

Selected topics on:

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# Digital Work and Organization Design

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IOEA, April 2026

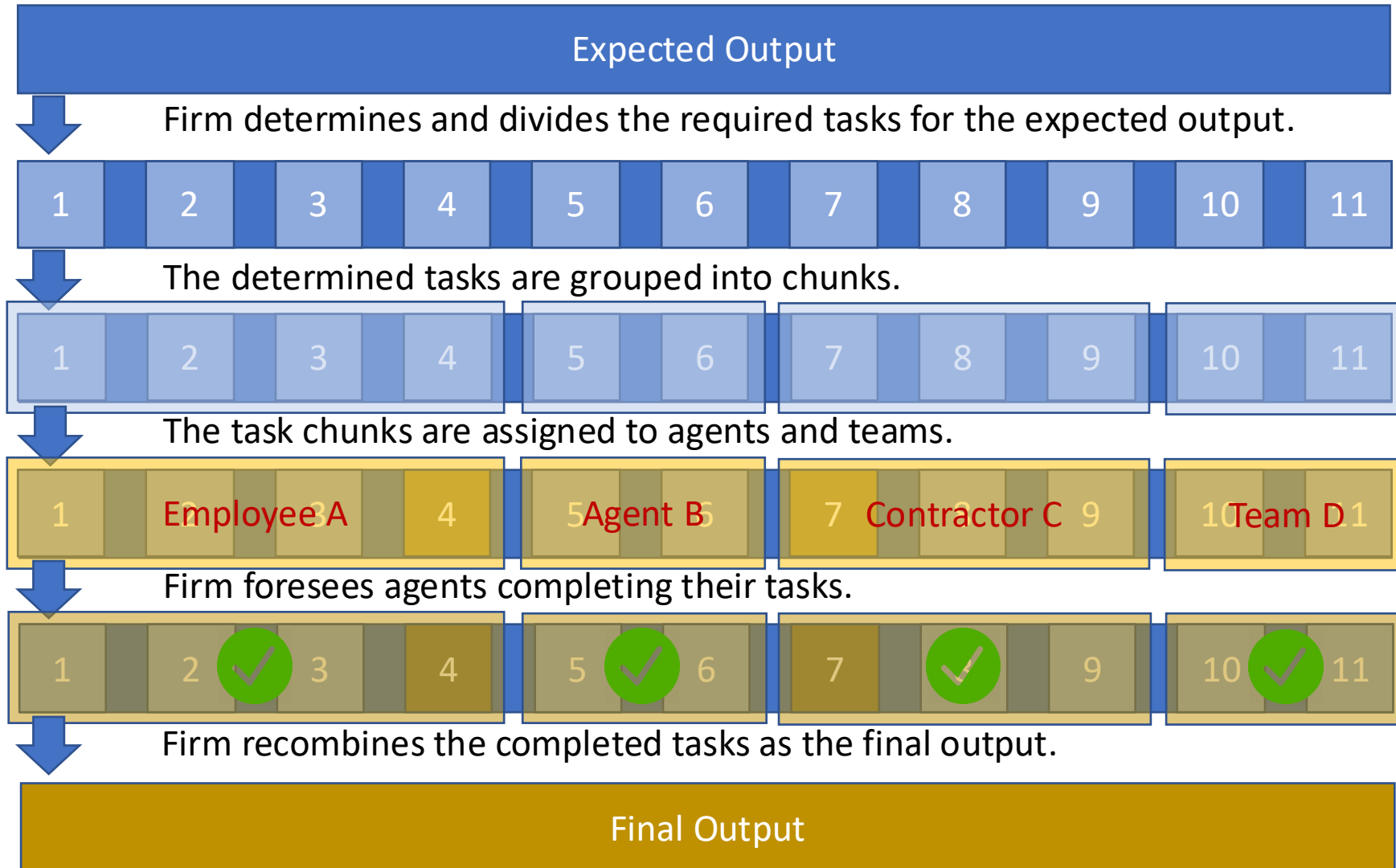


# What is digital work???

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- Digital work: work that is enabled, mediated, coordinated, or monitored through modern digital tech.
- In this presentation:
  - not much about work where the task itself is digital (for example coding, design, data analysis)
  - but more about work where the process of organizing work is digital (e.g., hiring, coordination, monitoring, or communication through platforms).
- Examples
  - **Remote and hybrid work** using Zoom, Teams, Slack, email, shared docs
  - **Platform-based work** such as Upwork, Fiverr, Uber, Deliveroo
  - **Digitized hiring and evaluation** using AI screening, online testing, and digital reputation signals
  - **Human–AI collaboration** where workers use AI tools to write, analyze, code, or create ..
- Easier to understand than to define – a bit like p\*rn.
  - Was punching a presence card 30 years ago a sort of digital work?
  - Are there any jobs that cannot be enabled or coordinated through digital tech these days?
  - What is the distinction to digital transformation?

# Organization Design: Firm as an aggregator (Kretschmer & Khashabi, 2020)



## So what does this have to do with Digital work?

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Digital work can...

