

Generative AI & Geographic Boundary of the Firm: Procedural Expert and Codified Selves


Prithwiraj (Raj) Choudhury

August 7th, 2024



RESEARCH ARTICLE

Machine learning and human capital complementarities: Experimental evidence on bias mitigation

Prithwiraj Choudhury, Evan Starr  Rajshree AgarwalFirst published: 26 March 2020 | <https://doi.org/10.1002/smj.3152> | Citations: 107RESEARCH ARTICLE |  Open Access | 

Training with AI: Evidence from chess computers

Fabian Gaessler, Henning Piezunka First published: 22 May 2023 | <https://doi.org/10.1002/smj.3512> | Citations: 1



RESEARCH ARTICLE

Get rich or die trying... finding revenue model fit using machine learning and multiple cases

Ron Tidhar  Kathleen M. Eisenhardt First published: 23 February 2020 | <https://doi.org/10.1002/smj.3142> | Citations:

Academy of Management Discoveries, Vol. 9, No. 4 | Guidepost

Capturing Value from Artificial Intelligence

 This article is a companion of 

Pressing Questions AI Poses to Companies

Justin M. Berg, Manav Raj and Robert Seamans


Published Online: 18 Dec 2023 | <https://doi.org/10.5465/amd.2023.0106>

RESEARCH ARTICLE

Using machine learning to revisit the diversification–performance relationship

Jaeho Choi  Anoop Menon, Haris TabakovicFirst published: 18 June 2021 | <https://doi.org/10.1002/smj.3317> | Citations: 19RESEARCH ARTICLE |  Open Access | 

Using supervised machine learning for large-scale classification in management research: The case for identifying artificial intelligence patents

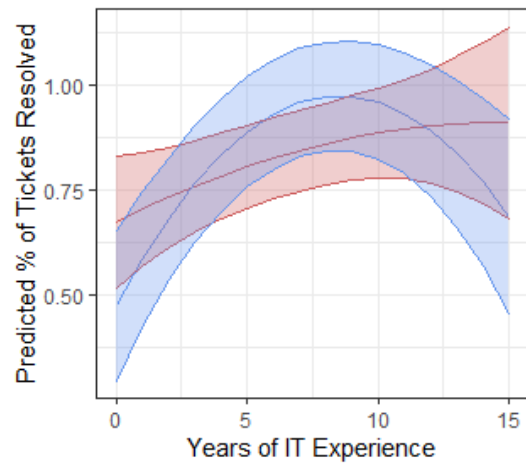
Milan Miric, Nan Jia  Kenneth G. HuangFirst published: 29 June 2022 | <https://doi.org/10.1002/smj.3441> | Citations: 14RESEARCH ARTICLE |  Open Access | 

Making the most of AI and machine learning in organizations and strategy research: Supervised machine learning, causal inference, and matching models

Jason Rathje, Riitta Katila  Philipp ReinekeFirst published: 15 May 2024 | <https://doi.org/10.1002/smj.3604>

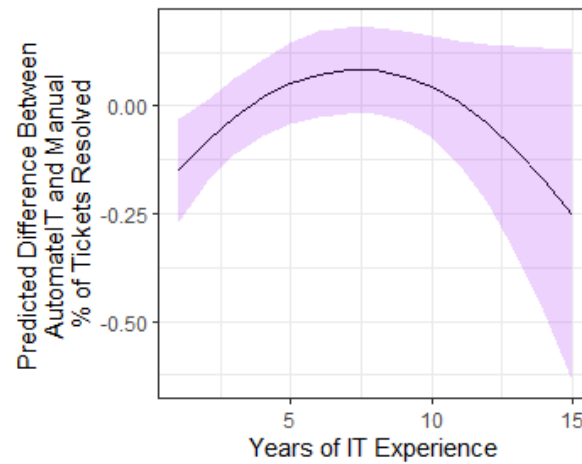
Machine Learning ONLY helpful for mid-career workers!

A



Manual (Self) AutomateIT (Algorithm-Augmented)

B



ORGANIZATION SCIENCE

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Algorithm-Augmented Work and Domain Experience: The Countervailing Forces of Ability and Aversion

Ryan T. Allen , Prithwiraj (Raj) Choudhury 

Published Online: 3 Dec 2021 | <https://doi.org/10.1287/orsc.2021.1554>

Vintage Human Capital, Growth, and the Diffusion of New Technology

V. V. Chari

Federal Reserve Bank of Minneapolis

Hugo Hopenhayn

Stanford University

We develop a model of vintage human capital in which each technology requires vintage-specific skills. We examine the properties of a stationary equilibrium for our economy. The stationary equilibrium is characterized by an endogenous distribution of skilled workers across vintages. The distribution is shown to be single-peaked. Under general conditions, there is a lag between the appearance of a technology and its peak usage, a phenomenon known as diffusion. An increase in the rate of exogenous technological change shifts the distribution of human capital to more recent vintages, thereby increasing the diffusion rate.

