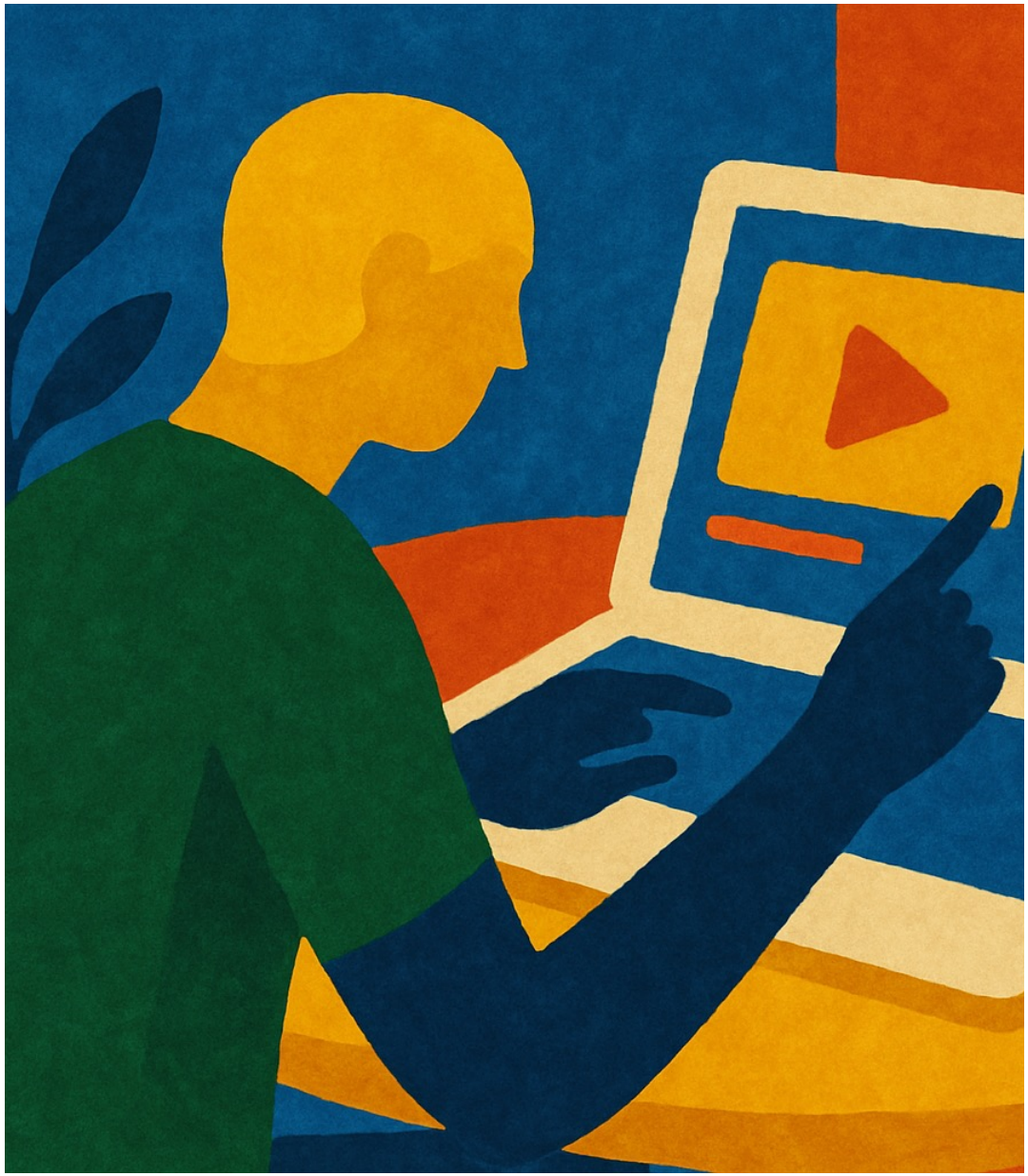
IN5210: Digital platforms

Alexander Kempton,
Information Systems Group

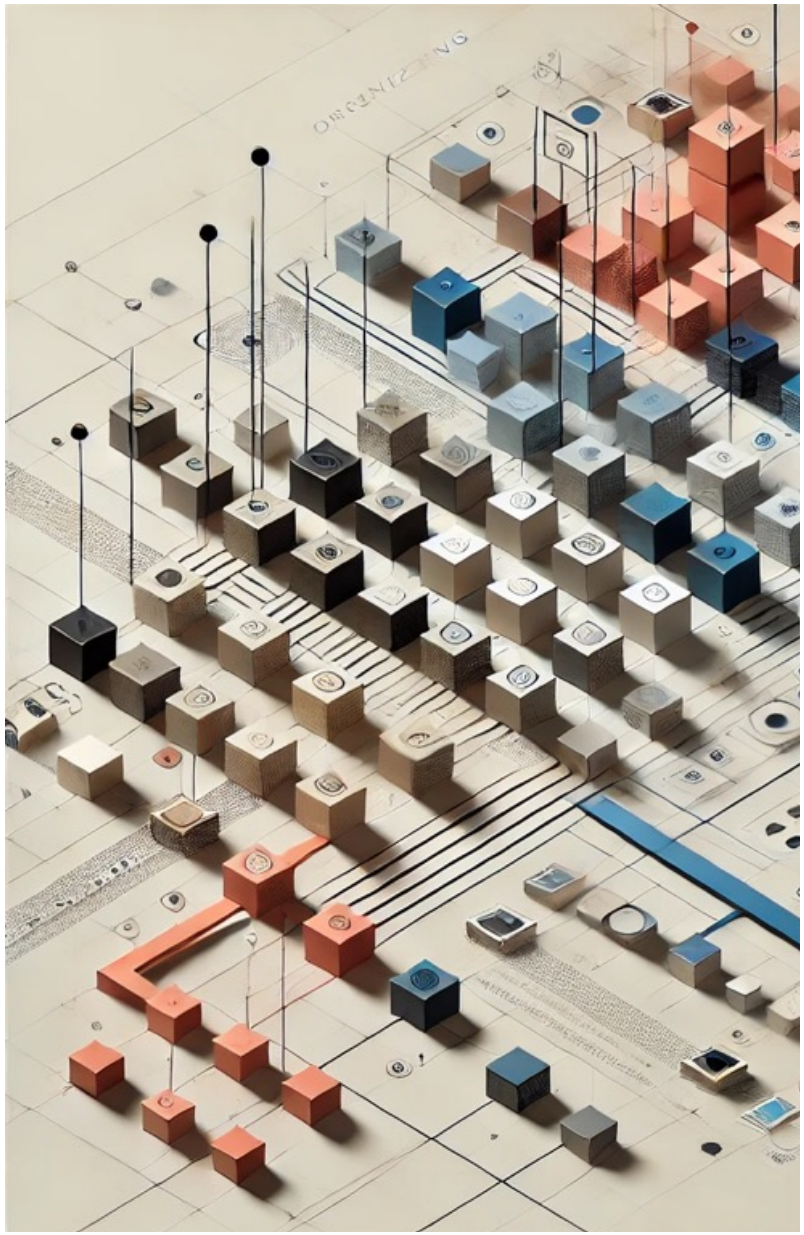
alexansk@uio.no

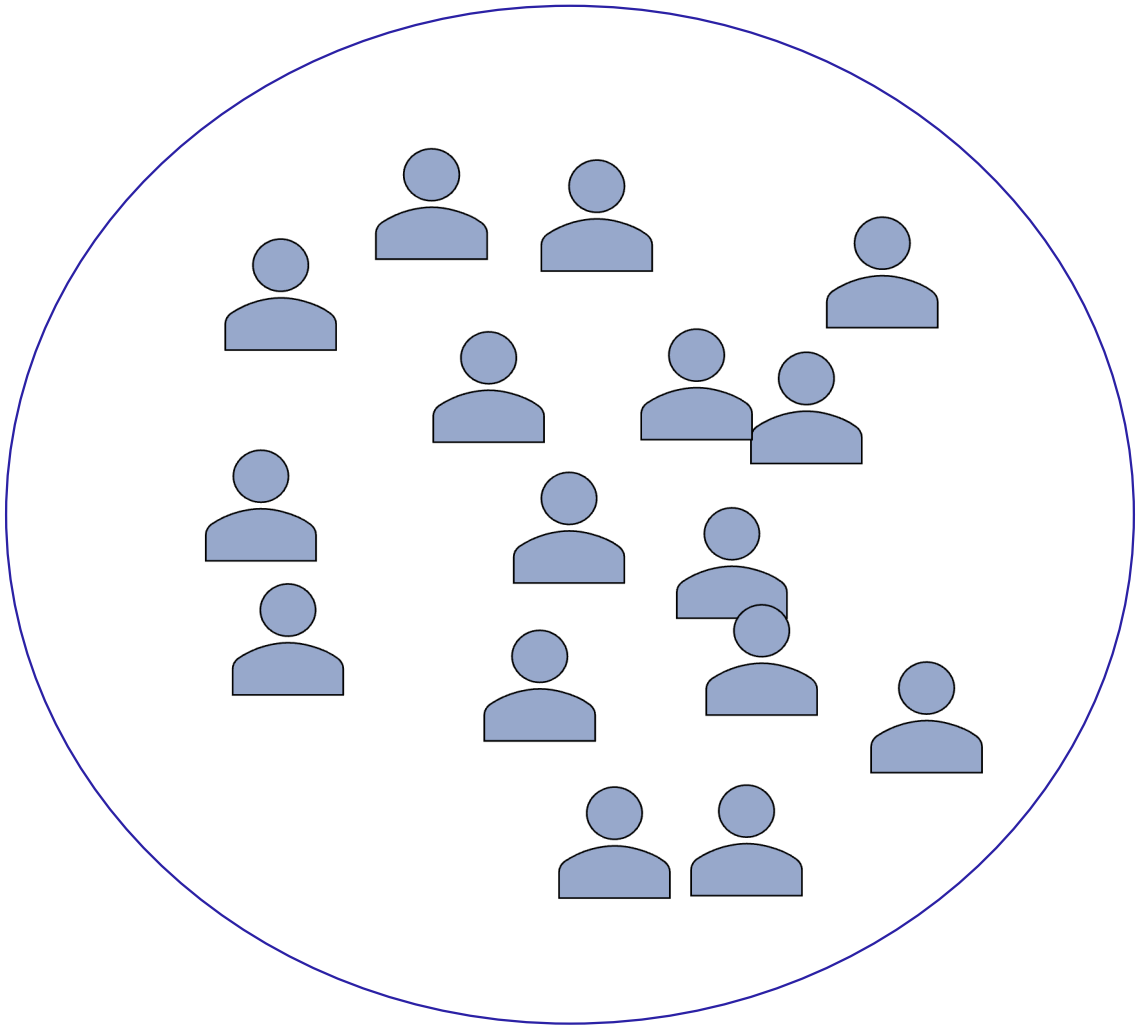



iOS
aws
FINN
dhis2
Uber
android
airbnb
Azure

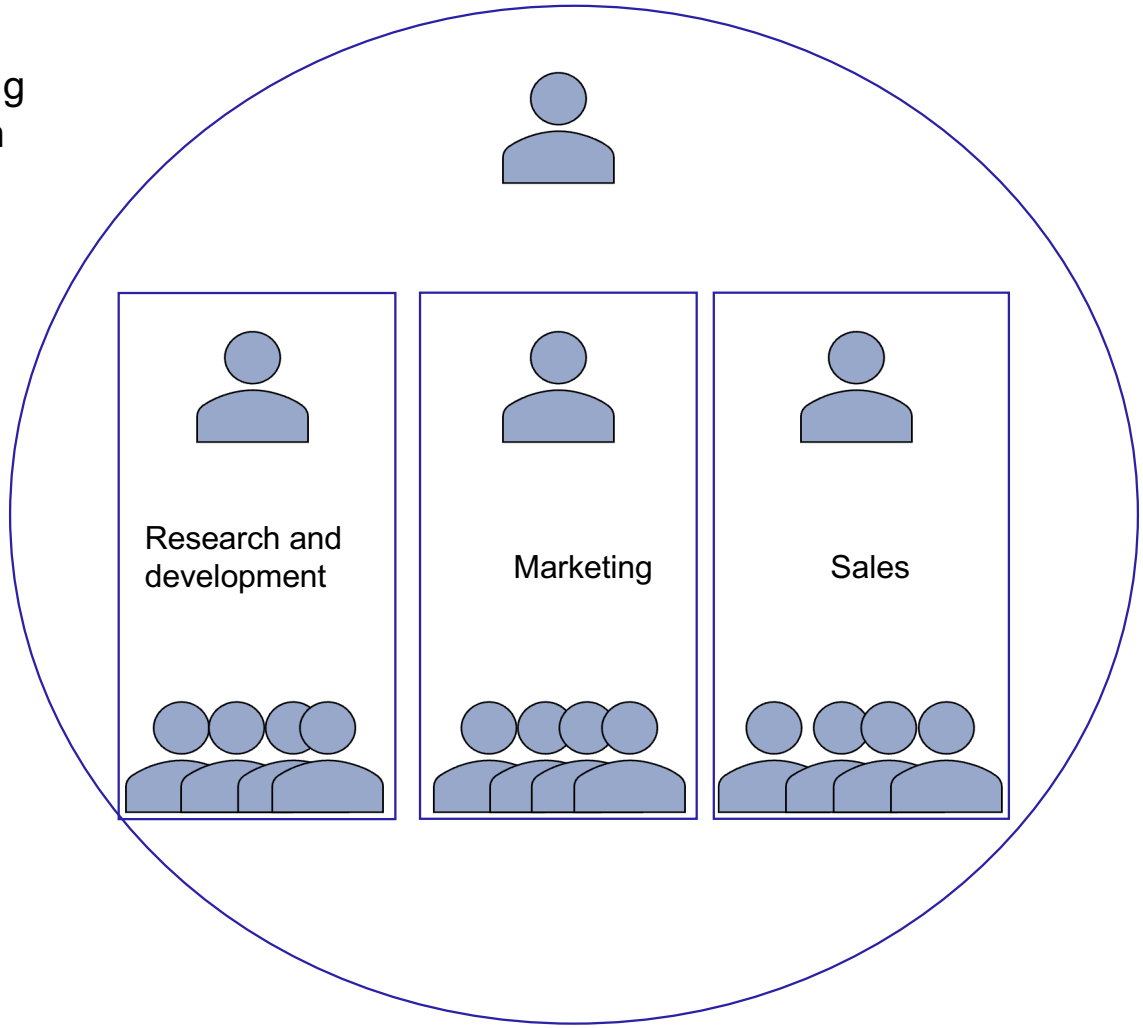