- ...change the things that a firm can do
- ...change the way the aggregation function works
- ...change the set of agents that can complete a certain task

➔ Will largely focus on the last two

## The Role of Digital Work

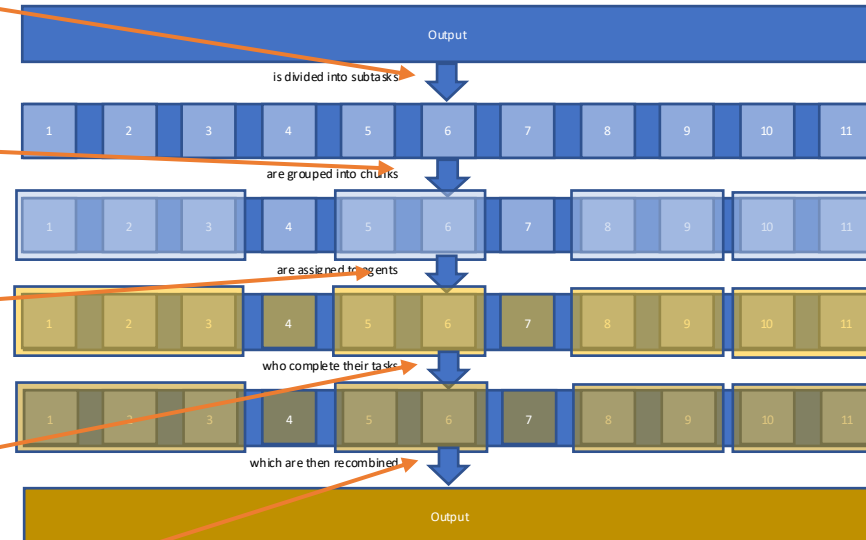
Task Division

Task Grouping

Task Assignment

Task Completion

Task Aggregation



# The umbrella: digital technology changes the task architecture

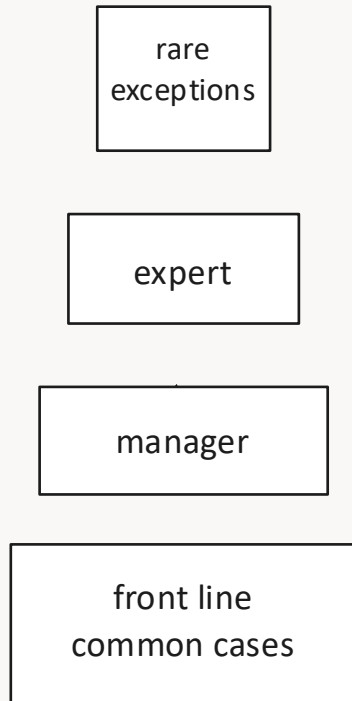
lever	what changes	Some papers
<b>Task grouping</b>	How tasks are bundled into jobs, roles, and modules	Garicano (hierarchy); Baldwin & Clark (modularity); Bloom et al., ...
<b>Task assignment</b>	Which agents can perform a task: employees, AI, contractors, crowds	Autor; Barbosu and Khashabi; Brynjolfsson et al.; Acemoglu & Restrepo; Santon and coauthors; ...
<b>Task completion</b>	How work is coordinated and executed once assigned	Brucks & Levav; Choudhury and coauthors; Yang et al.; Bloom et al., Mickeler et al, ...
<b>Task aggregation</b>	How partial contributions are measured, combined, and rewarded	Kretschmer & Khashabi

Organizational outcomes I will keep coming back to: hiring | retention | incentives | monitoring | firm boundaries | innovation

# Hierarchy

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## Hierarchy



- Garicano (2000): when communication is costly, firms economize by having lower levels solve common cases and escalate exceptions.
  - Especially powerful for knowledge-intensive organizations, where digital work is prevalent.
- Digital work tends to:
  - reduce communication costs?
  - conduct some of the lower-layer routines?
  - replace some less-routine escalation cases by ‘Codified Selves’: digital AI avatars trained to replicate individual communication styles. (Choudhury et al., 2026)
- Search tools, digital forums, and LLMs eliminate some exception escalations. But edge cases, causal reasoning, and accountability can keep demand for experts high.
- Communication technology can pull decisions upward by making consultation cheaper. Hence digitization does not imply monotonic flattening (Bloom et al., 2014)
- So digital work does may simply flatten hierarchies; it changes task assignment.

**Organization design depends on which information frictions technologies relax.**

# The umbrella: Kretschmer & Khashabi (2020)

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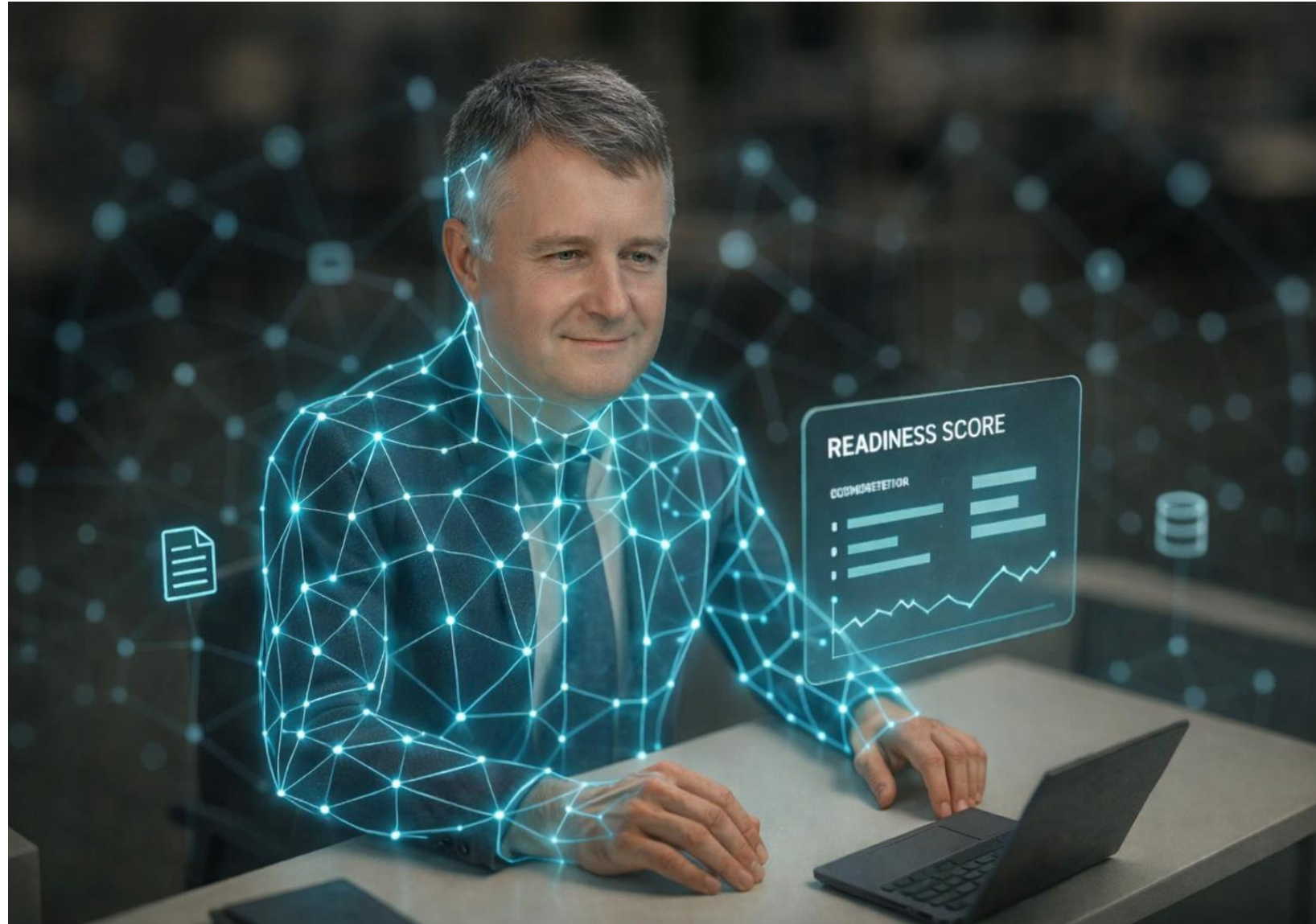
Task Division