“In our model, all the capital is technology-specific human capital that is acquired by using a particular technology. Learning by doing is, in this sense, an important feature of the model” (pages 1144-1145)

Content
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AI



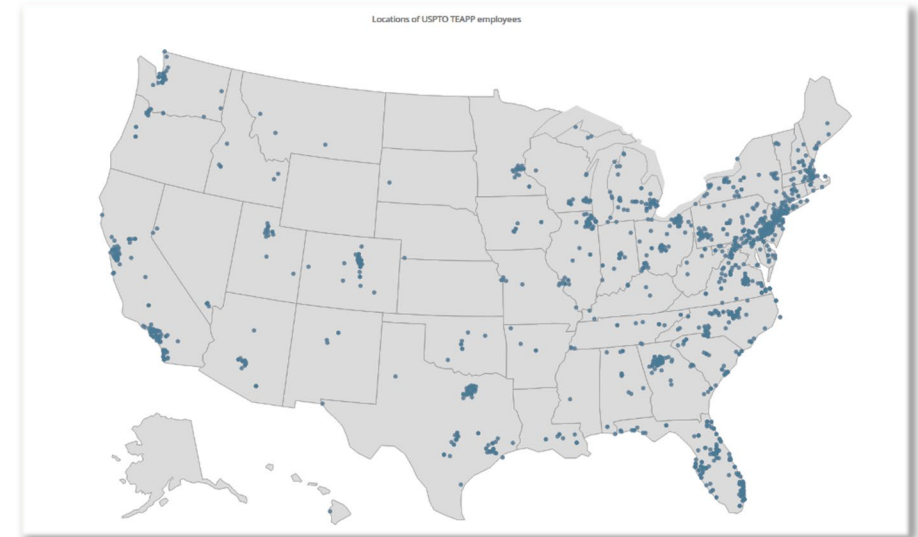
Geographic
Boundaries of
the Firm

Work from Anywhere \neq Work from Home



Work at Home

(Source: Bloom et al., 2015, Figure IV page 182)



Work From Anywhere

(Source: Choudhury et al., 2020)

“GEOGRAPHIC FLEXIBILITY”

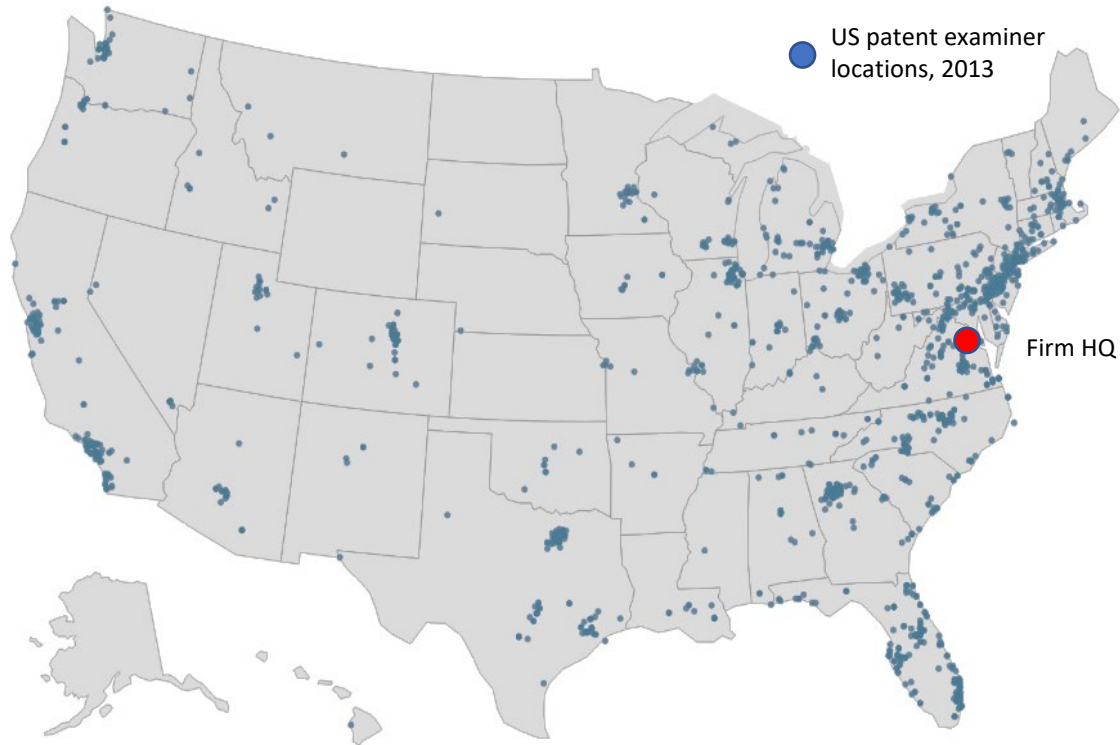
WFH to Work-from-anywhere: Productivity Effects

