Remote Work & Remote Collaboration

Software Engineering II
WS 2020/21

Enterprise Platform and Integration Concepts

Image by crises_crs from flickr: https://www.flickr.com/photos/33774513@N08/49723557892 (CC BY-NC 2.0)
I want to, can, or have to, work from home
Remote Work / Global Software Development

- 81% of Agile survey respondents' organizations used **distributed Agile teams** (i.e. not co-located)
- 71% of respondents featured multiple Agile co-located teams collaborating across geographic boundaries

"The current worldwide health crisis may prove to be an inflection point that leads to an additional increase in distributed teams as a “new normal”"

— 14th Annual State of Agile Report

Reasons for remote / Global Software Development

- **Work-Life balance**, flexibility of work
- **Costs** / reallocation of funds
  (better laptops instead of office space?!)  
- Implement "**Follow the Sun**" development
  - Core idea: reduce time to market by always having a team work on the product  
  - Hand off work at end of work day to next site several time zones away  
- (Safer during a **global pandemic**!)
- ...

Background: Collaboration Patterns

- Everyone in the same physical location: **Single-site team**
  - Collaborate without arranging anything
  - Easily see what everyone else is up to, shared space?
- 2+ groups at separate locations within a larger team: **Multi-site**
  - Perhaps formal sub-team boundaries and responsibilities
  - E.g. dev team split between Germany and India
- Most of team co-located, few working remotely: **Satellite workers**
  - Contractors, autonomous work of satellites?
- Everyone in separate locations (usually from home): **Remote-first**
  - All communication online, full commitment
  - Most open-source projects

Source: https://martinfowler.com/articles/remote-or-co-located.html
Agile Manifesto Principles

■ People collaborate better with direct interactions

The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

■ Relationships within teams are the glue of collaboration

■ Co-located communication is richer than online communications

■ Keep this in mind when selecting tools and collaboration processes

□ (Switch cameras on, especially in 1:1 conversations?)

Agile Manifesto also states: *Individuals and Interactions over Process and Tools*, so adapt to what works for you!
Challenges of Remote

Possible issues of team setups

- Multi-site teams form "us-vs-them attitude"
  - *Contact visits*: short cross team visits, build relationships
  - *Ambassadors*: Spend prolonged time at a different site

- Dividing the work into silos
  - Remember Conway's Law
  - Each team should get to create direct business value

- Detached Satellites
  - Most communication will happen within co-located team
  - Satellite workers may lose connection
  - Temporary measure?

"If you have 4 groups working on a compiler, you'll get a 4-pass compiler."
— Eric S. Raymond

Source: https://martinfowler.com/articles/remote-or-co-located.html
Challenges of Remote

Possible organizational issues

- Impersonal **onboarding** (uncertainty, trust, responsiveness)
- **Mentoring** (junior) staff
  - Hard to mentor people remotely, avoid juniors being satellite workers
  - Ensure each site has mentors to guide teams
- **Indirect management**
  - No direct insight into people’s work, you need to trust
  - Infer what’s happening based on the results
- Harder to build **shared company/team culture**
  - Best collaboration practices have to be **discovered**
  - Finding & building them requires exposure to others and their ways of work

Sources:
https://martinfowler.com/articles/remote-or-co-located.html
Challenges of Remote

Consequences of remote teams

■ **Security**
  □ Private and work computer might now be the same
  □ Can a company make sure that data is safe in homes?

■ **Culture mismatches** in geographically distributed team
  □ Diverse (work) cultures & social norms
  □ Culturally accepted ways of communicating
  □ Expectation management

■ **No shared space**
  □ No physical coordination artifacts, no chance encounters
  □ Total reliance on digital project management tools

Consider regular Water Cooler Chats / "der Flurfunk"
Challenges of Remote: Covid-19 Learnings

Consequences of permanent remote work

- **Home Office is not a real office**
  - Bad equipment situation (esp. young employees)
  - Missing interactions with other persons
    (e.g., rumors are part of our social interaction)
  - Convenient but bad habits (How many pizzas did you have?)
  - Breaks will be neglected and are shorter than usual
  - 8h day or until the task is done?
  - Danger of social isolation (esp. singles with gaming as hobby)
  - Back-to-back meetings and permanent online concentration
Is Productivity Going **Up** or **Down**?

- More coordination and handovers
- Work around the clock
- Whom to ask?
- How to judge your contribution?
- Calendar full of meetings
- ... 

In a recent study of WFH [Bloom15], productivity increased, but promotion rates conditional on performance fell.

Work-Life-Balance

Attend meetings wherever you want

Easier to handle private things

No spontaneous interruption

...
Remote means anyone can work anywhere, but also...

