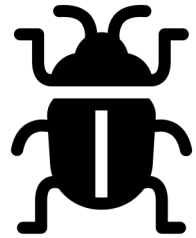




# “How Was Your Weekend?” Software Development Teams Working From Home During COVID-19

Courtney Miller, Paige Rodeghero, Margaret-Anne Storey, Denae Ford, Tom Zimmermann



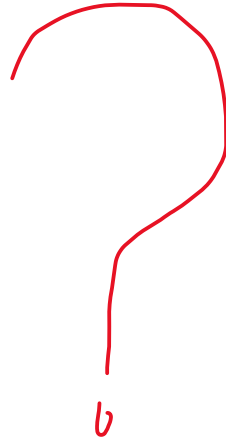
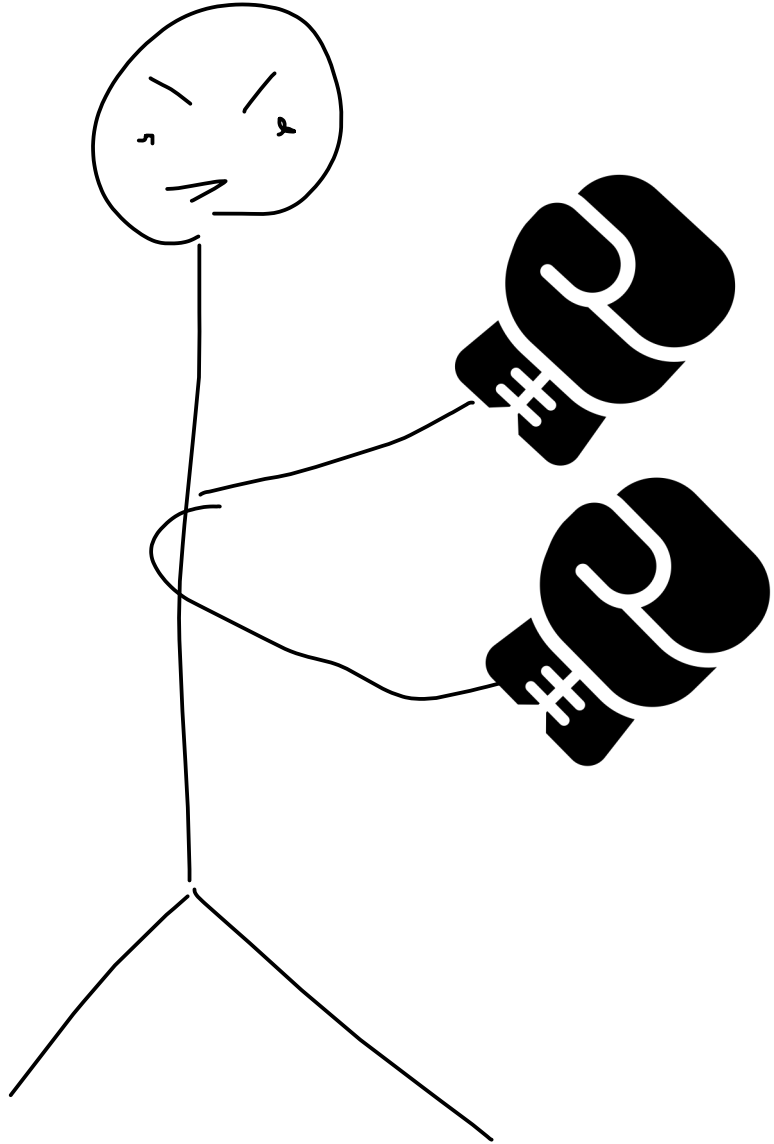
Coronavirus



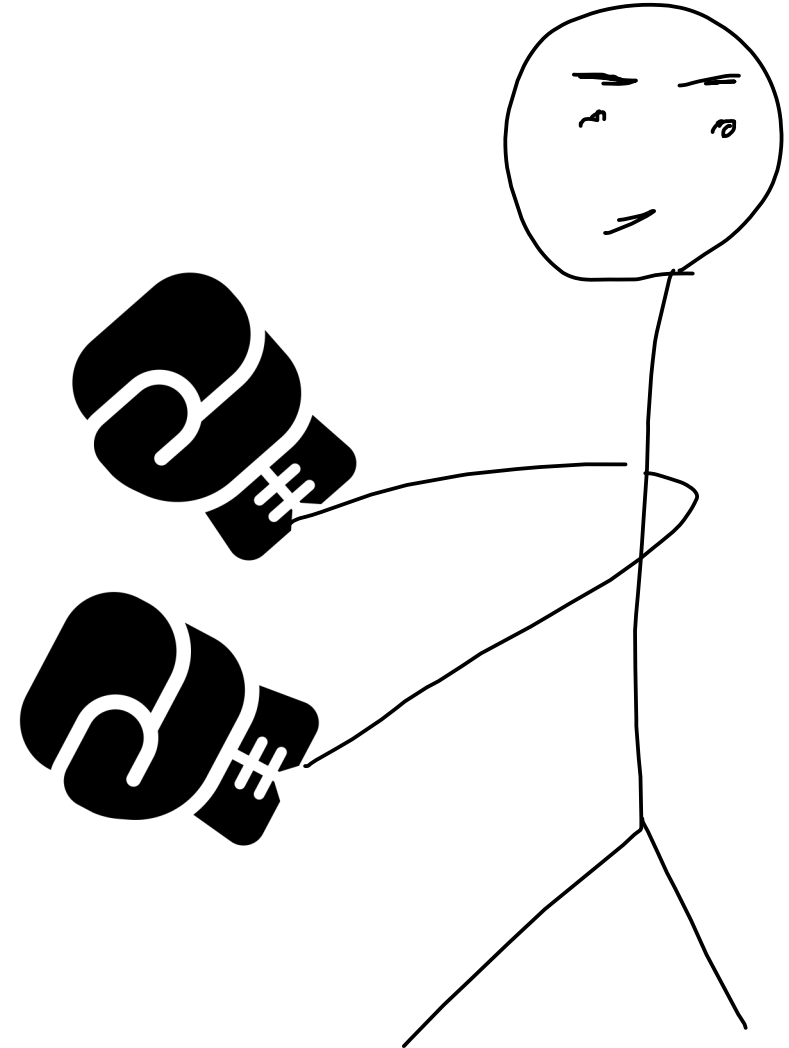
Work from Home (WFH)