The key message: platforms provide a socio-technical architecture for how to organize using digital technologies

- Organizing:
  - Division of who does what
  - Coordination between the individuals and between the groups in which labour is divided

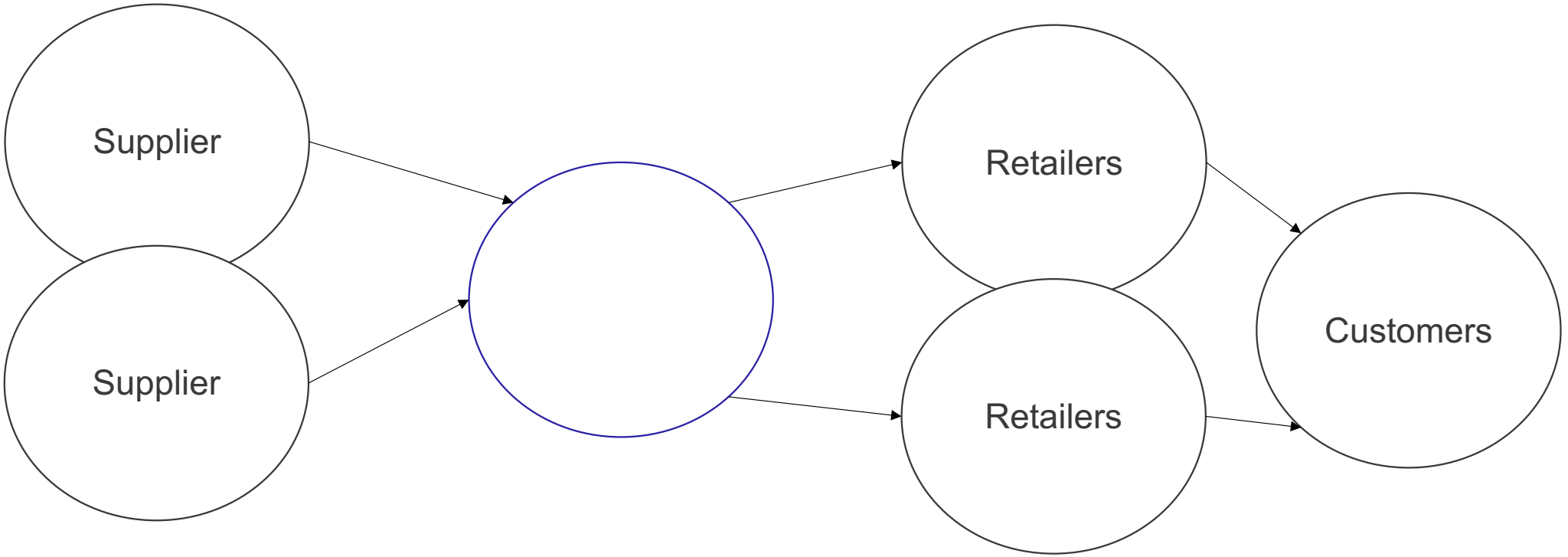




Hierarchical organizing within an organization



Value chain organizing between organizations



Platforms: a socio-technical architecture for organizing around a digital core

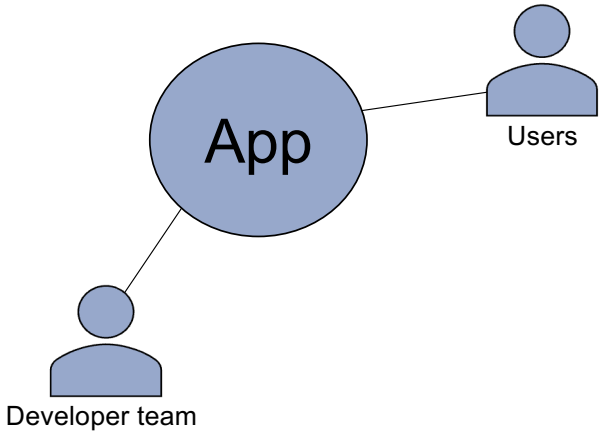
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A socio-technical architecture?