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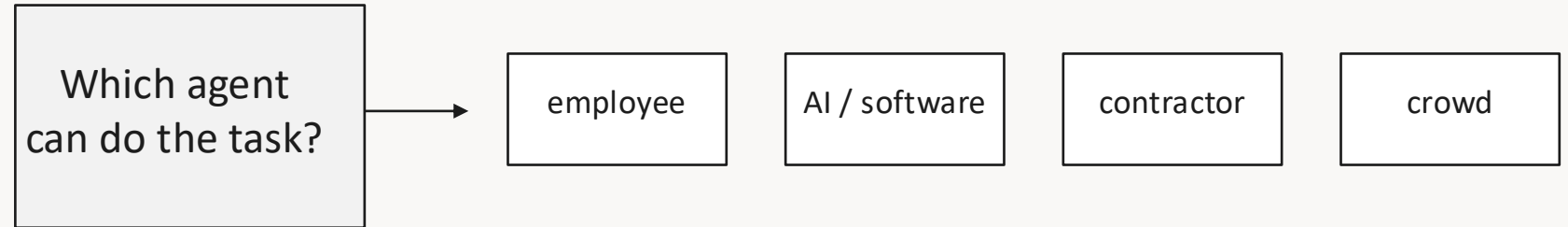
# Task assignment: digitization enlarges the feasible set of agents

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## old question

Which employee should do the task ?

## digital question

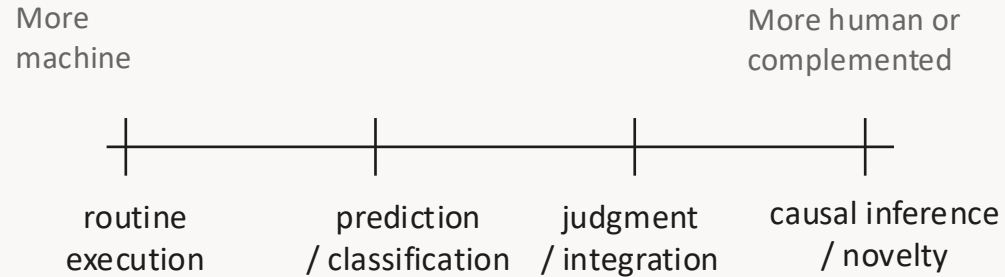


- Automation and AI reallocate tasks between humans and machines.
- Platforms reallocate tasks across firm boundaries by lowering search and transaction costs.
- Crowdsourcing expands the set of contributors for ideation, problem solving, and complements.
- This is why digital work often looks more task-based and less job-based.

Prediction for organization design: hiring becomes more granular, the boundary of the firm becomes unclear, and managerial attention shifts toward matching, screening, and governance.