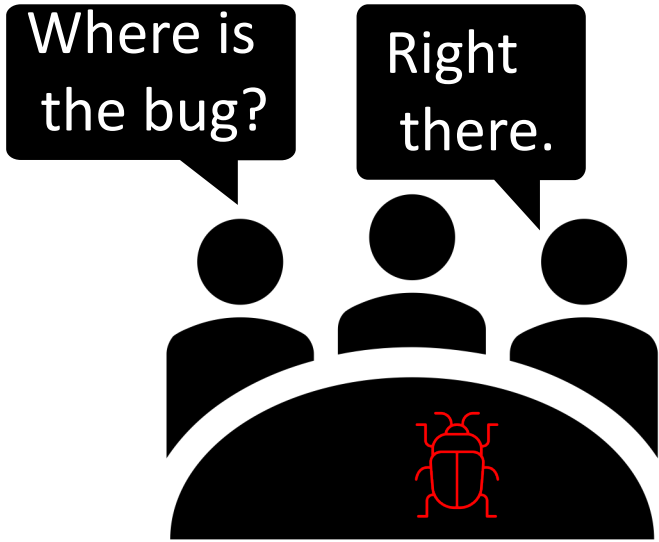


## WFH Experiences

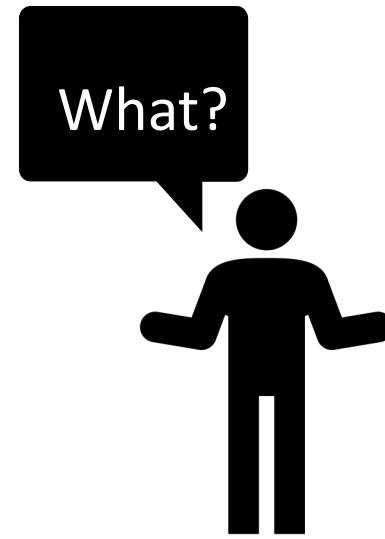


## Team Culture

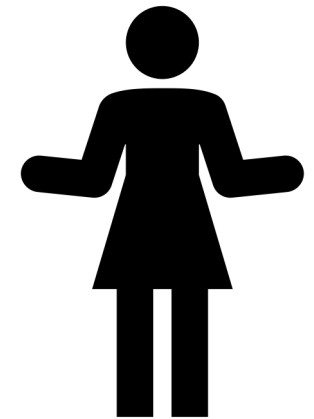


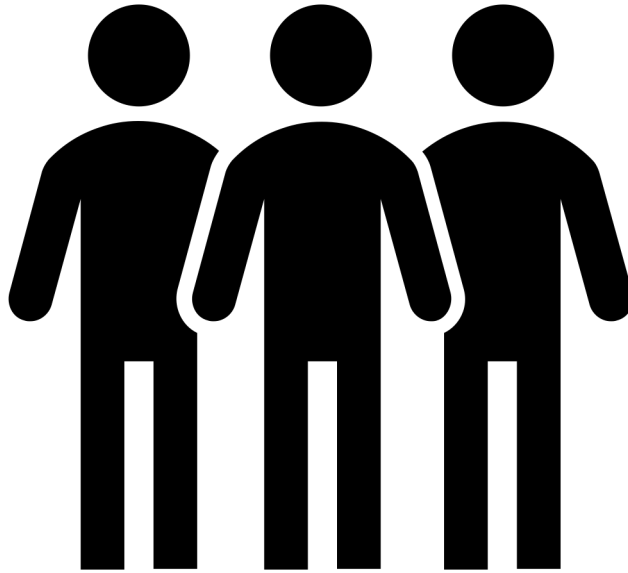


VS.



Communication

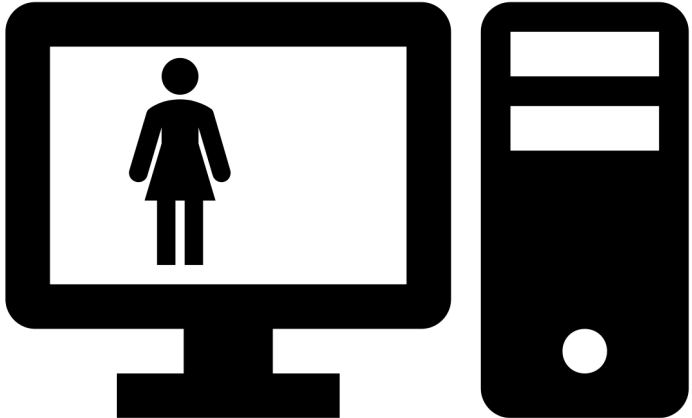




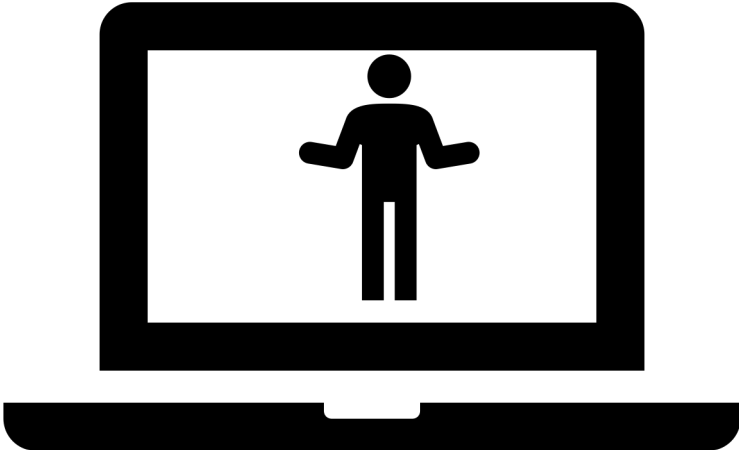
Pre WFH Collaboration



Tom, you're muted



# Post WFH Collaboration



# Pre WFH Social Activities



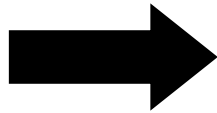
# Post WFH Social Activities



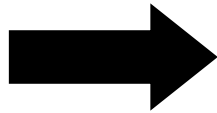
So, how was your weekend?