An overview of the interrelationship between social and technical components within a system, emphasizing which components do what and how these components coordinate

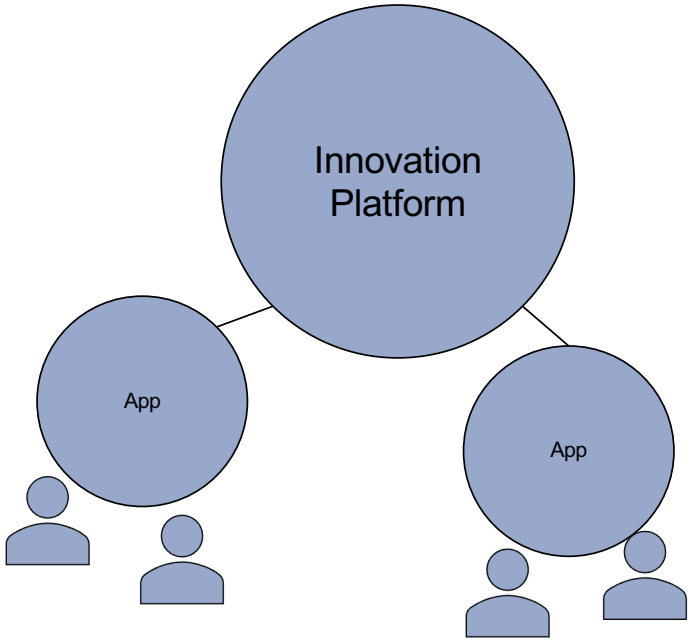
A very simple socio-technical architecture

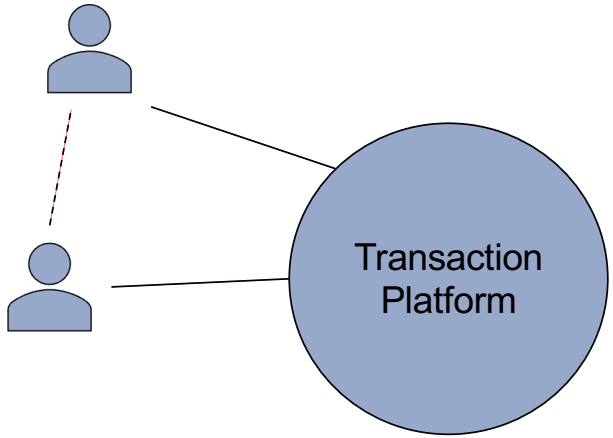


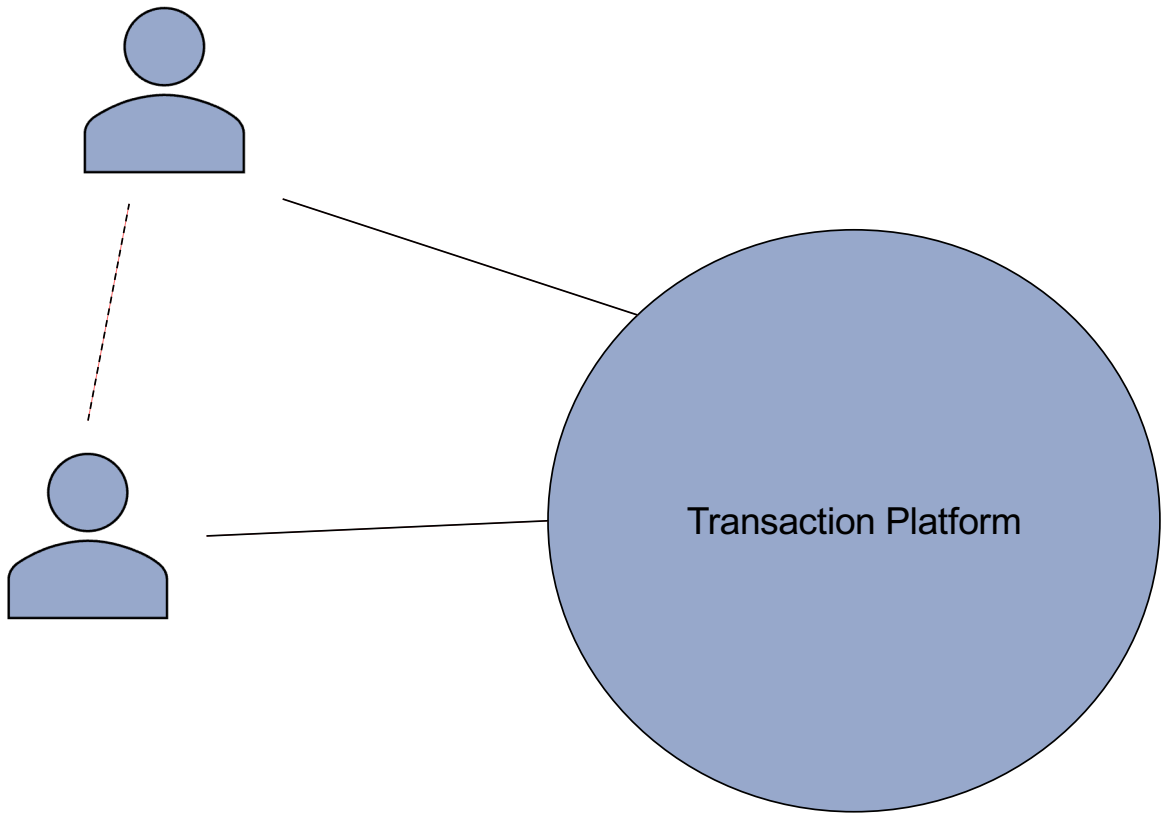
Platforms: a socio-technical architecture for organizing around a digital core