# Task Assignment : digitization, automation and AI mostly act on tasks, not whole jobs

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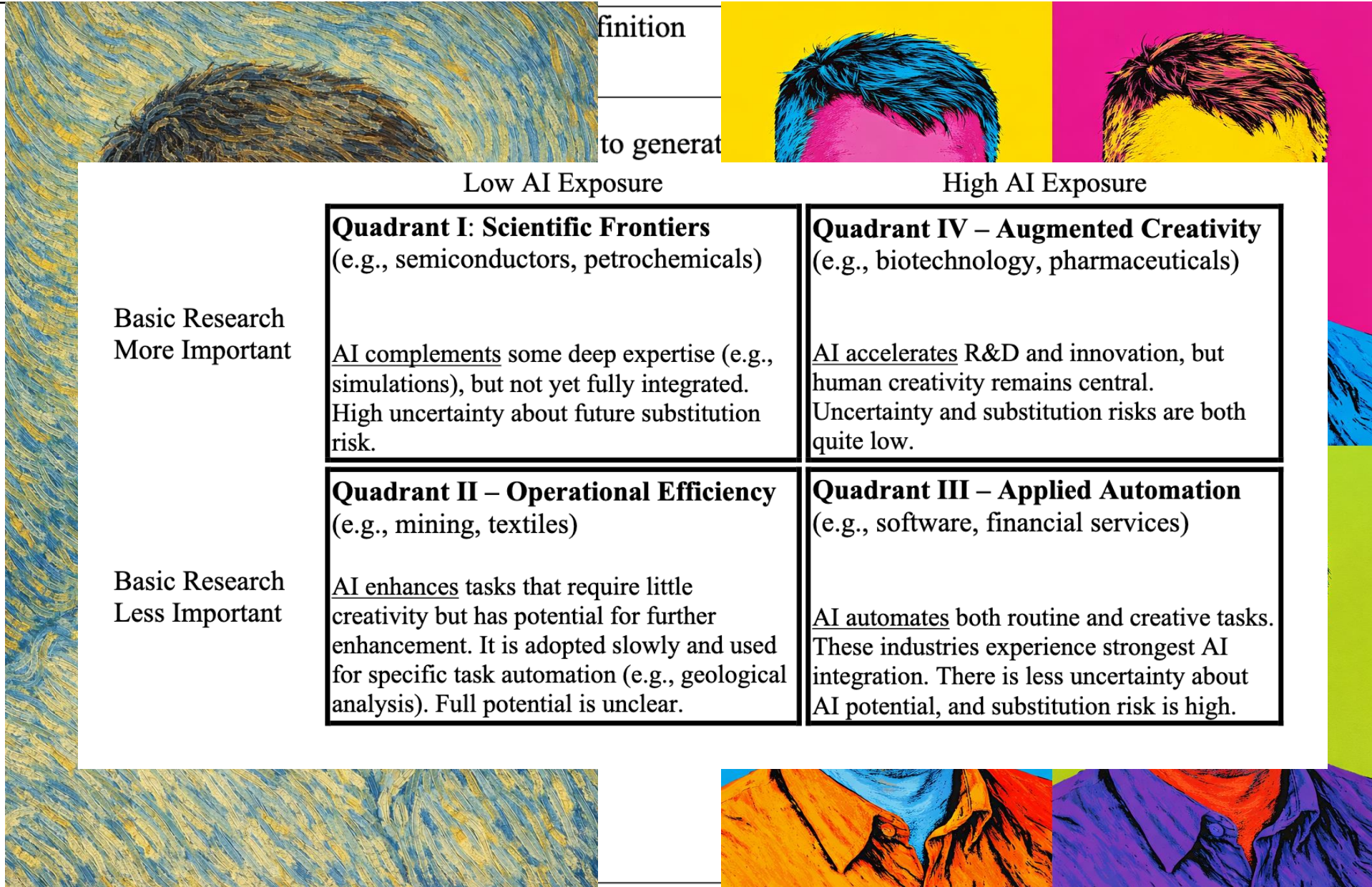
- Automation and computerization substitute for routine tasks while complementing non-routine ones, helping explain why employment persists even as machines become more capable (Autor et al., 2003; Autor, 2015).
- Brynjolfsson et al. (2018) develop a rubric to assess which tasks within occupations are most susceptible to machine learning, showing that AI affects tasks rather than entire jobs.
- Felten, Raj, and Seamans (2021) construct an AI Occupational Exposure (AIOE) measure by linking AI capabilities to occupational task requirements using O\*NET data, providing an index of which occupations and industries are most exposed to AI.
- GenAI has more capacity to substitute for artistic creativity but can only complement scientific creativity. The importance of causal inference as a skill in which current AI models remain limited. (Barbosu and Khashabi, 2026).