- **Higher productivity on individual tasks**, less on collaborative ones

- **Available talent pool**
  - The best teams are made up of the best people?
  - Widen talent selection
    - (but the people you really want to hire might already live in tech centers?!)  
  - Software development not tied to a place
    - Reluctance to accept location & commuting disadvantages

Median rent for 1 bedroom apartment in SF’s Bay Area was $1,975 (April 2019)

Source: https://martinfowler.com/articles/remote-or-co-located.html
Recommendations for Remote Work

- **Structure your working day**
  - Meetings just 25/50 minutes
  - Ensure breaks
  - Use meeting requests
  - Block working and private time

- **Centralize document storage** (incl. collaborative editing)

- **Prioritize your communication channels**
  - Mail (can wait), VIP Mail, Discord (short requests), Meetings, mobile (decide who has this number, don't be pushy), short messages (outside working hours)
  - Turn on video
  - Limit notifications (each one is an interruption)!
Recommendations for Remote Work

- **Provide the right hardware**
  - Paperless office
  - Ergonomic desk, monitors, keyboards
  - Where to keep your backup disk?
  - Always have a good internet connection (upload!)
  - Don't forget remote work security (stable VPN)
Recommendations for Remote Work

■ Take care of your **physical** health
■ Take care of your **mental** health
  □ Virtual coffees and off-work events with colleagues
  □ Keep a good routine going
■ **How to lead a remote team**
  □ Check in with your team regularly
  □ Don’t be afraid to overcommunicate
  □ Keep having fun
If you have a hammer, everything looks like a nail.
Remote Working Agreement

■ Find **consensus in team** on collaboration practices
■ Write it down, refer back to it regularly
■ **Revise it** with new information and learnings
■ Agreement could include aspects such as:
  □ How do we contact each other and schedule conversations?
  □ How do we **indicate availability** to communicate (or a lack of it?)
  □ Do we have **shared core working hours**?
  □ How do we **organize team meetings**? How do we collaborate on design activities?
  □ How do we deal with work items and project boards?
  □ What are things that are "**no-gos**" for you / your team?

Source: https://medium.com/serious-scrum/7-concrete-ways-to-improve-collaboration-in-remote-or-distributed-scrum-teams-7940fbaed52d
General types of communication technologies

- **Collaborative modeling tools**: Computer aided software engineering (CASE) tools, collaborate on models in real time with support
- **Collaborative writing tools**: Simultaneously write a document (Office365, Overleaf,...)
- **Discussion tools**: Transmission of messages, e.g. email and chat (Slack, Teams,...)
- **Inclusive modeling tools**: Simple tools such as whiteboards, paper, sticky notes (Mural,..)
- **Virtual meeting tools**: Synchronous (video) communication (Skype, Zoom, Teams,...)
- **Version control tools**: Manage and organize versions of project artifacts (Jira, GitHub,...)
The practice of "**Use The Simplest Tools**" should apply

- Consider the cost of complex tooling
- Simple tools usually easy to learn, use & share with others
Tools for Remote Work

Media Richness

- More context clues
  - More physical proximity
  - Gestures & facial expressions

- Ability to answer questions in real time distinguishes collaboration from documentation options

Source: agilemodeling.com/essays/communication.htm
Tools for Remote Work

(Communication) tools are key

- Document state of software & **progress of work**
  - e.g. GitHub Wikis, generated diagrams, change logs
  - Daily/Weekly Standup in Discord, check in with team
  - Update and comment tickets/issues, celebrate commits and deploys

- Keep **others informed**, e.g.
  - Push code to shared branches (& tell people about it)
  - Regular deploys of the newest changes
  - Blog Post Driven Development
    - Find blog post headline before Sprint start
    - Summarize features, what issues were solved?

Git commit messages are valuable communication!
Consider "Fixed stuff"

**Sources:**
https://martinfowler.com/articles/remote-or-co-located.html,
https://www.allthingsdistributed.com/2006/11/working_backwards.html
Choose (technical) tools that work for you

- Specialized tasks might need **specialized tools**, e.g.
  - Design and sketching (https://miro.com)
  - Running feedback sessions (https://reetro.io/)
  - Automate project consensus (i.e. code review checks)

**Experiment in teams, share what worked!**

- Many new tools & ideas all the time
- What should be adapted by the entire project?
- **Discuss!** Others might not share your experiences! (and that's okay)
- Caveat: change has a cost! **What had the largest value?**
Further Reading

  https://doi.org/10.1109/ICGSEW.2013.10

  https://doi.org/10.1145/3372787.3390436

  https://doi.org/10.1145/3372787.3390442

  https://doi.org/10.1145/3372787.3390434

  https://doi.org/10.1093/qje/qju032
Summary

Motivation & background
- Reasons for Remote/Global Software Development
- Collaboration patterns
- Remoteness & Agile

(Dis-)Advantages of remote
- Issues of team setup
- Organizational issues
- Consequences of remote teams
- Permanent remote work
- Benefits for Management

Recommendations & Tools
- Leading teams
- Remote Working Agreement
- Communication technologies
- Media Richness Theory
- Choosing your tools