Different types:

- Innovation platforms
- Transaction platforms
- Hybrids between innovation and transaction platforms

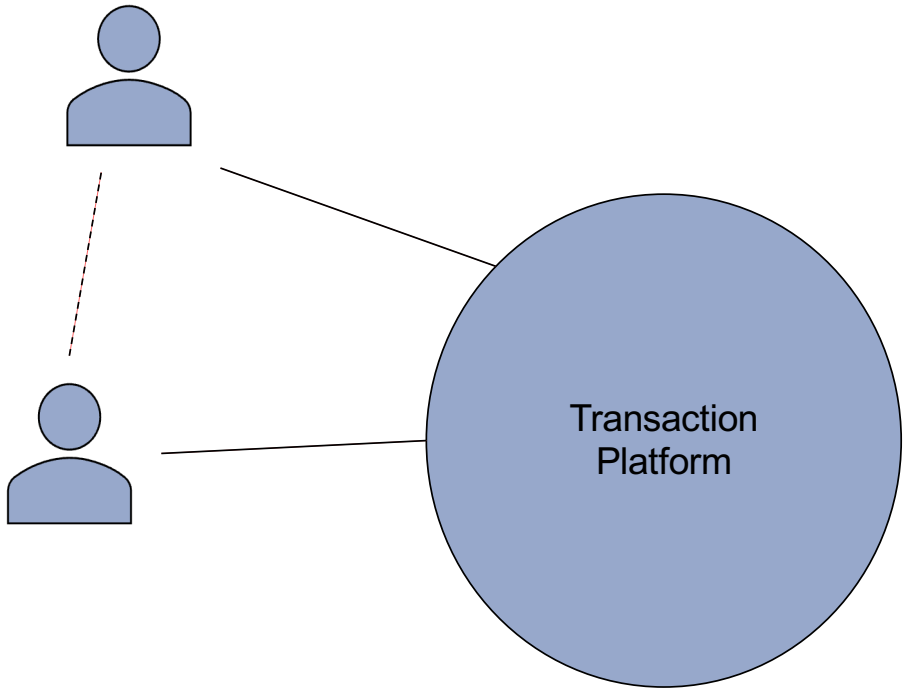





Transaction Platform


Uber

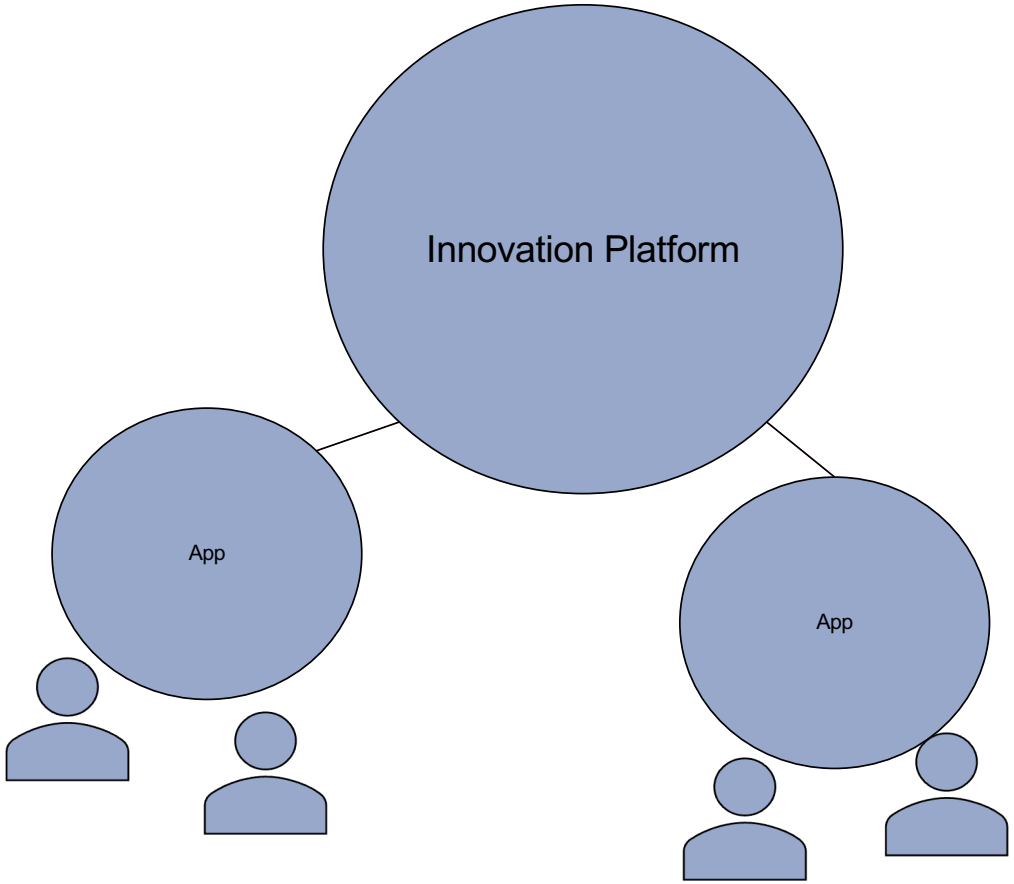
- Enables a market: “buyers” and “sellers” have access to each other
- Matches different peoples’ needs (recommendations, search)
- Enables efficient transactions between different user groups (the different sides of the platform), through its functionalities: security, payments, etc