TABLE 2—LOWEST AND HIGHEST 5 SML SCORE OCCUPATIONS

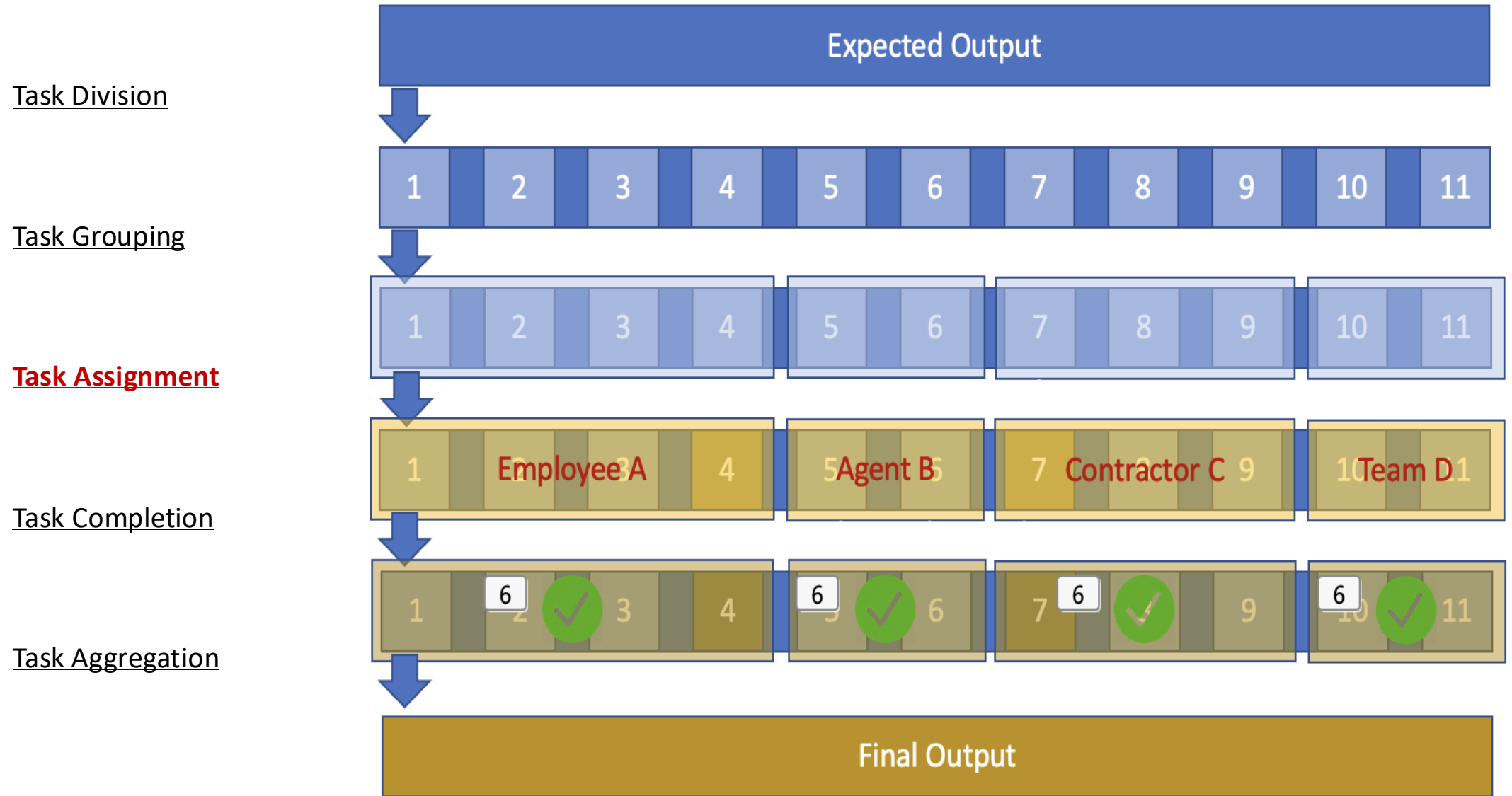
Low SML occupations	SML	High SML occupations	SML
Massage therapists	2.78	Concierges	3.9
Animal scientists	3.09	Mechanical drafters	3.9
Archeologists	3.11	Morticians, undertakers, and funeral directors	3.89
Public address system and other announcers	3.13	Credit authorizers	3.78
Plasterers and stucco masons	3.14	Brokerage clerks	3.78

From Brynjolfsson et al., 2018

# Dalí or DALL.E?



# The umbrella: Kretschmer & Khashabi (2020)



# Online labor Markets & Digital Work Platforms



	Tuesday, April 7 <sup>th</sup>	Wednesday, April 8 <sup>th</sup>	Thursday, April 9 <sup>th</sup>
09:00	<b>Ruben Enikopolov</b> Political effects of social media	<b>Maitreesh Ghatak</b> Incentives and organization design with motivated agents	<b>Tobias Kretschmer</b> Platforms and complementors
10:30	Coffee Break		
11:00	<b>Hillel Rapoport</b> Migrants as vectors of institutional and cultural change	<b>Christopher Stanton</b> Understanding people, practices, and productivity through personnel economics	<b>Minyuan Zhao</b> Institutional heterogeneity and firm strategy
12:30	Lunch		

# Online labor Markets (OLMs) & Digital Work Platforms

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## Task Assignment

- Digital work expands the pool of possible workers and collaborators, but it does not remove the need for organization. Instead, new intermediaries, matching frictions, and platform rules emerge to solve screening, trust, and coordination problems in online labor markets (Santon and coauthors)
- In that sense, digitization changes **task assignment** and firm boundaries, while also making platform design itself part of organization design.

## Task Completion & Monitoring

- Virtual monitoring pushes organizations toward more measurable, codifiable, and standardized work. Once work can be tracked digitally, firms can decompose jobs into observable tasks, compare workers more easily.
- Many online labor market projects feel less successful than expected, despite the platforms' obvious efficiency advantages? The growth of gig work had stagnated before COVID (Bureau of Labor Statistics 2018; OECD 2019).
- Are traditional tools suitable?
  - Autonomy and delegation as a motivational instrument? (Gambardella et al., 2021)
  - Traditional agency perspective? OLM exchanges are also shaped by psychological contracts: each side forms informal expectations about obligations, fairness, autonomy, and support (Seifried et al., 2024)

# Deliveroo and Uber Eats riders strike on Valentine's Day

14 February 2024

Share Save Add as preferred on Google

Jemma Dempsey & Faarea Masud

Business reporters, BBC News



# Uber fights to have drivers seen as contractors, not employees

The global rideshare company could see the floodgates open for thousands of workers to claim rights and protections such as holiday pay, sick leave and minimum wage