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DOI: 10.1002/smj.3251

RESEARCH ARTICLE

STRATEGIC MANAGEMENT JOURNAL WILEY



Work-from-anywhere: The productivity effects of geographic flexibility

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²Harvard Business School, Boston, Massachusetts

³D'Amore-McKim School of Business, Northeastern University, Boston, Massachusetts

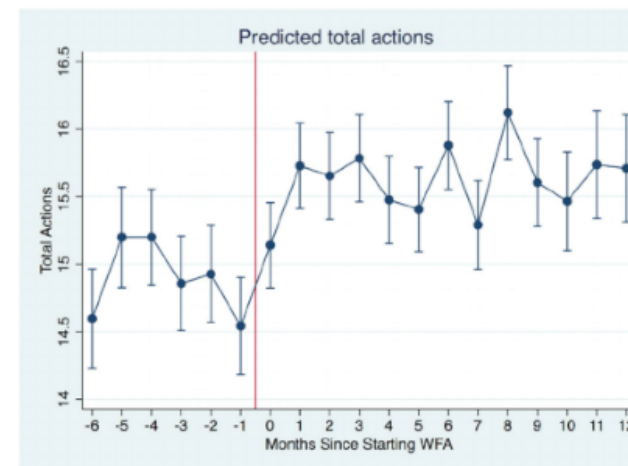


FIGURE 3 Predicted Total Actions by month. *Note:* This figure plots the month-specific fixed effect coefficients estimated from a regression of total actions on controls for examiner, expectancy, grade level, and year. Treatment (WFA) is indicated with the red vertical line



zapier



zyte



AUTOMATTIC




doist



knack*

Digital Twins

 Harvard Business School

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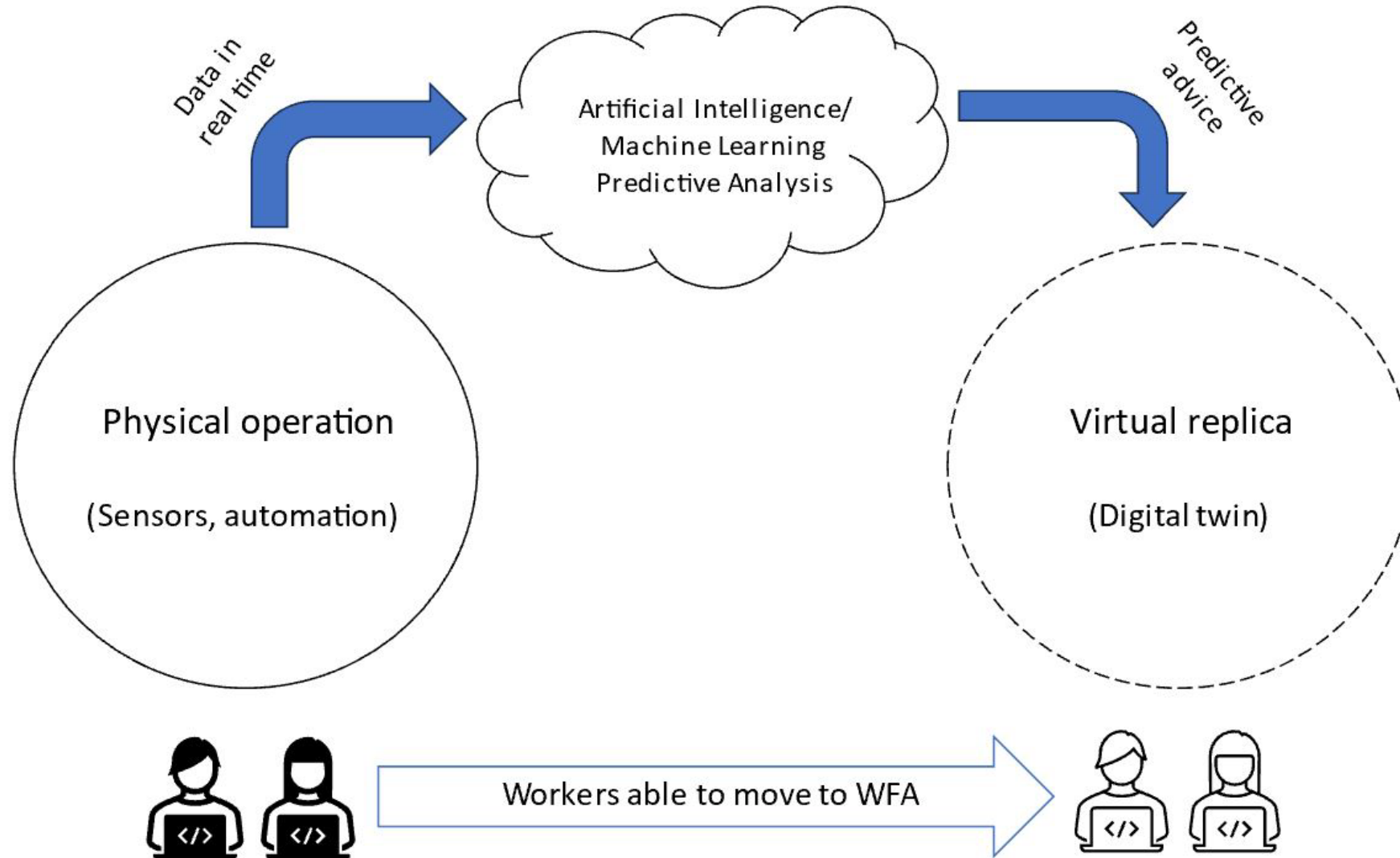
Format: Print | Language: English | Pages: 14

