

# What kind of organization is a wiki?

Dimensions of decentralization in peer production

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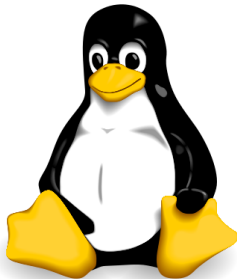
*Faculty Associate*



Community  
Data Science  
Collective

# Peer Production

New modes of **collective production** of public knowledge goods made possible by new communication technologies. (Benkler 2003, 2006)



# Coase's Penguin, or, Linux and *The Nature of the Firm*

Yochai Benkler<sup>†</sup>

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**Peer production decentralizes production through porous organizational boundaries that facilitate mass participation.**



**wikia**



**StackExchange**





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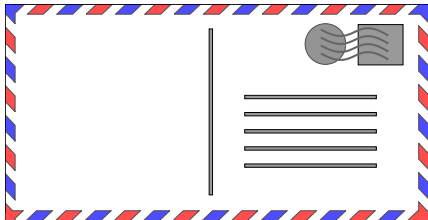


## Community Data Science Collective

- Study peer production projects **at an organization level** (e.g., organization-level interventions and outcomes).
- Test **theory from organization science** using detailed digital trace data recorded in peer production projects.
- **Develop new organizational theory** based on what we find.

## Four Research Postcards

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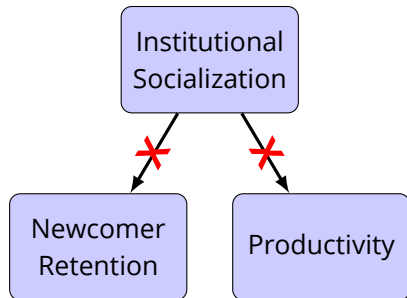
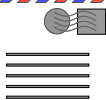




# The Wikipedia Adventure

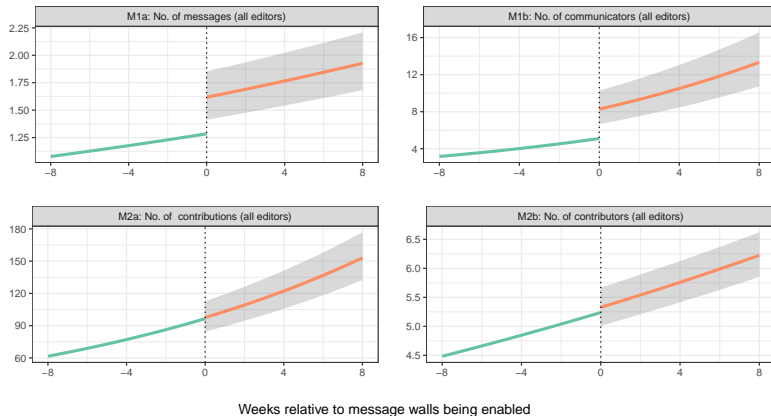
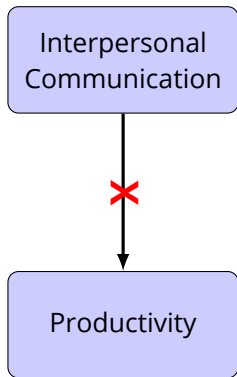
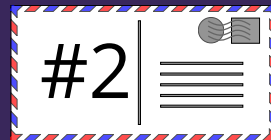
## Field Evaluation of an Interactive Tutorial for New Users

#1



# All Talk

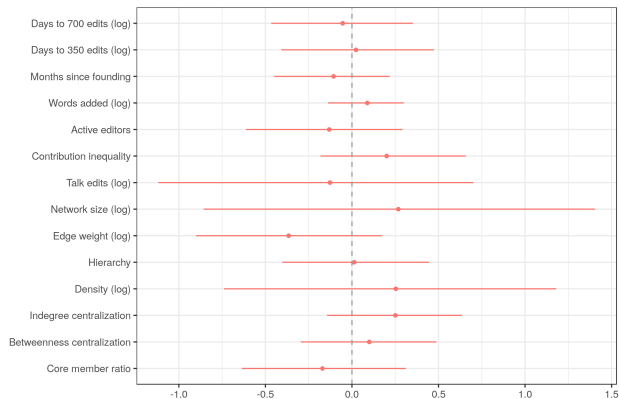
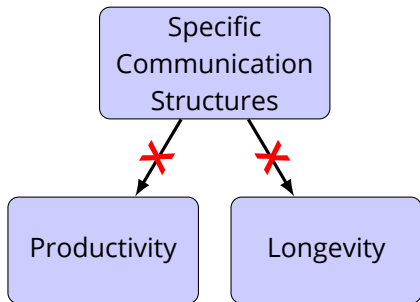
## How Increasing Interpersonal Communication on Wikis May Not Enhance Productivity



