information hub*.

Context

In any company, having accurate crucial information can be the difference between success and failure. If one team is handling multiple projects, tasks or goals it is important to be able to access critical information at ease and that every person knows where to search for it instantly when needed.

Problem

Keeping specific details of any work assignment (project, task or goal) is hard for people as does the number of assignments increase exponentially. In general, if you work on one project and one task, you can easily remember all the critical information as you don't switch between assignments. If this number increases, this becomes a problem to remember accurately.

Most common critical information are the following:

- Deadlines
- Team responsibilities
- Task progress and assignments
- Road map and goals

Solution

Therefore setup an *Information Hub* where every team member can access critical information immediately. This *Information Hub* must be known as the place to go for critical information and therefore it must be regularly updated and maintained.

This can be for example a Trello or similar Kanban board, an online Google sheet document, a Confluence page or similar place where information is stored with the particular team. It is not suitable to have an *Information Hub* in your communication tool such as Slack due to the difficulty to search for older artefacts and messages.

An Effective *Information hub* is customized to the team—by the team. Ineffective ones are rigid and prescriptive, for example company wide hubs.

Discussion

This pattern can be easily connected with *Standard Operating Procedures* where you setup a procedure to regularly update the information. For example it would be a procedure to always record the important notes and changes after a meeting concludes, this would usually be the business analyst or the account executive's responsibility.

There is also a strong relationship between this pattern and the Scrum pattern called *Information Radiators* [1]. he *Information Radiators* pattern talks about collaboratively maintaining physical artifacts that keep information visible to all stakeholders, such as a board or sticky notes in a frequently visited area such as the hallway, cafeteria, or at the front of the team's office. However, that pattern only discusses this need within the Scrum domain and the physical onsite team collaboration, while we dive into the remote and digitally connected team life cycle.

We also discussed this pattern with colleagues and found out that this pattern is only observed while working on multiple assignments. The colleagues who worked only on one project and one task at a time argument was that there was never such a need for an information hub. They just keep everything in their mind of all the objectives, deadlines and critical information they need to know. When asked about the projects success rate, the standard was often a two month delays to expected delivery of features. This would most likely get worse if new team members join the

team. But it confirms that the need for *Information Hub* is as the number of team members and projects scale up. By observation we would say it becomes viable if the number of team members is at least four or higher and project count is two or higher.

When teams use an *Information Hub* effectively, they are more collaborative, transparent, accountable, and, ultimately, efficient.

7   CUT MEETINGS

Excessive meetings are plague of big companies and almost always get worst over time. Getting rid of them is one of the key points in creating an effective team and get actual work done.

Context

Most enterprises utilize frequent and scheduled online meetings to discuss, plan, and share information between team members either internally or between external people outside the company. This is usually one of the most efficient ways to communicate remotely, but it can go out of control.

Problem

Developers—but also other team members—need to talk, but often they are expected or sometimes even forced to sit on online meetings where they don't contribute to the meeting discussion or it is outside of their scope of work. These are the most common of such meetings:

- Standups
- Client requirements debriefs
- Progress update meetings
- Sprint planning
- Delivery of results

Solution

Setup a couple of rules which allow people to decline or drop off meetings even while in progress, where it is obvious they aren't adding any value. Everyone should ask if I need to be on this meeting and if there is not an obvious reason why they should be on the meeting then the answer is most likely a "no."

Try to avoid big meetings of 5+ people and try to get rid of frequent meetings. Meeting frequency should be targeted to lower over time as matters are resolved.

Managers who are in charge of developers and other members should maintain the meetings his people attend. The goal is to reduce them and review regularly (ideally on a set basis like at the beginning of every month) if the meetings are redundant or not.

Discussion

Don't conclude that this pattern says that you should not have online meetings. Quite the opposite: you should have them as it is an effective method of information sharing. The pattern says to cut the ineffective meetings. Meetings scheduled on a daily or weekly frequency are the most common among ineffective meetings. Good and effective meetings, combined with *Unofficial Meetings* are often the spontaneous ones.

The problem is most often observed in big enterprise companies and it's especially common with hourly paid contractors. These contractors often don't speak up that their time could be used somewhere else more effectively as it's an easy way to have more hours counted as done. It is the manager in charge of the contractor to review the meetings and *Cut Meetings*.

Some real work experience examples would be developers sitting on full day sprint planning meetings where they are not needed as the project managers and and business analysts are doing the planning. In some companies it is also mandatory to participate in daily 40 minutes stand up meetings just to listen to other people's work and current progress. These meetings are often redundant and time ineffective since it would be enough to have lower frequency meetings.

8 SUMMARY

Six organizational patterns of remote work environments are presented in this paper: *Unofficial Meetings*, *Remote Mentor*, *Unified Communication Channels*, *Standard Operating Procedures*, *Information Hub*, and *Cut Meetings*. The patterns come from a firsthand remote work experience obtained in a company focusing on quality assurance through a crowd testing methodology where software companies get real users to test their newest products.

ACKNOWLEDGMENTS

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