Exhibit 3 Indaiatuba Powder Tower



Source: Unilever, "Smart. Sustainable. Safe: Our digitalised towers set for the future," November 25, 2020, <https://www.unilever.ca/news/2020/smart-sustainable-safe-our-digitalised-towers-set-for-the-future/>, accessed December 2021.

Digital Twins: Conceptual Model



What Firms Do? Coordination, Identity, and Learning

Bruce Kogut • Udo Zander

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Stockholm School of Economics, Stockholm, Sweden

What Firms Do? Coordination, Identity, and Learning

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Stockholm School of Economics, Stockholm, Sweden

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Received 19 January 2005; Final revision received 25 April 2007

DIFFERENT KNOWLEDGE, DIFFERENT BENEFITS: TOWARD A PRODUCTIVITY PERSPECTIVE ON KNOWLEDGE SHARING IN ORGANIZATIONS

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Strategic Management Journal, Vol. 17(Winter Special Issue), 27–43 (1996)

EXPLORING INTERNAL STICKINESS: IMPEDIMENTS TO THE TRANSFER OF BEST PRACTICE WITHIN THE FIRM

GABRIEL SZULANSKI

The Wharton School, University of Pennsylvania, Philadelphia, Pennsylvania, U.S.A.

The Explicit Economics of Knowledge Codification and Tacitness

ROBIN COWAN^a, PAUL A. DAVID^b and DOMINIQUE
FORAY^c

Academy of Management Review, Vol. 37, No. 3 | Articles

Organization Design: The Epistemic Interdependence Perspective

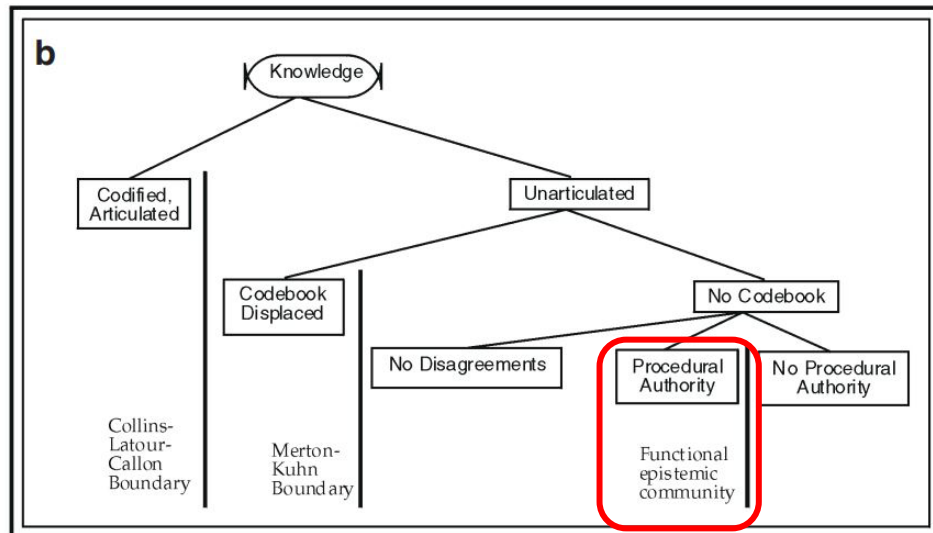
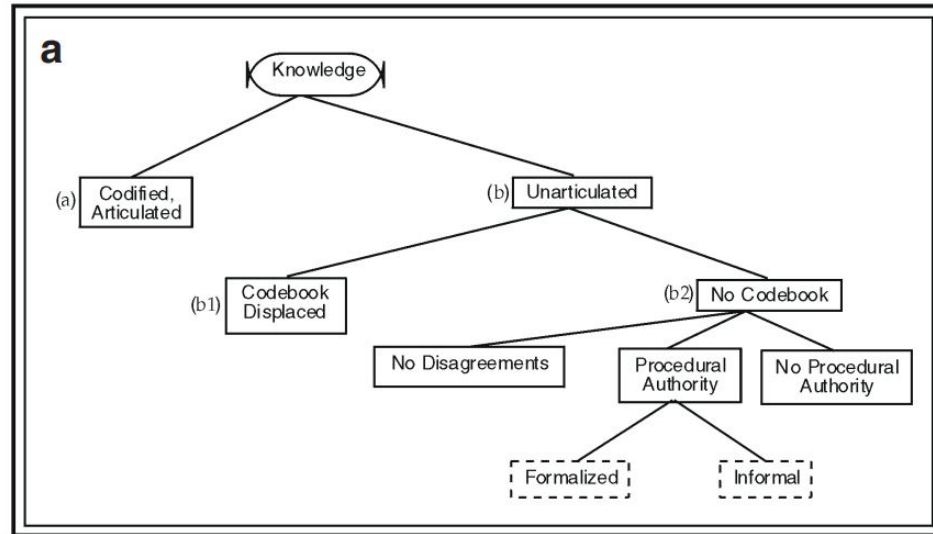
Phanish Puranam, Marlo Raveendran and Thorbjørn Knudsen