Discussion

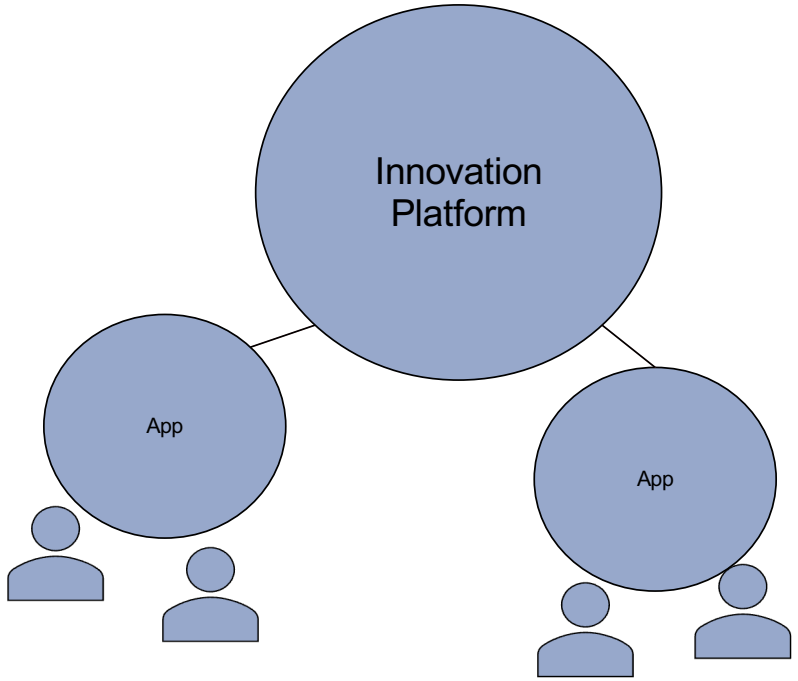
- Exemplify a transaction platform
- Discuss the socio-technical architecture of the example (user groups, relations to platform)
- What value and benefits does the platform provide? To which groups of people?




Innovation Platform
App
App

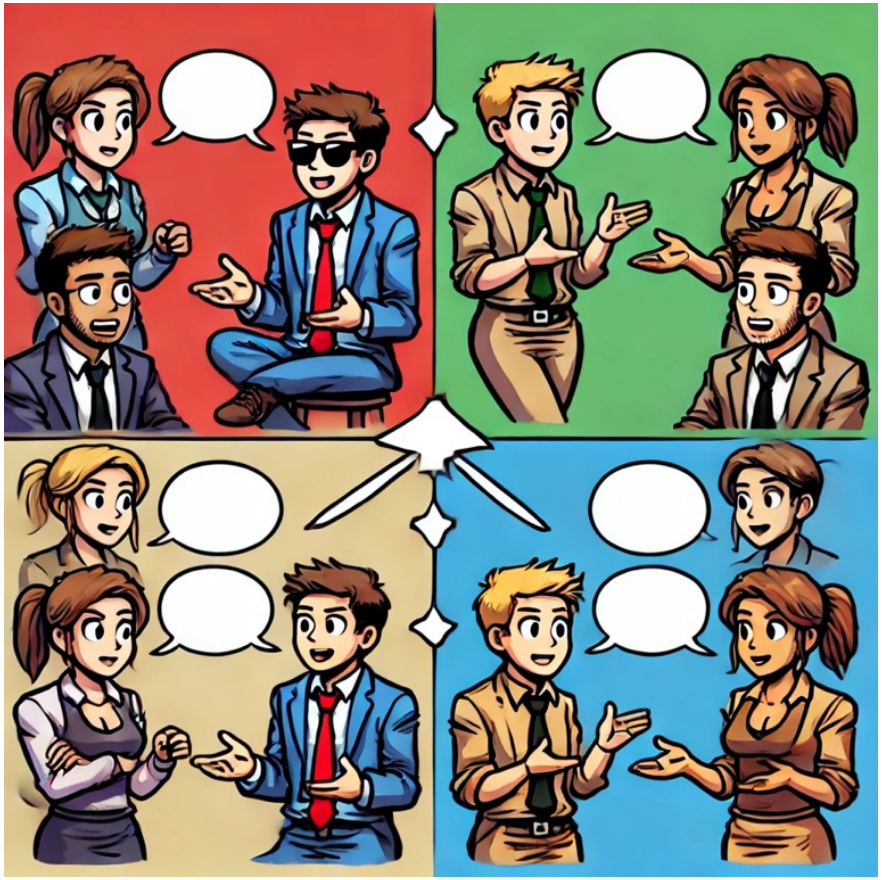

iOS

- Enables complementors (app developers) to extend the platform with new functionality
- Allows complementors to develop software that meets specific needs
- Allows platform owners a wider range of functionality than they develop themselves



Discussion

- Exemplify an innovation platform
- Discuss the socio-technical architecture of the example (user groups, relations to platform)
- What value and benefits does the platform provide? To which groups of people?



Why are innovation platforms so important?



Even the biggest tech company in the world has limited resources and knowledge



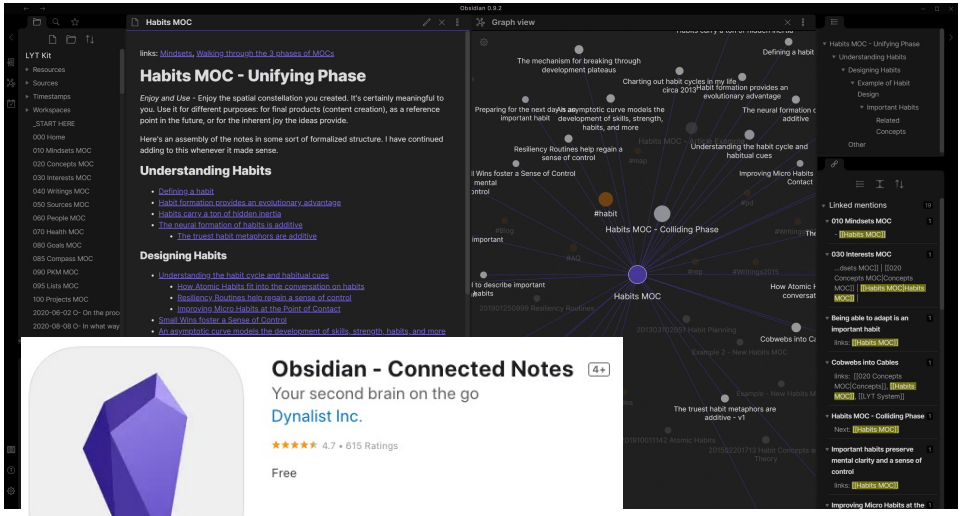
The platform model allows for **separation of concerns**



The platform owner can concentrate their resources and knowledge on building the foundational technologies that enable other parties to extend them