The way teams interact has changed



Missing  
social  
interaction



Trouble speaking  
up in meetings

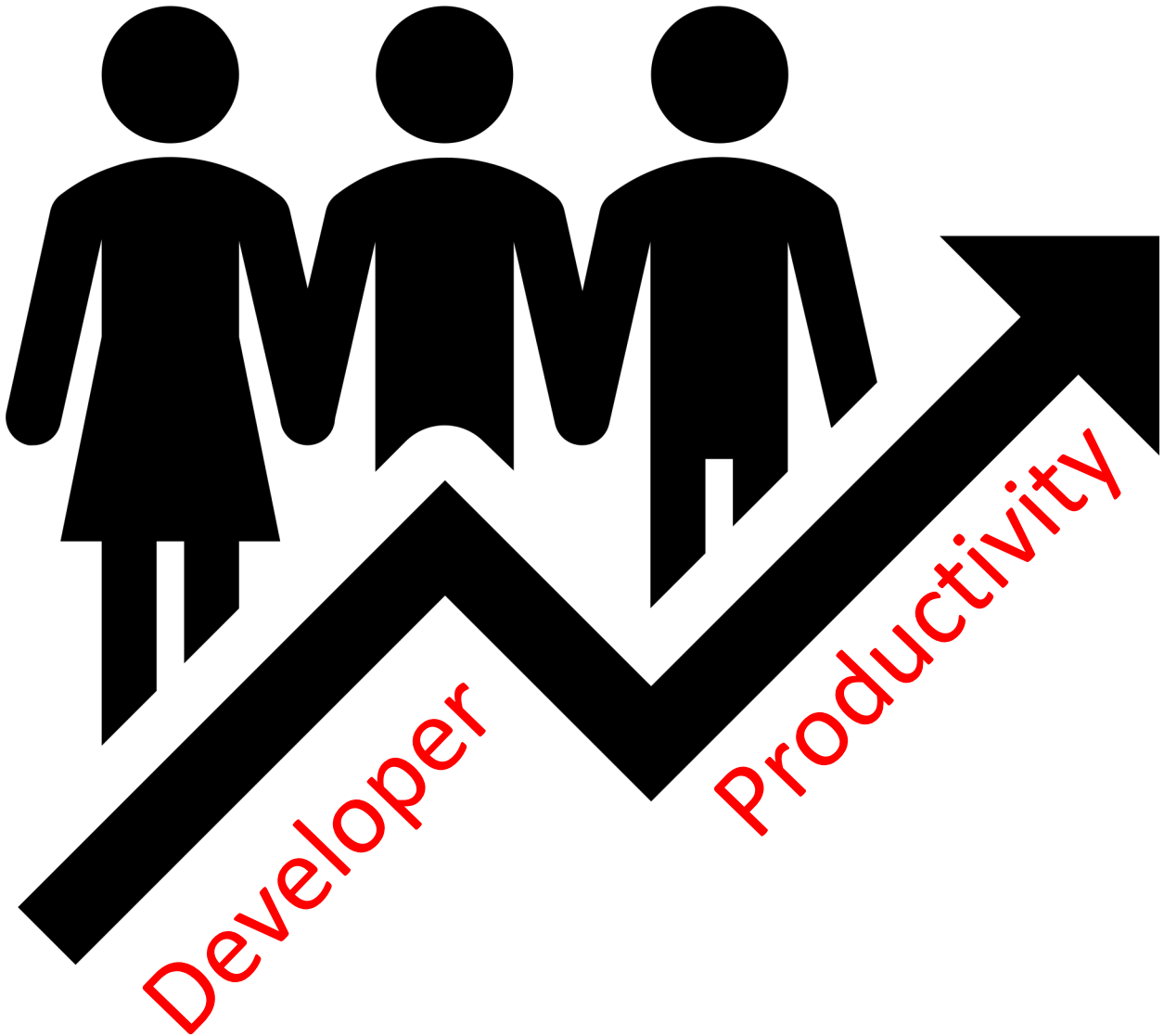


This is great



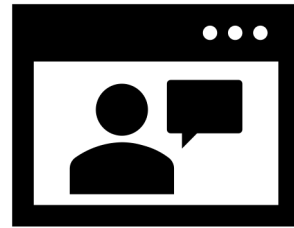
The way teams interact has changed  
Has their productivity?

# Team Culture Factors

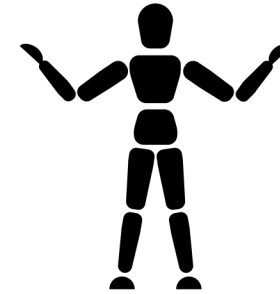




Analyze results of  
previous WFH survey



Run survey focused  
on team productivity



Build model to predict  
team productivity

## **WFH-Survey**

RQ1: Ability to meet milestones  
RQ2: Team culture  
RQ3: Peer support



## **Team-Survey**

RQ4: Communication and collaboration  
RQ5: Social interactions



## **Team Productivity Model**

RQ6: Modeling team productivity

## **WFH-Survey**

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RQ1: How has the ability for teams to meet milestones changed during WFH?

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## **Team Productivity Model**

RQ6: Modeling team productivity

RQ1: How has the ability for teams to meet milestones changed during WFH?

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RQ3: Peer support



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RQ4: Communication and collaboration  
RQ5: Social interactions



## **Team Productivity Model**

RQ6: Modeling team productivity

RQ1: How has the ability for teams to meet milestones changed during WFH?

RQ2: How has team culture changed during WFH?

RQ3: How have teams supported their members during WFH?



## **WFH-Survey**

RQ1: Ability to meet milestones  
RQ2: Team culture  
RQ3: Peer support



## **Team-Survey**

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RQ5: Social interactions

RQ4: How have team communication and collaboration changed during WFH?



## **Team Productivity Model**

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RQ5: Social interactions

RQ4: How have team communication and collaboration changed during WFH?

RQ5: How have social interactions within teams changed during WFH?



## **Team Productivity Model**

RQ6: Modeling team productivity

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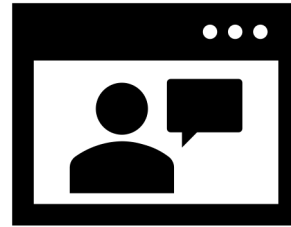
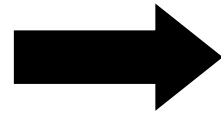
## **Team Productivity Model**

RQ6: Modeling team productivity

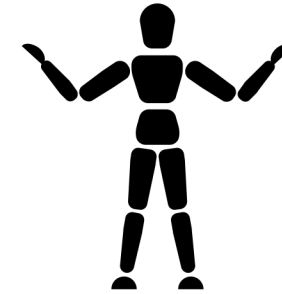
RQ6: Which factors are associated with a change in team productivity during WFH?



Analyze results of  
previous WFH survey



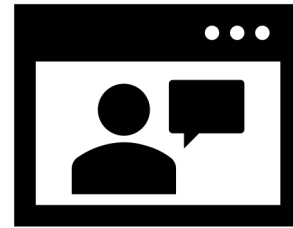
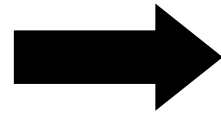
Run survey focused  
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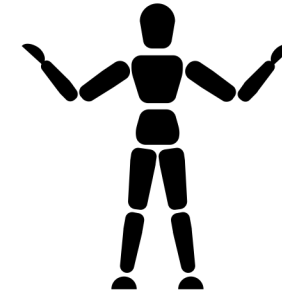
Build model to predict  
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Analyze results of  
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Run survey focused  
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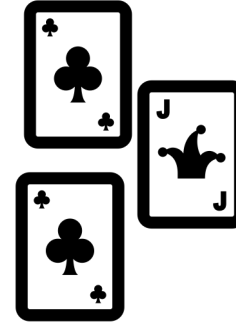


Build model to predict  
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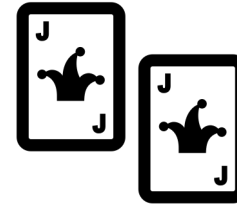
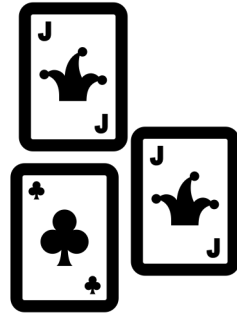
How has your **team culture** changed? (Q79)

How has your team **supported** you during this crisis? (Q80)

Compared to working in office, do you think the **ability of the team to reach milestones** has changed? If yes, please explain. (Q113)



# Card Sorting



How has your **team culture** changed?

*More explicit efforts to facilitate social events and foster team relationships.*  
(S1676)

*We used to have lunches together, and had good comeraderie. No more lunches together, less comeradie, and less incidental 'water cooler' information exchange.*  
(S2049)

*I feel no difference.*  
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*We are trying to adapt to daily sync ups and face time between all team members. which helps with communication but adds into the million meetings.*  
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## Change in Communication

How has your team **supported** you during this crisis?

*We have weekly social hours, which helps with some of the social isolation I've been feeling.*

(S1562)

*Lots of teams meetings.*

(S169)

*More meetings with our direct manager's team just to talk and check in.*

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## Maintaining Communication

Compared to working in office, do you think the **ability of the team to reach milestones** has changed? If yes, please explain

*We have lost somewhere between 20%-40% effectiveness in use of time. In order to keep up, people are working longer hours. We are starting to see burnout.*

(S1384)

*The time pressure due to child care expectations and more-frequent scheduled meetings (vs. quick hallway chats) has definitely slowed the team down. We have explicitly and officially postponed some work, citing Coronavirus-rooted challenges as reasons.*

(S887)

*It is more difficult to land nuanced discussions. 1:1 is OK, but in a multi-person discussion it is very, very hard to keep focus.*

(S1777)