Key: User talk Message walls

# Communication Networks Do Not Explain the Growth or Survival of Early-Stage Peer Production Projects

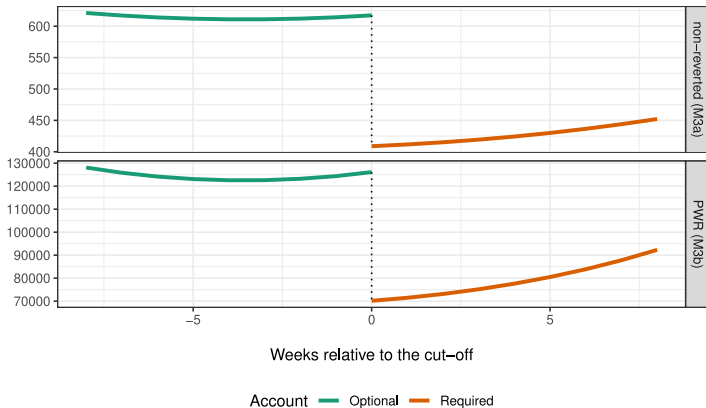
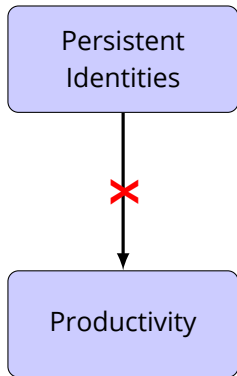
#3



# Hidden Costs of Requiring Accounts

## Quasi-Experimental Evidence From Peer Production

#4



## **Four explanations**

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**..and what they suggest about  
dimensions of decentralization**

## A. "Exit" is *extremely* cheap



Our surprising results might be explained if we assume that exit is much easier in peer production than in traditional organizations.

- [Postcard #1] Newcomer socialization  $\nrightarrow$  Productivity
- [Postcard #4] Account Requirement  $\nrightarrow$  Productivity

**In peer production, low-cost “exit” reflects decentralization of decisions on *who* participates.**



## B. Self-assignment into tasks

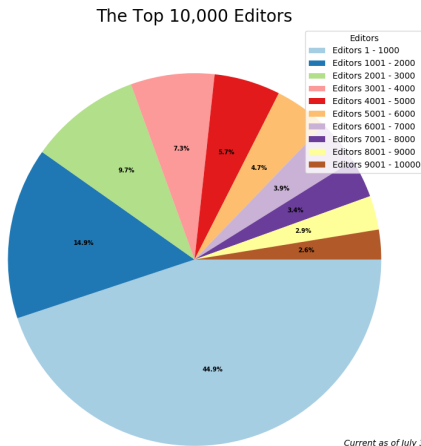
		Task Selection	
		Centralized	Distributed
Task Execution	Centralized	Individual Work Firms	Broadcast Search Innovation Contests Online Brainstorming
	Distributed	Crowdsourcing Citizen Science	Peer Production

Our results might be explained by the fact that task selection occurs through self-assignment in peer production:

- [Postcard #2] Interpersonal Communication  $\nrightarrow$  Productivity
- [Postcard #3] Communication Networks  $\nrightarrow$  Productivity

**In peer production, self-assignment into tasks decentralizes decisions about *what* participation entails.**

## C. Participation in *extremely unequal* across participants



Our results might be explained by the fact that the distribution of contributions across contributors is extremely unequal in peer production.

- [Postcard #1] Socialization  $\nrightarrow$  Productivity
- [Postcard #2] Interpersonal Communication  $\nrightarrow$  Productivity

**In peer production, unequal participation reflects decentralization of decisions around *how much to participate*.**

## D. Coordination is frequently *stigmergic*



Our results might be explained if we assume that exit is **coordination in peer production happens through stigmergy**.

- [Postcard #2] Interpersonal communication  $\nrightarrow$  Productivity
- [Postcard #3] Communication network structures  $\nrightarrow$  Productivity
- [Postcard #4 Accounts] Account requirement  $\rightarrow$  decreased activity among unaffected users



**In peer production, stigmergic coordination  
decentralizes *the sites and means of coordination*.**

# Dimensions of decentralization in peer production

- [A. Low-cost exit] Deciding **who** participates (leaders → participants)
- [B. Task selection] Deciding **what** participation entails (leaders → participants)
- [C. Participation inequality] Deciding **how much** to participate (leaders → participants)
- [D. Stigmergy] Sites and modes for **coordinate** (direct communication → stigmergy)

# Why does it matter?

Although peer production is extreme along each of these dimension, none are unique.

- Peer production offers a laboratory to study each dynamic.
- Evidence scope condition for organizational interventions.
- Opportunities to learn from emergent routines/structures in peer production (e.g., models for stigmergic coordination)

**Thanks!**