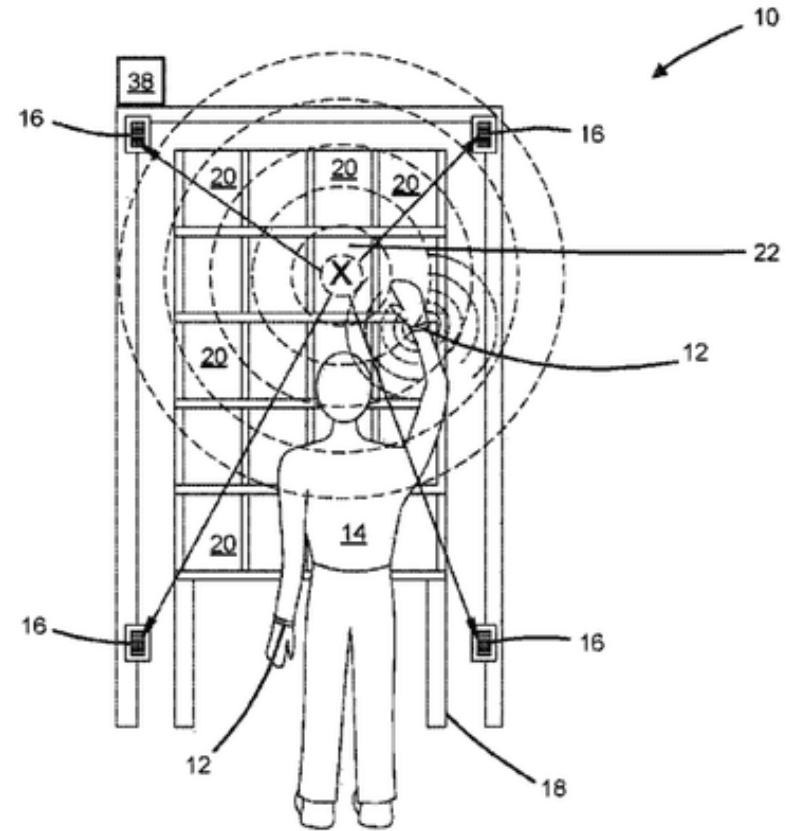
by Emma Hatton 19/03/2024

Share



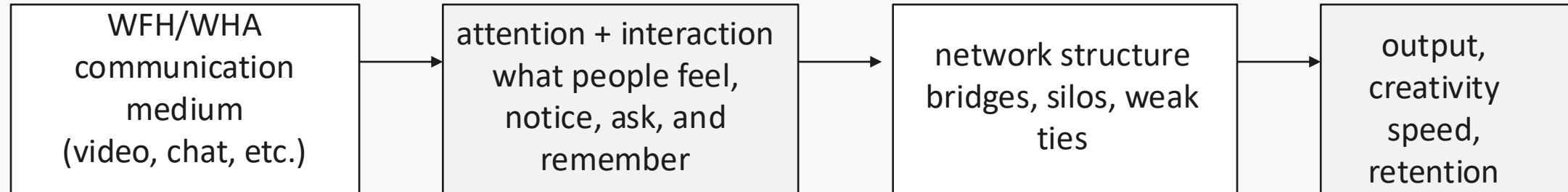
# Amazon patents wristband that tracks warehouse workers' movements

Bracelet, which can vibrate to point an employee's hand in the right direction, would further increase surveillance of work environment



# WFH/ WFA/ Digital Work: communication technology changes how knowledge work is performed

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- Where does the effect show up: knowledge seeking, idea generation, network formation, job satisfaction, and productivity under hybrid arrangements.
- Videoconferencing hampers idea generation because it focuses communicators on a screen, which prompts a narrower cognitive focus (Brucks, Levav, 2022). Digital remote work caused the collaboration network of workers to become more static and siloed (Yang, L. et al., 2022).
- Employees like hybrid work, managers are not optimistic (Bloom et al., 2023)
- WFH/WFA offer flexibility and productivity gains, but also create coordination and socialization challenges. Hybrid work may be the sweet spot, but it works best when supported by complementary organizational practices such as virtual watercoolers (Choudhury and coauthors)

# Digital work settings & knowledge seeking

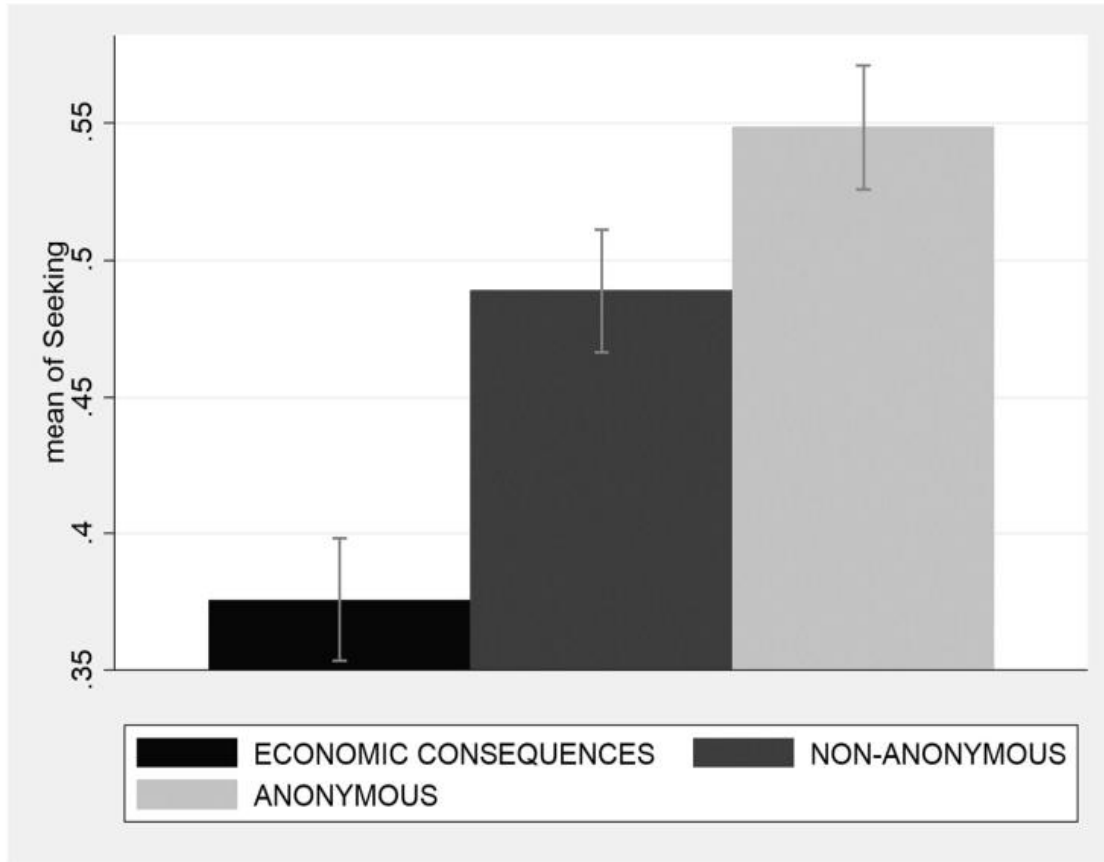
- Organizational resources are often widely dispersed.
- Internal platforms match resource seekers and resource contributors by (digitally) bringing together dispersed members of an organization that may not have connected otherwise
- Many failure stories
  - ...employee engagement on organizational platforms often remains low and creates a barrier for the success of these solutions.