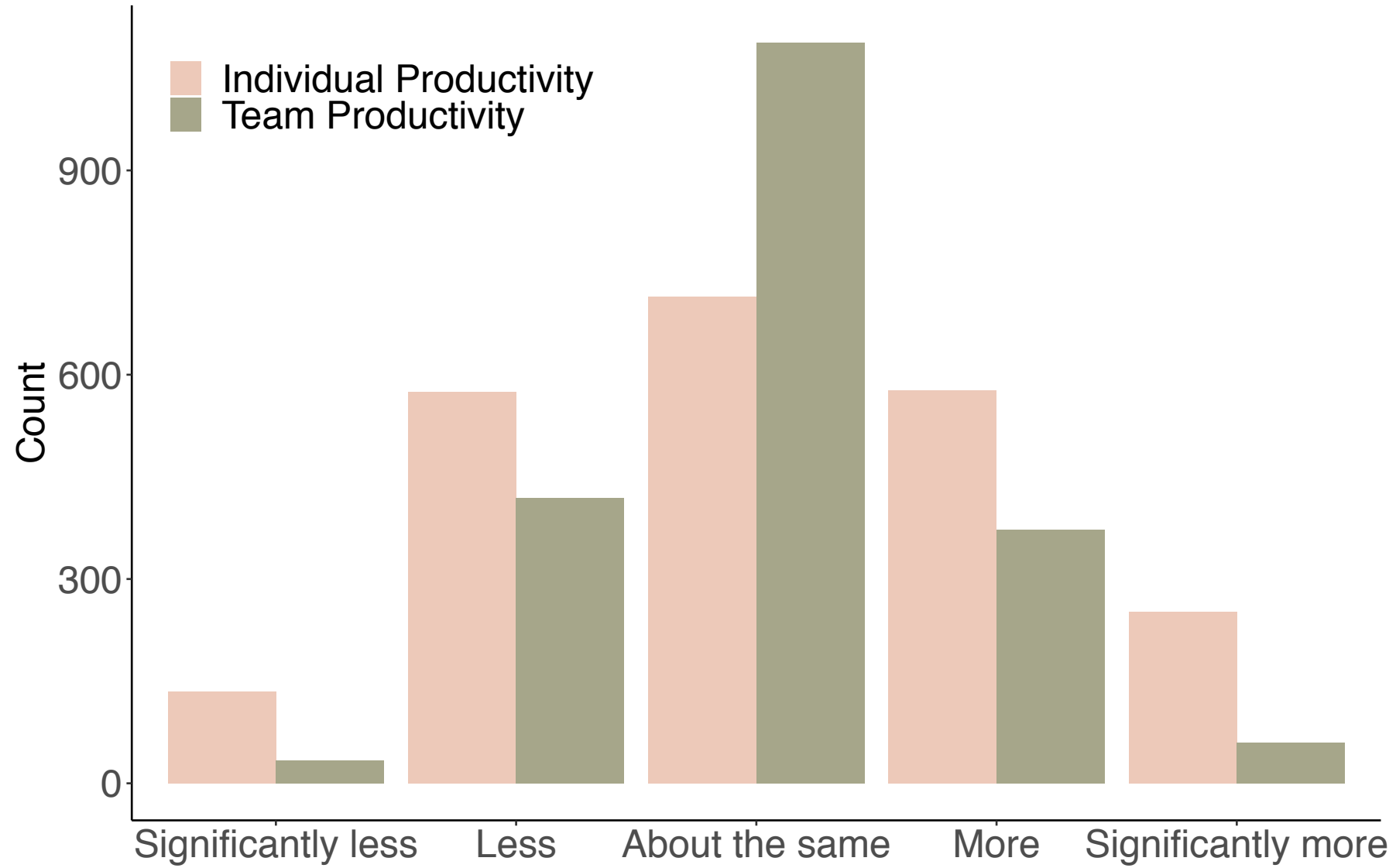
*Brainstorming activities that need whiteboard and involve more passionate conversation progresses slower than before and can be frustrating.*

(S1833)

**Trouble with  
collaboration and  
communication**



# Compared to working in office, how has productivity changed?



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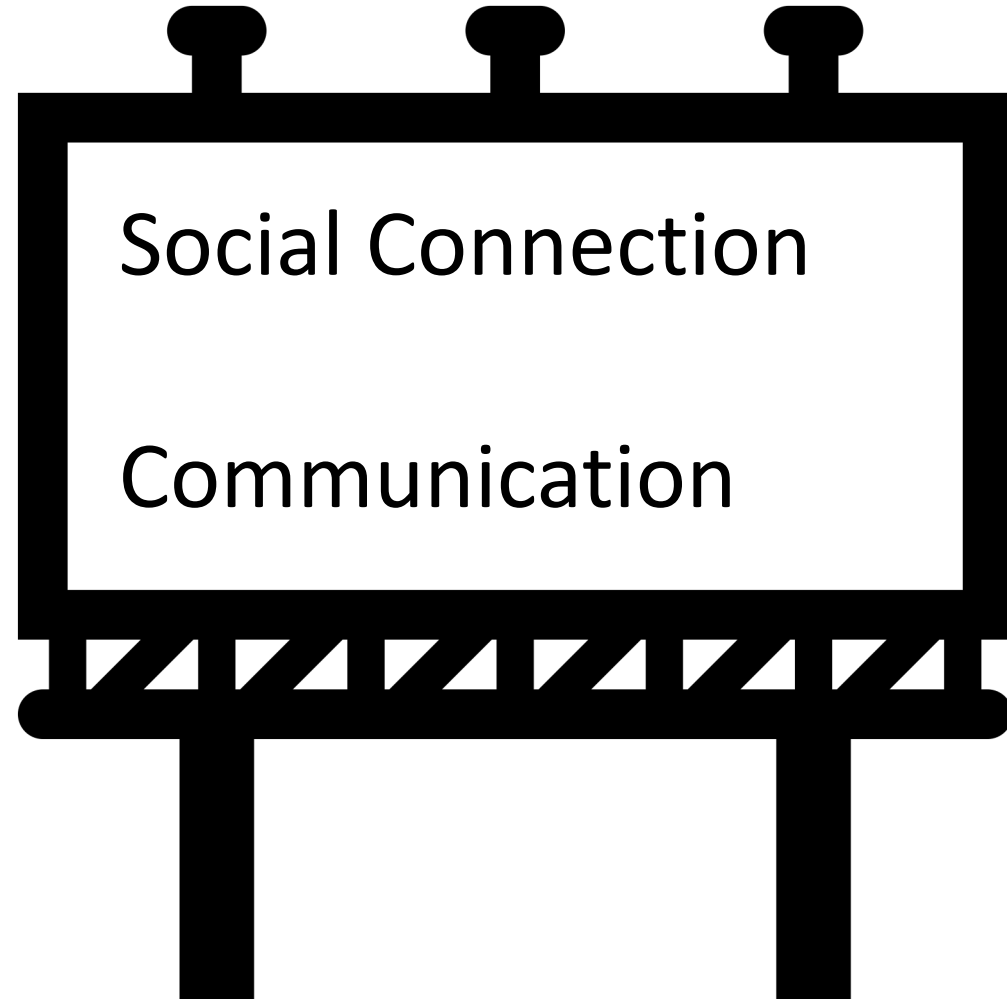
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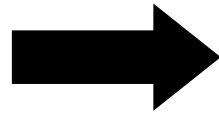
Takeaway:

## Commonly Cited Team Culture Factors:

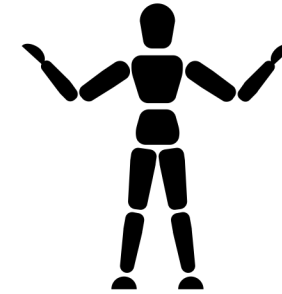




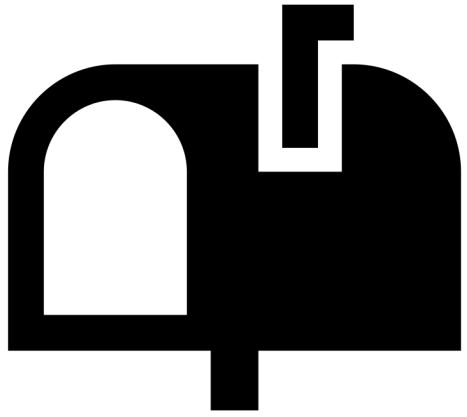
Analyze results of  
previous WFH survey



