Transforming the Future of Work through Human-Centred Design

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Transformations in work

The pandemic was a time for massive change, as well as reflection and learning ... 

about how we get our work done
about the place of work in our lives
about the world and how others are coping
The Role of HCI

- Helping us toward a more human-centric future
- A legacy of research, going back to our roots
- Working with industry to make changes
Structure of This Talk

1. Looking back: What the pandemic taught us
2. Where we are now: The pivot to hybrid
3. Shaping the future: What we can do
Looking Back
Microsoft’s Future of Work Initiative

- 50+ research studies run across the company during the pandemic
- Included research and applied researchers in Azure, Office, Windows, Xbox, Github, and LinkedIn
- Led to a 2021 report on the future of work
- See The New Future of Work - Microsoft Research
Selected Findings

1. Personal Productivity and Well Being
2. Social connection
3. Collaborative Interaction
Productivity & Well Being

People were managing to be productive but often at a cost
Key Findings: Self Reports of Productivity

Surveys during 2020 found about equal splits of people (35% each) reporting being more or less productive at home.

And being more or less satisfied with their jobs working from home.

Weekly pull requests over time.

Productivity comes at a cost...

“I’m trying to do the best job I can, it’s just so much more work”

“It’s seems to be getting more and more difficult to be productive. And I feel pretty worn out. It could be because I worked most of last weekend”

Key Findings: Thrivers and Survivors

The research showed a number of factors at play for whether information workers felt productive:

- Prior WFH experience
- Layout and privacy of workspace
- Needs of co-habitants, such as children

Benefits and challenges of WFH* are linked

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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<tbody>
<tr>
<td>Flexibility</td>
<td>Lack of structure / Longer workdays</td>
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<tr>
<td>No commute</td>
<td>Blurring the boundary between home and work</td>
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<td>More time with family*</td>
<td>More non-work distractions</td>
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<td>Easier to intersperse exercise</td>
<td>More sedentary - physical discomfort</td>
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<tr>
<td>Fewer work distractions</td>
<td>Isolation &amp; communication challenges &amp; lack of visibility</td>
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Stress / Emotional exhaustion / Burnout
Productivity is Personal

• Work needs to be understood within the context of people's larger lives

• Shift from a focus on productivity to well being

• Result was changes in work practices, new initiatives around well-being, and new technologies to promote well-being.
Remote work risked eroding our social capital
Key Findings

Microsoft top words: "Isolated," "disconnected," and "lonely"

Meta analysis: Remote IWs missed office interaction, felt isolated and less able to share concerns with co-workers than onsite workers

Sources: Emily Peloquin, Sheri Panabaker, Patty Clusserath, Nalini Iyer, Hope Idaewor and Emily Downing. 2020. CSEO WFH Study/GESS (Global Employee Satisfaction Survey). Charalampous, Grant, Tramantano & Michailidids, 2018
They missed **spontaneous** interaction...

“Part of me thinks that **what used to be** a 5 minute drive-by in a hallway is now a **30 minute meeting**.”

(Participant 676)

and **serendipitous** interaction

“The biggest risk is that we become **locked in our bubbles**. We don't get the general mood or the **coffee break gossip** which is an **essential glue** to create the bond between coworkers.”

(Participant 642)

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**Project Tahiti**: A large scale study of Microsoft employees’ experiences in remote meetings during COVID-19.

(Sean Rintel, Abigail Sellen, Advait Sarkar, Nancy Baym, Rachel Bergman)
The Erosion of Social Capital

“The value that accrues to individuals and organizations from their relationships.”
Social Capital Boosts Organizational Success and Employee Wellbeing

- Cohesive organizational climate
- Knowledge exchange
- Job satisfaction
- Organizational commitment
- Job involvement
- Organizational identification
- Greater performance
- Better health and less stress
- Creativity and innovation
- Employee stability
Bridging
“Social Lubricant”

Bonding
“Social Superglue”
Shrinking, More Siloed Networks

- Telemetry from 50,000 Microsoft employees shows WFH caused them to build and maintain fewer relationships outside of their own business group.
- And more time with their pre-existing networks
- Doubling down on bonding, not bridging, to stay productive

The effects of remote work on collaboration among information workers. Longqi Yang, David Holtz, Sonia Jaffe, Siddharth Suri, Shilpi Sinha, Jeffrey Weston, Connor Joyce, Neha Parikh Shah, Kevin Sherman, Brent Hecht, Jaime Teevan. Nature Human Behaviour | September 2021
Remote Work Creates More Siloed Organisations