The screenshot displays the 'Ask R&D Experts Network' website. At the top, there is a navigation bar with a logo of a person with a question mark, the title 'Ask R&D Experts Network', and buttons for 'Follow' and 'Join group'. Below the navigation bar is a secondary menu with options: Overview, Activity, Content, People, Reports, Calendar, Actions, About, Share, and Manage.

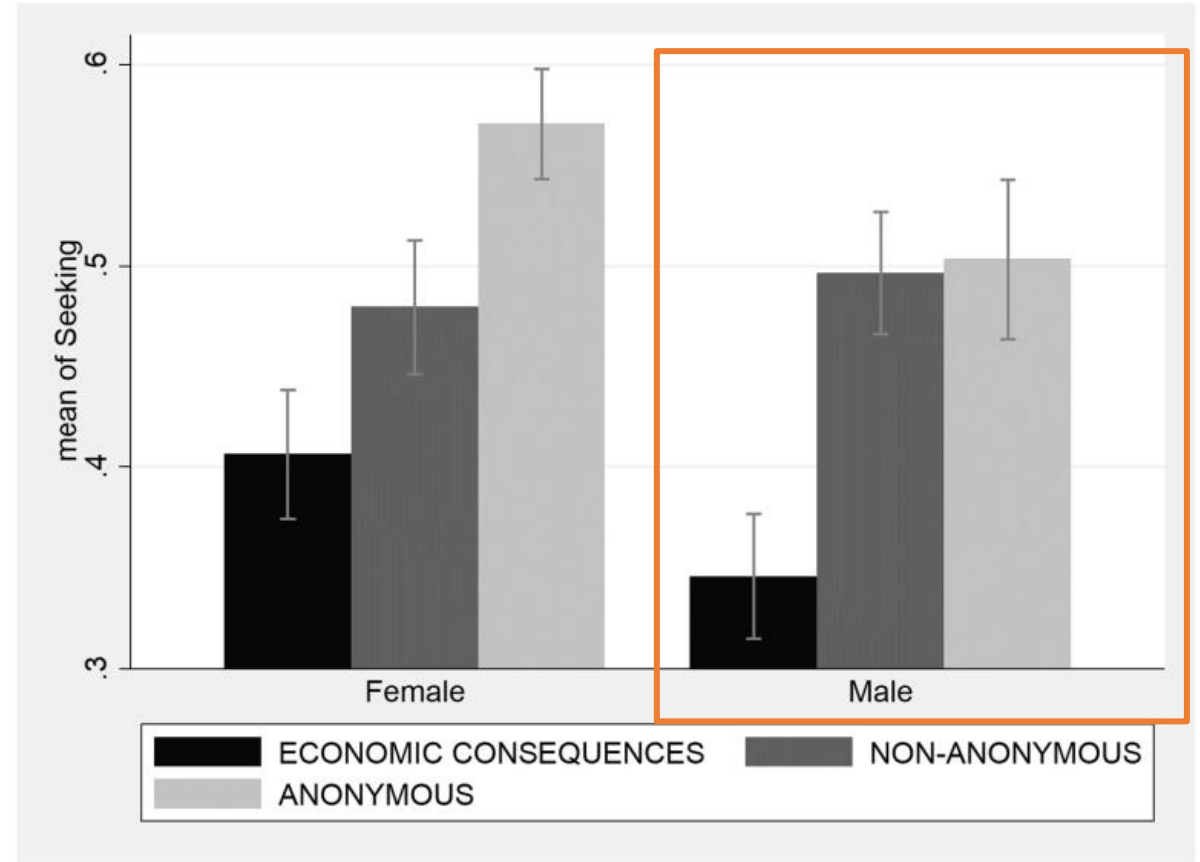
The main content area is divided into several sections:

- Left Column:**
  - A text block explaining that users can place R&D related questions to the Expert Network, with a note that response time depends on complexity and that membership is only for nominated experts.
  - A 'POPULAR TAGS' section listing terms like 'bearing analysis', 'bearing preload', 'bearinx cage', 'din 5466', 'din 5480', 'normen über verzahnungen', 'planetary gear set', 'saais tractor', 'tragfähigkeitsberechnung', 'verzahnung', 'welle-nabe-verbinding', and 'wnv zahnwelle'.
- Center Column:**
  - An 'ASK ASK R&D EXPERTS NETWORK' section with a search box for 'Type your question' and an 'Ask It' button.
  - A 'NEWS' section stating 'There are no blog posts.'
  - A 'RECENT CONTENT' section listing several questions with checkmarks, titles, and authors:
    - 'Bearing Preload' by CHOI, JUNGSOO (1 day ago)
    - 'Where can i find practical example for Vario sensor bearing for forklift truck or Tractor?' by JANG, HUYEONG (6 days ago)
    - 'Internal O-Ring expert' by Barnes, Jay (6 days ago)
    - 'Brass cage vs Steel Cage for SRBs' by Vapi, Lukhanyo (1 week ago)
    - 'Dynamic Stiffness of bearing' by Gao, Gang (1 week ago)
    - 'Vibration Limits' by Pereira, Marcus Vinicius Dias (2 weeks ago)
- Right Column:**
  - A 'SEARCH WIDGET' with a search input field and a 'Search' button.
  - An 'UNANSWERED QUESTIONS' section listing questions like 'Nadelrolle mit axialer Sicherungsmöglichkeit', 'Question about HF1216 slippage during lock condition', 'Preload for Axial bearing Z-579386.AR', and 'Betriebspiel bei Unrundheit'.
  - An 'ANSWERED QUESTIONS' section listing questions like 'Internal O-Ring expert', 'Dynamic Stiffness of bearing', 'Bearing Preload', and 'Brass cage vs Steel Cage for SRBs'.