Run survey focused  
on team productivity

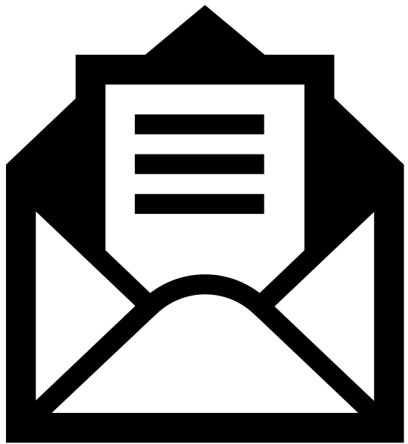


Build model to predict  
team productivity



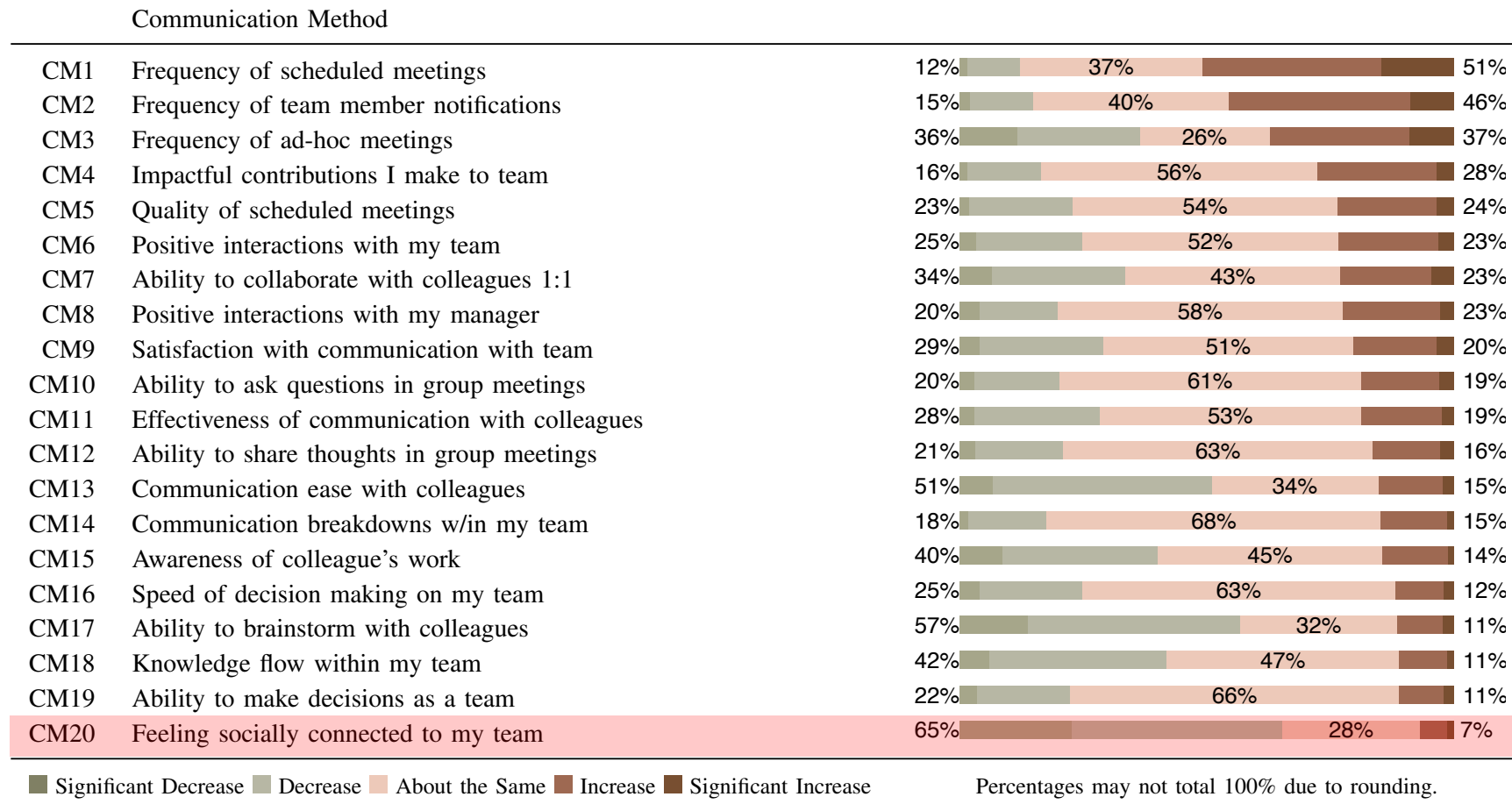
x3,500

-> ~17% response rate



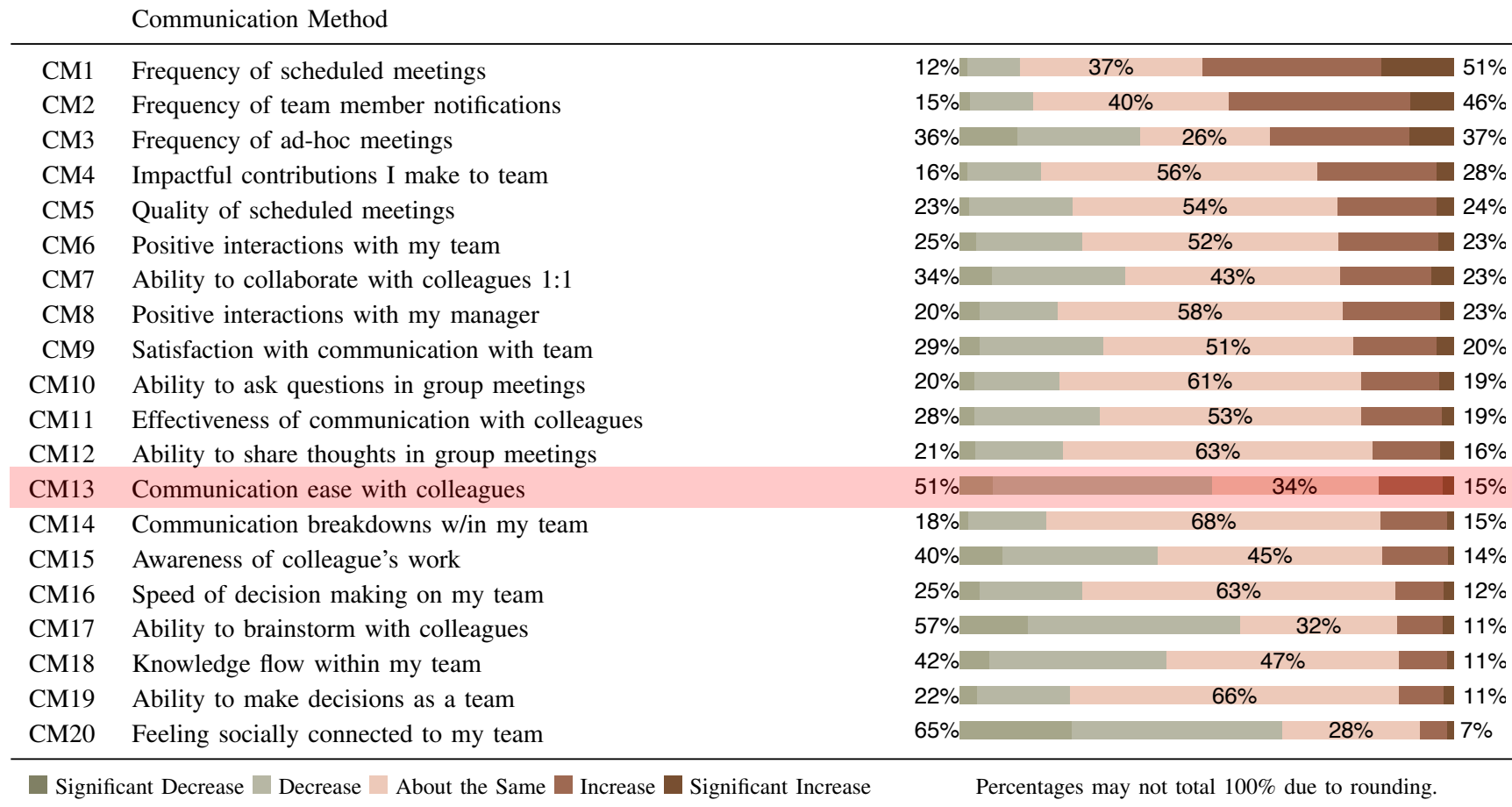
x608

# How has **communication** with your team changed since working from home?

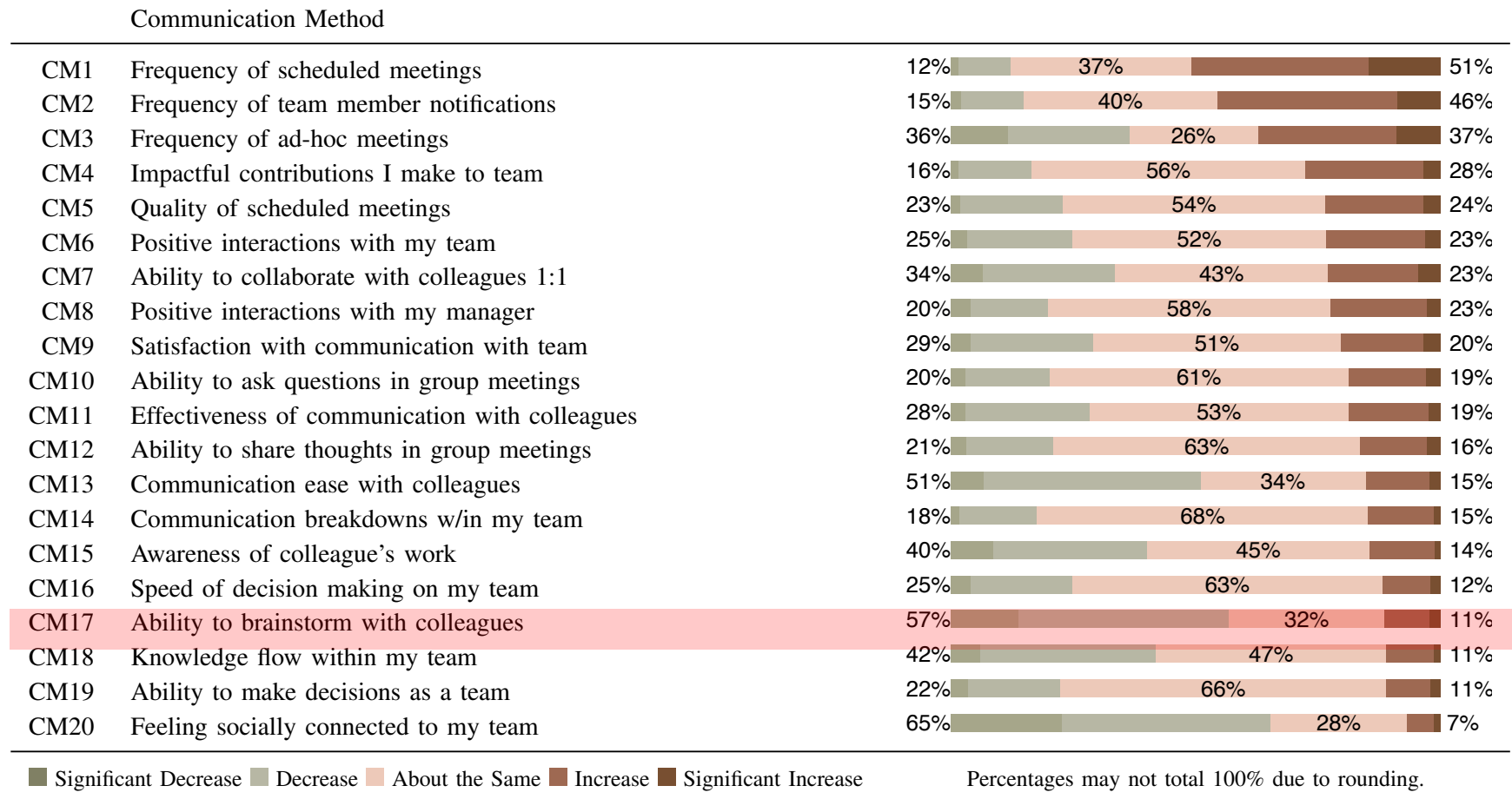