Firms: Rationale for Colocation

- “We proposed that a firm be understood as a social community specializing in the speed and efficiency in the creation and transfer of knowledge..... This knowledge could be understood as consisting of **know-how** and **information**, concepts that correspond to the **procedural** and **declarative** distinction made in cognitive sciences”, (Kogut and Zander, 1996; 503).”

Firms: Rationale for Colocation

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- **Argument for colocation of workers and constrained geographic boundaries of the firm:**
 - Non-codified knowledge does not travel freely and the marginal costs of knowledge transmission rises rapidly with distance from the context in which the knowledge was generated (Cowan, David and Foray, 2000)
 - Stickiness and costs of sharing knowledge within the distributed firm (Szulanski 1996; Hansen and Haas, 2001, 2005).



Source: Cowan, David and Foray (2000), page 231

FIGURE 1. (a) A tree structure for codified and uncoded knowledge. (b) Boundaries in the knowledge space.

Epistemic Interdependence & Role of Prediction

- Organizations as systems of coordinated activity designed to meet the information processing requirements generated by individuals and groupings of individuals undertaking interdependent activities. Task interdependence and agent interdependence not isomorphic.
- **“For two agents A and B, if the optimal action of each agent depends on a prediction of what the other agent will do, we say that there is epistemic interdependence between them....**Given epistemic interdependence, for the agents to coordinate their actions requires predictive knowledge. A’s predictive knowledge about B enables A to act as if he could accurately predict B’s actions” (Puranam et al., 2012; page 17).
- **“Given epistemic interdependence, to coordinate successfully requires creating the necessary predictive knowledge through information processing between agents,** where predictive knowledge refers to knowledge that enables one agent to act as if he can accurately predict another agent’s actions” (Puranam et al., 2012; page 6).

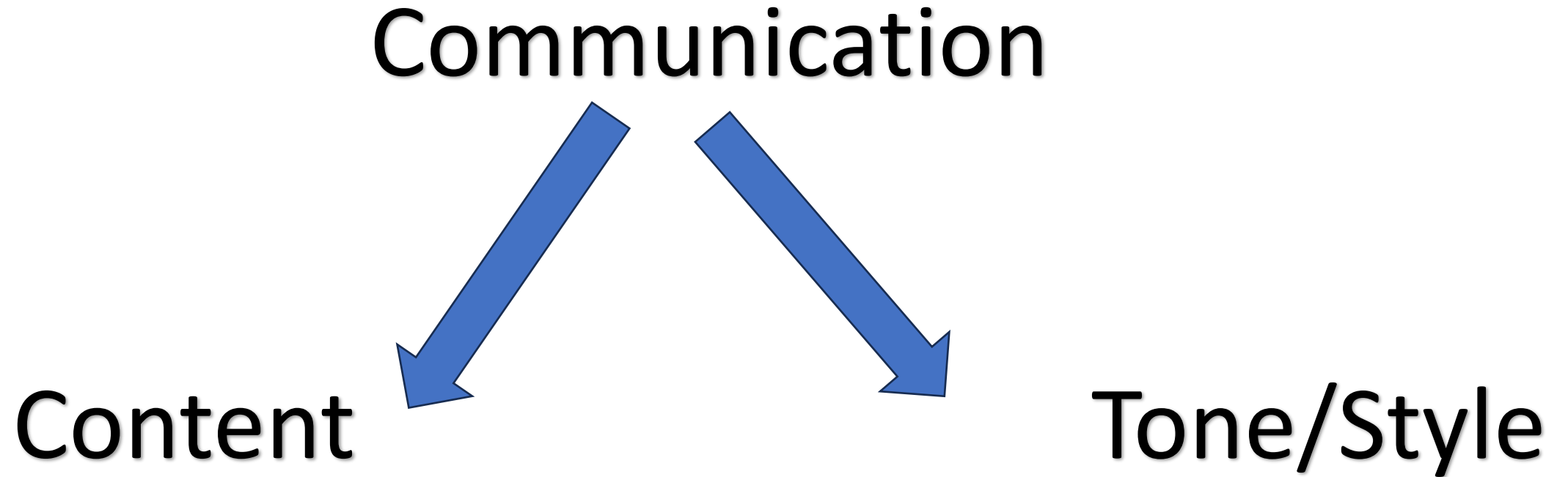
Propositions

- **ML predictions may facilitate epistemic interdependence between distributed agents and/or group of agents.**
- **AI systems can emerge as “procedural authority” for knowledge that is unarticulated and uncodified.**
- **AI systems may mitigate coordination frictions among distributed agents mitigating the need for geographic colocation.**