# Knowledge seeking and anonymity in digital work settings (Mickeler et al., 2023)



A. Full Sample

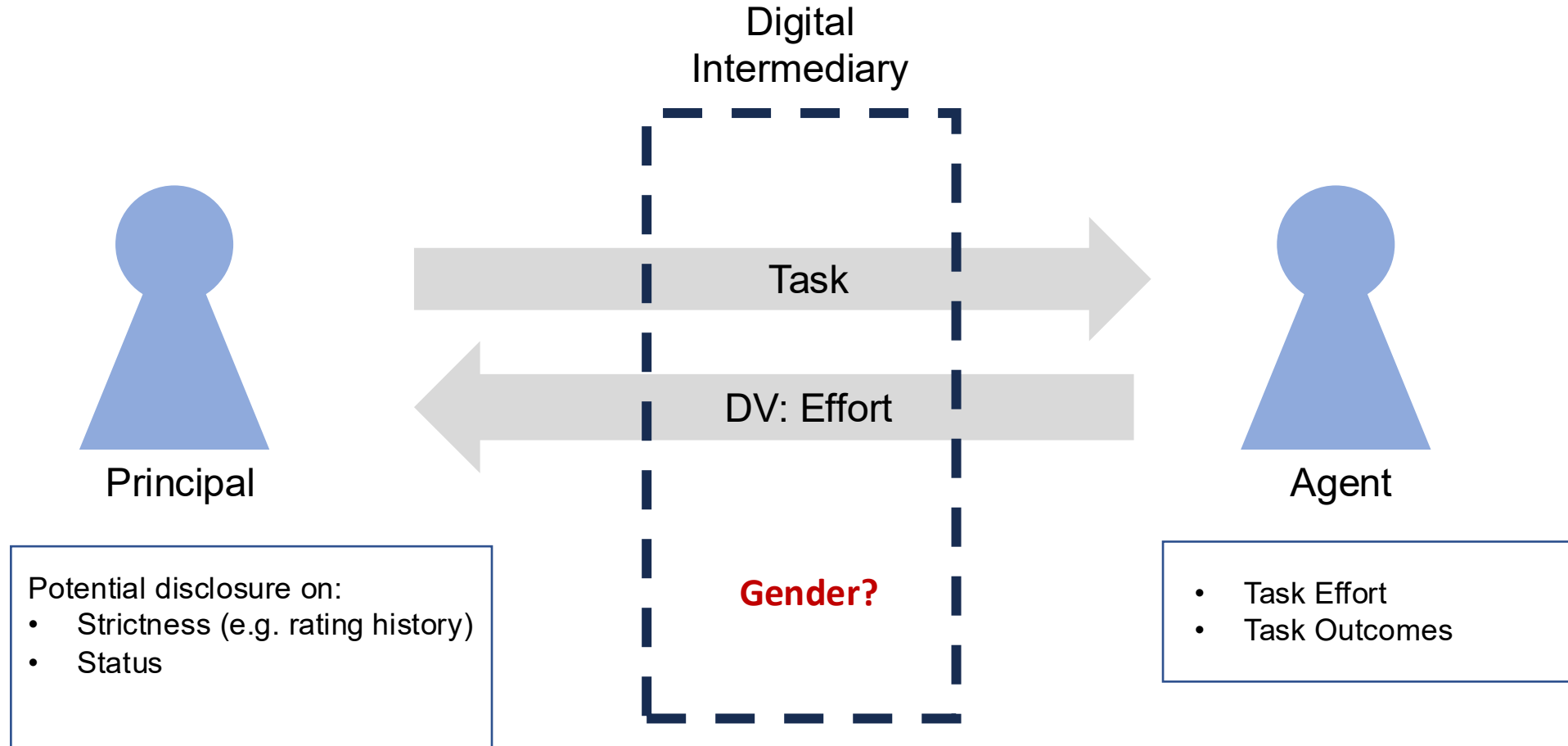


B. Across Gender

A person in a dark suit and tie stands with their arms crossed. Their face is completely obscured by a large, white, glowing question mark. The background is a dark, teal-colored gradient.

**Principal Anonymity & Agents' Task Effort**

# Anonymous Principals: the Role of Gender



## Some open questions

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The broad open question is not whether digital technologies change work, but which parts of organization design they replace, which parts they complement, and which entirely new design problems they create.

- When does AI/tech truly replace labor, and when does it mainly reallocate tasks across humans, machines, contractors, and crowds?
- How does digital work change the optimal grouping of tasks into jobs and roles?
- How do digital tools affect informal learning, weak ties, and knowledge spillovers inside organizations?
- Digital work and meaning at the workplace? (Bandiera et al., 2025)
- When do digital metrics and monitoring systems improve performance, and when do they generate gaming, distortion, or excessive control?
- Does digital work push firms toward more market-based boundaries and modular structures, or does it instead create new hierarchies, intermediaries, and integration roles?

Thank you!  
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