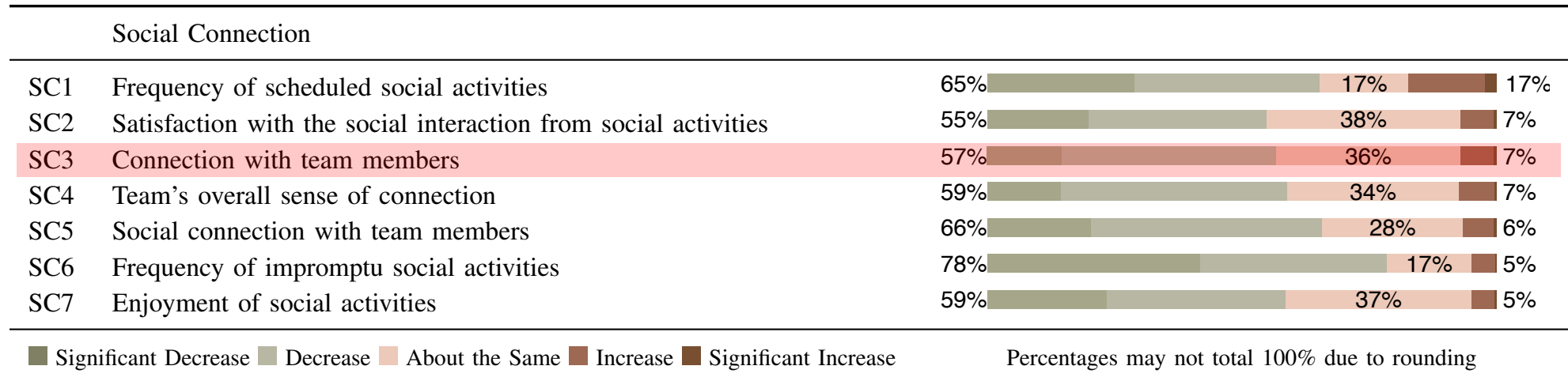
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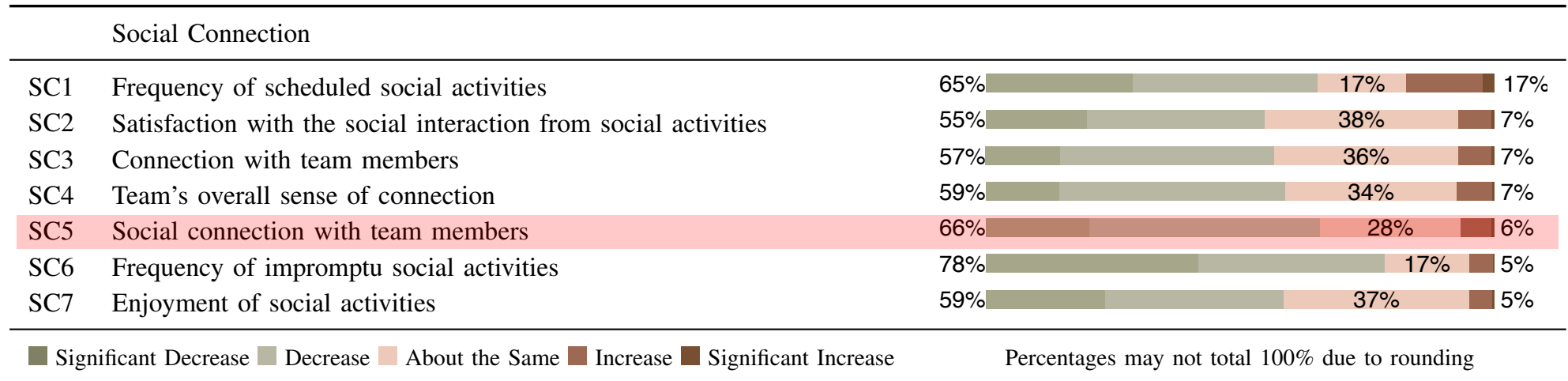
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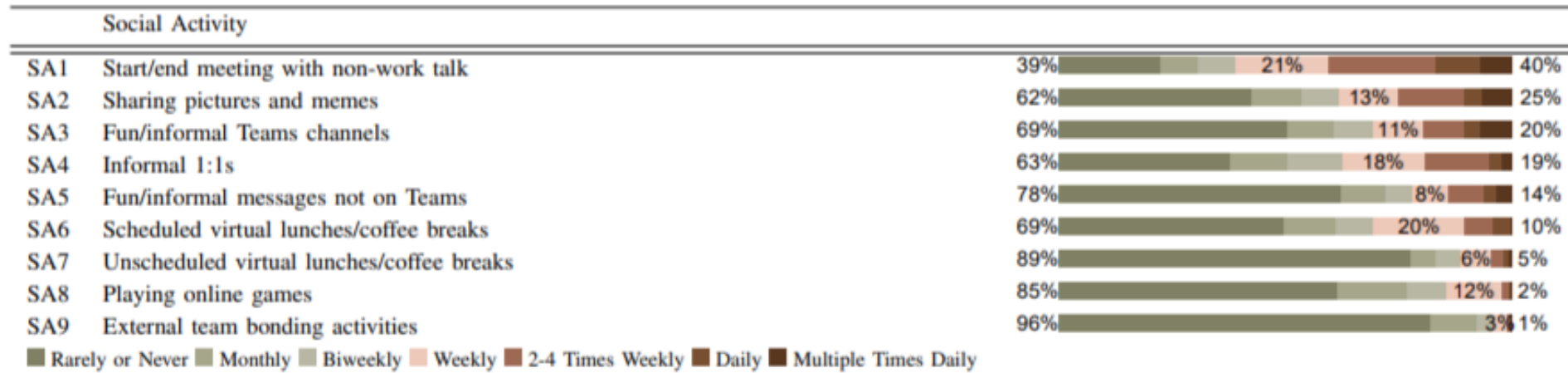
## How has **social interaction** with your team members changed since working from home?



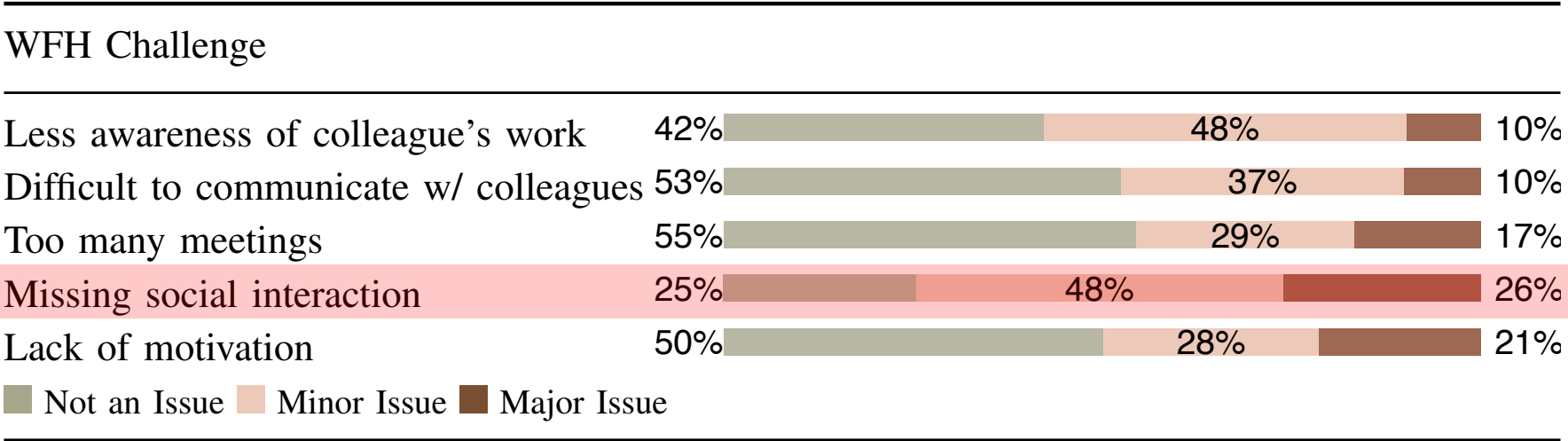