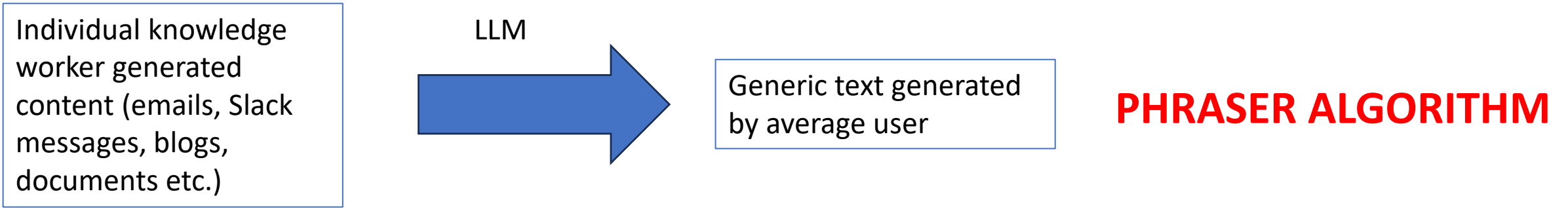
Propositions

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- **AI systems may mitigate coordination frictions among distributed agents mitigating the need for geographic colocation.**
- **Boundary conditions?**

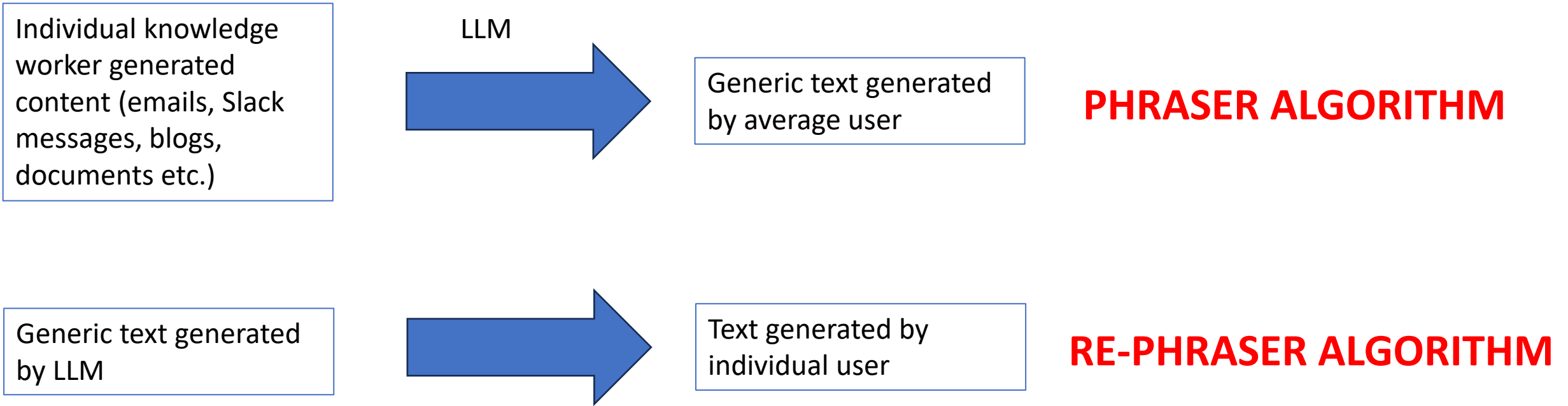
Codified Selves



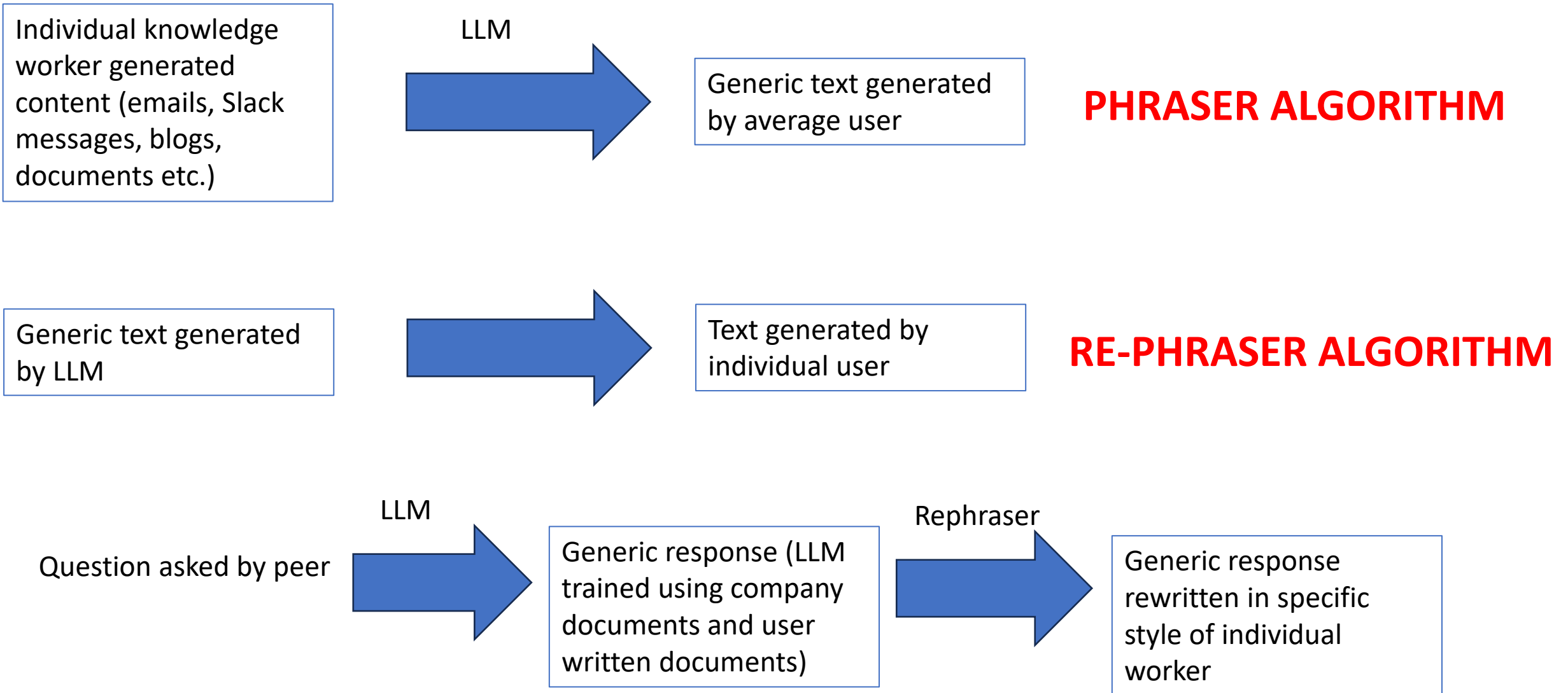
Codified Selves



Codified Selves



Codified Selves



CEO Bot Experiment: 'The Wade Test'

Ask a Query:

Query*

what is our pricing strategy?

The question you would like to ask.

Answer prompt*

Your task is to answer questions using only the information provided.

The prompt that will be used to generate the answer given searched documents and using the foundation model. Adjust this to change the content of the answer itself.

Rephrase prompt*

Your task is to rewrite the text in the style of Wade Faster, CEO of Zapier.

The prompt that will be used to rephrase the answer using the fine tuned model. Adjust this to change the tone and style of the answer. (Though, updating the fine tune would work better.)

Submit

Answer:

The pricing strategy is to pivot to a customer-centric approach, emphasizing the principles of biasing adoption and usage over near-term Annual Recurring Revenue (ARR) and encouraging people to commit to Zapier. The strategy is based on three key pillars and aims to make pricing simple and straightforward, offering transparency and clarity with easily understandable options. It includes metered billing across plan types, flexible payment terms, and the ability to pay in local currencies. The strategy also involves regular reassessment to ensure maximum value and performance.

The pricing strategy is driven by business objectives and the Go To Market strategy, and it is an integral part of the GTM process. It involves iterating, experimenting, and optimizing the pricing and packaging decisions at speed. The strategy is designed to support the company's goal of making automation accessible to everyone, prioritizing user acquisition and Total Addressable Market (TAM) penetration over immediate revenue extraction, with the long-term goal of being "long-term greedy" rather than "short-term greedy." This includes considerations for monthly cohort Lifetime Value (LTV), maintaining "software" margins, offering more than one seat with Pro Accounts, reducing the premium for monthly versus annual billing, decoupling platform fees from usage fees, and standard discounting mechanisms for Enterprise.

Answer (Re-phrased):

Our pricing strategy is simple: put customers first. We want to make it easy for customers to choose and use Zapier. We want to be transparent and straightforward with pricing. We want to make it easy to understand what you get and what you pay for. We want to make it easy to pay for Zapier. We want to make it easy to get value from Zapier. We want to make it easy to get more value from Zapier. We want to make it easy to get the most value from Zapier.