The app developers can concentrate their resources and knowledge on building technologies that meet specific user needs



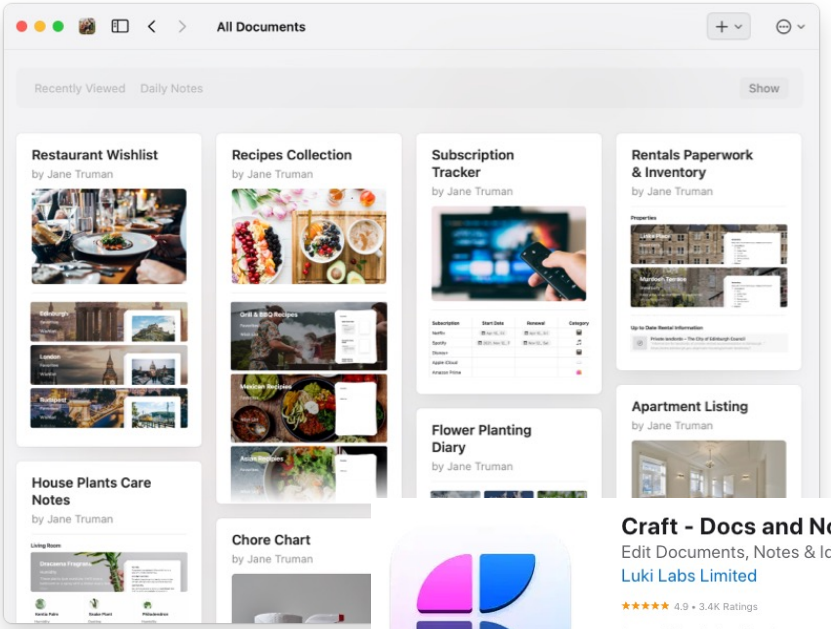
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Your second brain on the go

Dynalist Inc.

★★★★½ 4.7 • 615 Ratings

Free



Craft - Docs and Notes Editor 4+

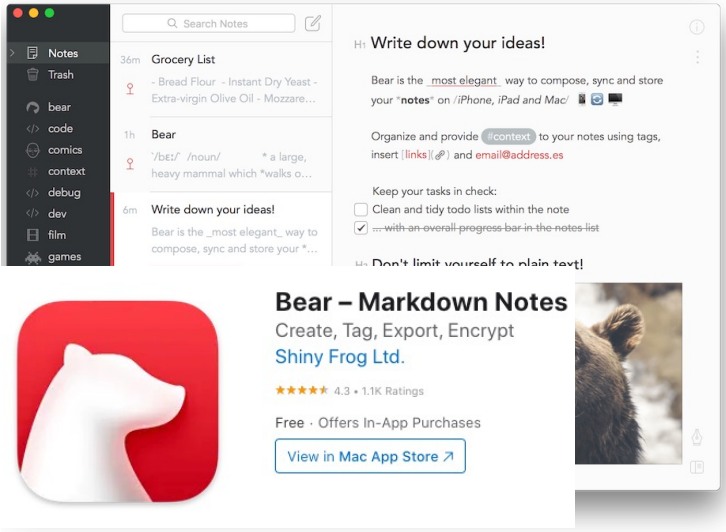
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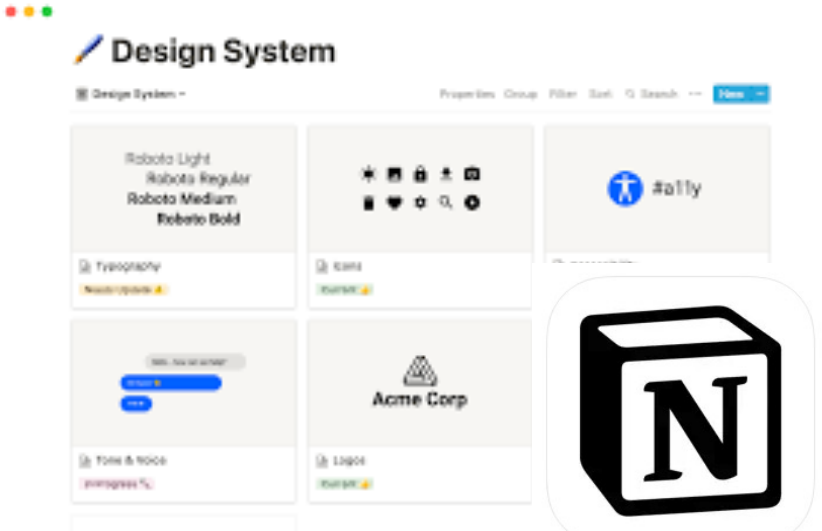
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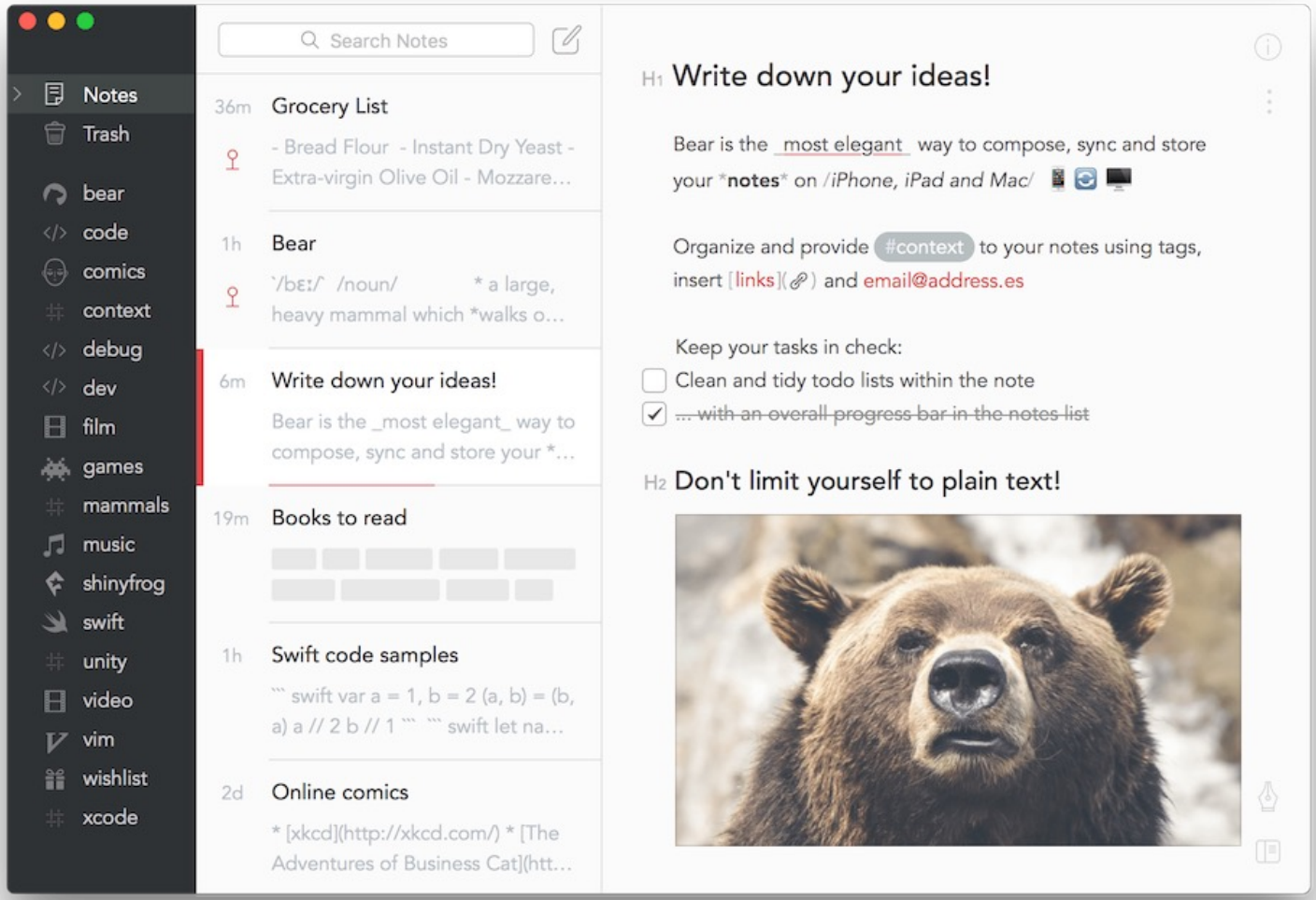
The all-in-one workspace