• Little chance to build networks, lack of awareness of people outside your team

• Immediate consequences for new joiners, early career workers especially

• Long term consequences might be much more serious: social and creative capital erosion

• **Result** was an increased emphasis on social online events, better onboarding, and more emphasis on new employees.
Collaborative Interaction

Meetings were challenging and fatiguing
Key Findings: Meetings were Challenging

Fatigue (Bailenson):
- Excessive eye contact
- Self-view is cognitively demanding
- Being tied to one place
- Cognitive load

Trouble sharing artifacts

Stilted, awkward conversations

“Of all the crimes of Zoom [...] much the worst is its **chilling effect on interruption**. To cut across someone is to risk that **grim dance of confusion** in which both parties talk simultaneously.”

Janan Ganesh, FT
How are in-person and video meetings different?

30+ years of research

- Audio issues
- Reading the room
- Lack of reciprocity

Sources: Sellen, 1992; Jefferson
Distortions in audio

Good audio cited as number one requirement for a good video call.

Lag is problematic for turn-taking.

But half duplex and noise cancelling prevents rapid fire engagement.

But even with full duplex audio and no perceptible lag, conversations are still stilted and formal.

Sources: Project Tahiti
Sellen, 1992
“Reading the room” was more difficult

**In-person**, perception is multimodal and spatial, picked up in the periphery of attention

**In video calls**, cues about people’s activities and intentions are restricted and watered down
The Breakdown of Reciprocal Perception

**In-person meetings** have “reciprocity”: If I can see you, you can see me. If I can hear you, you can hear me.

And a shared frame of reference, so gestures are meaningful.

**Remote meetings** make us *have to think* about how we are perceived. A fractionated frame of reference.
Engaging, Inclusive Collaboration is a Design Challenge

• Better work practices can help

• Better configurations can help

• But there is huge opportunity to design new collaborative tools going forward

• **Result** was new guidelines for running remote (and now hybrid) meetings. New collaborations with Teams.
Where We Are Now
A Hybrid Future?

A mix of office-based and remote work

But lots of implications flow from this...

• Temporality
• Home/work boundaries
• Ecosystems
• Meeting interaction
• Sociality
Productivity and Well Being: The Good

More focus on mental health

The right to a larger life

Re-assessing and reflecting on why we work
Productivity and Well Being: The Challenging

The Great Re-shuffle

What is the Great Reshuffle and how is it affecting jobs?
Productivity and Well Being: How HCI Research is Helping

- Using research to generate guidelines for new working practices and culture
- Moving us on from productivity: Finding new metrics and a new vocabulary for meaningful, valuable work
- Inventing new technologies which account for more flexible, dynamic, and porous home-work boundaries
Social Connection: The Good

Our friends and colleagues kept us going

Level playing field and more empathy

Elevated the importance of place
Social Connection: The Challenging

The need to build our social and creative capital

How do we get people back to the office?

Microsoft unveils new Work Trend Index research...
Social Connection: How HCI Research is Helping

• Developing new practices for hybrid work
• Experimenting with new work policies
• Inventing new technologies for serendipitous and spontaneous connection
Collaborative Interaction: The Good

We have all been “left out”

Recognition of the need for inclusive tech and work practices
Collaborative Interaction: The Challenging

Our technologies are not designed for the hybrid world

Asymmetries will be amplified
Collaborative Interaction: How HCI Research is Helping

• Developing **new practices** for hybrid meetings
• **Reconfiguring** and **redesigning** meeting rooms
• **Inventing new technologies** for hybrid meetings which are more inclusive of the remote participant
"Perspectives" Research Prototype
HCI’s Role in the Future of Work
HCI’s Role in the Future of Work

Design new technologies and work practices for a changing work landscape
HCI’s Role in the Future of Work

Understand how the nature of work is changing
HCI’s Role in the Future of Work

Expand our view of work and workers
HCI’s Role in the Future of Work

Redefine our aspirations for work and its place in our lives

In addition to economic security (where work allows us all to participate equally in society), what about:

• **Wellbeing**: work that does not harm our health
• **Growth**: work that grows and develops our capabilities
• **Freedom**: work that provides the freedom to pursue a larger life
• **Nurture**: work that nurtures our identity and is meaningful
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