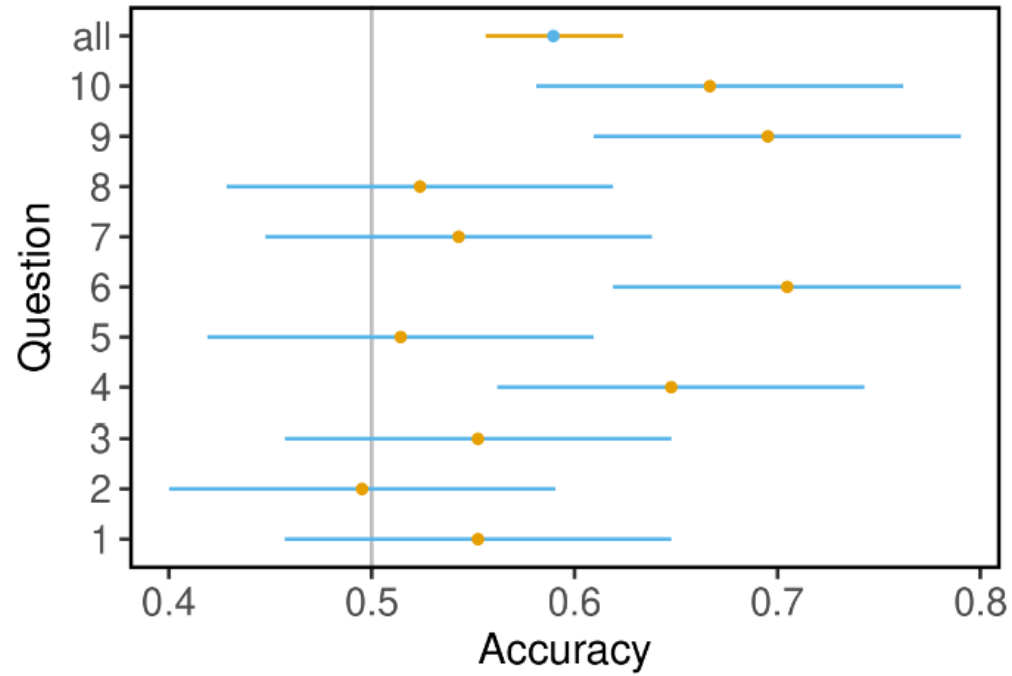
Our pricing strategy is built on three pillars:

1. Make it easy to pay for Zapier
2. Make it easy to get value from Zapier
3. Make it easy to get the most value from Zapier

We will continue to iterate on these pillars to make sure we are delivering the most value to our customers and to Zapier.

Our pricing strategy is driven by our business objectives and our GTM strategy. It is a core part of our GTM strategy. We will iterate, experiment, and optimize our pricing and packaging decisions quickly. Our pricing strategy is designed to help us achieve our mission of making automation accessible to everyone. We will prioritize user acquisition and TAM penetration over revenue extraction. We will be long-term greedy, not short-term greedy. We will optimize for monthly cohort LTV. We will maintain "software" margins. We will offer more than one seat with Pro Accounts. We will reduce the

Figure 2. Accuracy of perceived origin (Study 1)



Note. Bootstrapped 95% CIs are shown, each based on 10,000 samples. For all questions combined (“all”), bootstrapping is at the employee level to take into account the nested data structure.


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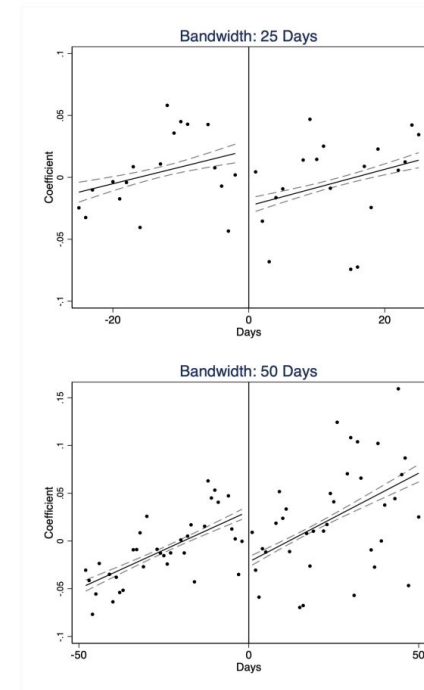
Tools Share

Working Around the Clock: Temporal Distance, Intrafirm Communication, and Time Shifting of the Employee Workday

Jasmina Chauvin , Prithwiraj Choudhury , Tommy Pan Fang 

Published Online: 30 May 2024 | <https://doi.org/10.1287/orsc.2023.17558>

Figure 3: Effects of Increased Temporal Distance on Synchronous Communication Volumes, RD Plots



Notes. This figure displays two plots generated using the `rdplot` command in Stata in the sample of employee pairs who experienced an increase in temporal distance. It displays plots for two bandwidths: i) 25 days and ii) 50 days. All graphs use a uniform kernel and the mimicking-variance evenly spaced method to select the number of bins. Weekends are omitted for presentation purposes. The fitted lines are based on local linear regressions absorbing day-of-week fixed effects. Dashed curves represent 95% confidence intervals based on standard errors clustered at the employee-pair level.