## How has **social interaction** with your team members changed since working from home?



## How do you stay **socially connected** with your colleagues (in place of hallway conversation, coffee breaks, etc.?)

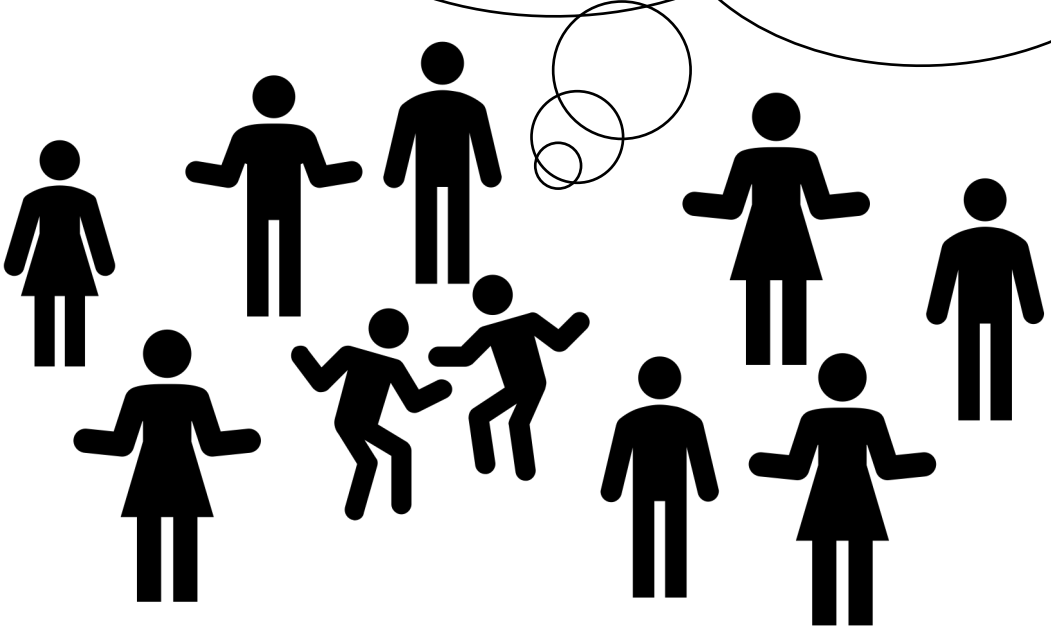


# What **work-related challenges** have you experienced working from home and how impactful are these challenges?



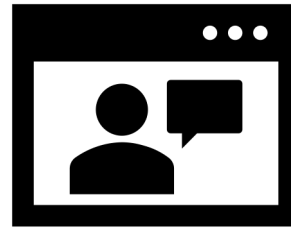
# Takeaway:

Staying Socially Connected – Challenge  
Maintaining Effective Communication – Challenge





Analyze results of  
previous WFH survey



Run survey focused  
on team productivity

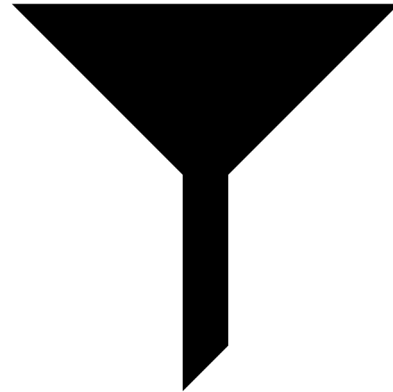


**Build model to predict  
team productivity**



Team culture factor  
Team culture factor  
Team culture factor  
Team culture factor  
Team culture factor  
Team culture factor  
Team culture factor  
Team culture factor  
Team culture factor  
Team culture factor

Model with All Factors



AIC Backwards Stepwise Regression

Team culture factor  
Team culture factor  
Team culture factor



Final Reduced Model

# Takeaway:

Frequency of scheduled social activities

Difficulty communicating with colleagues

Impactful contributions I make to team

Team members are supportive of new ideas

Less awareness of what colleagues are working on

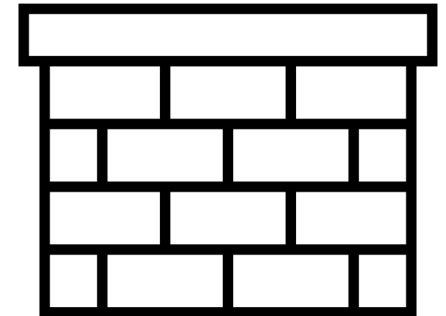
Ability to brainstorm with team

External team bonding activities

Ability to make decisions as a team

Start/end meetings with non-work talk

## Modeling Team Productivity



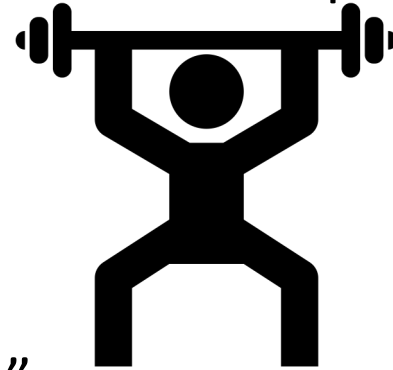
Next... Practical Recommendations for Practitioners!

# Recommendations for social connection:

Build and maintain team culture



Be mindful of other people's time



Actively work to be inclusive



Include social activities as part of "work"



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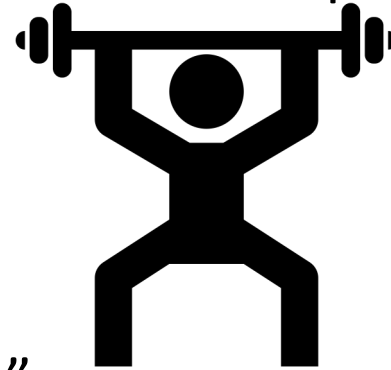


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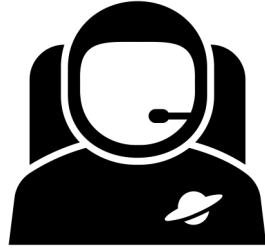
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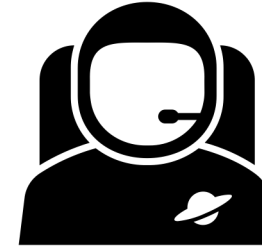


# Recommendations for communication:

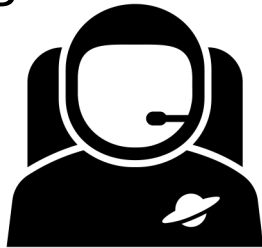
Create communication standards



Managers should hold weekly 1:1 meetings



Hold regular team meetings



Managers should stay aware of contributions

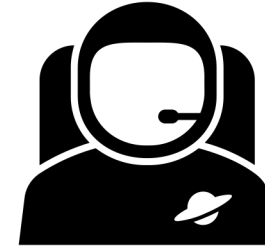


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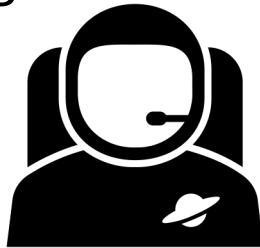
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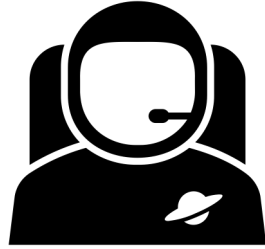


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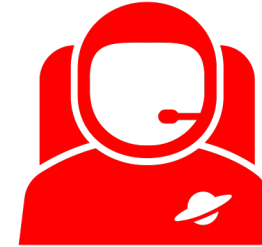


# Recommendations for communication:

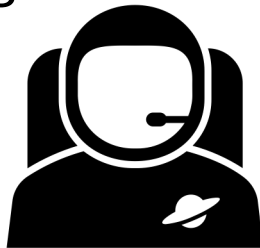
Create communication standards



Managers should hold weekly 1:1 meetings



Hold regular team meetings

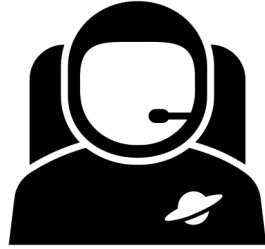


Managers should stay aware of contributions



# Recommendations for communication:

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# Recommendations for communication:

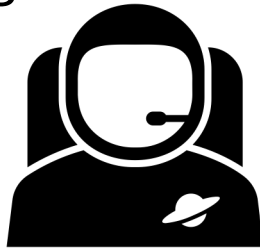
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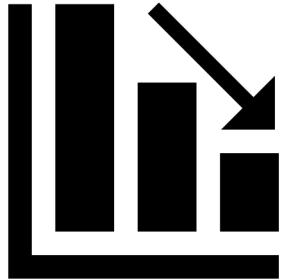




Common Challenges:  
Staying socially connected  
Maintaining effective communication

TL;DR

:

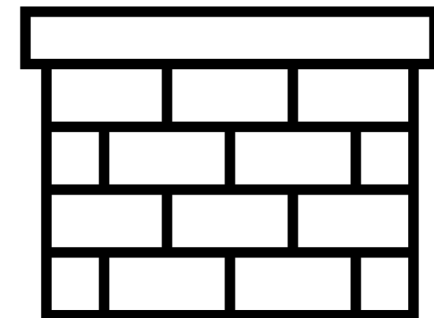


65% report decreased social connection to team  
51% report decreased communication ease with colleagues  
57% report decreased ability to brainstorm with colleagues  
74% consider missing social interaction a work-related WTF challenge

Modeling Team Productivity

Difficulty communicating  
with colleagues

Less awareness of what  
colleagues are working on



Ability to brainstorm  
with team



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# Questions?

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Go team!  
We are #1