Notion Labs, Incorporated

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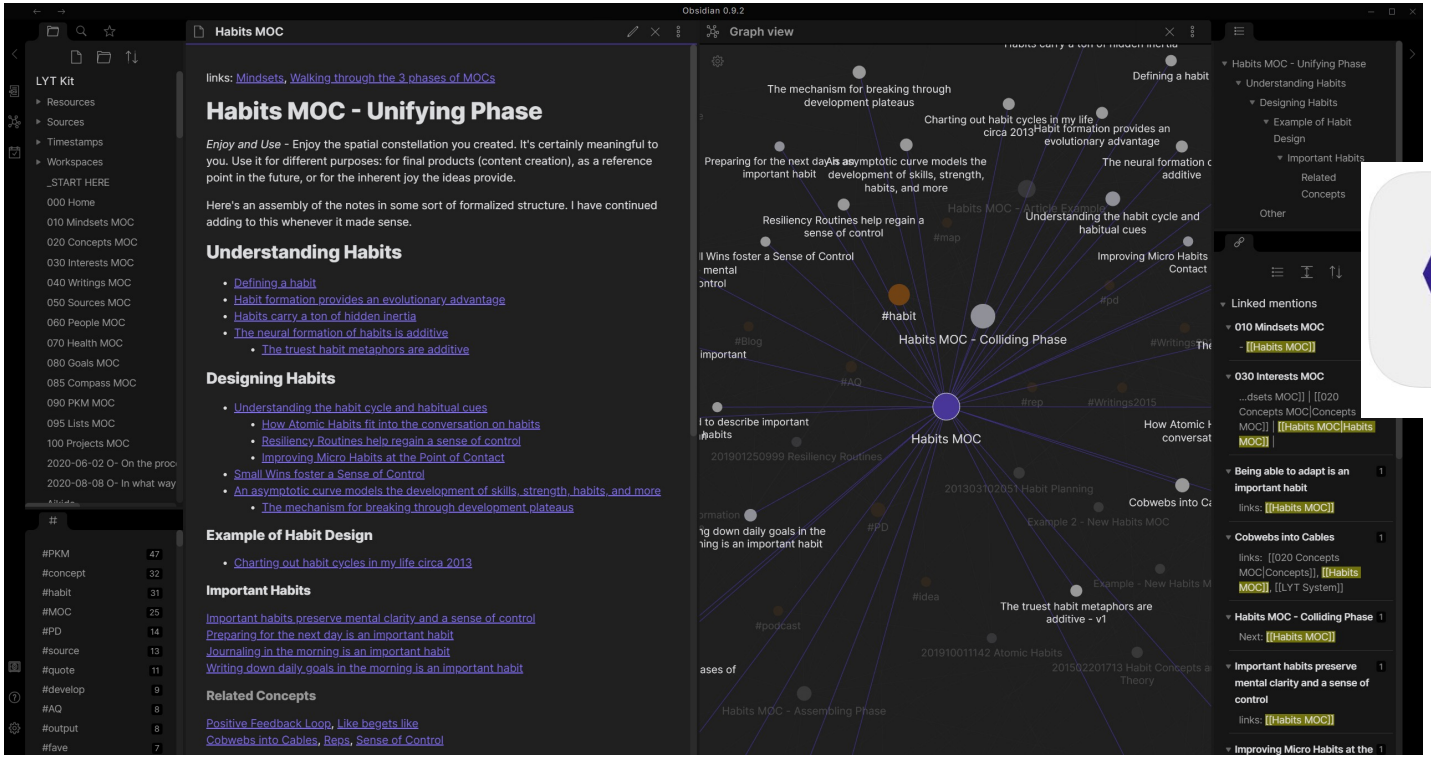
Create, Tag, Export, Encrypt

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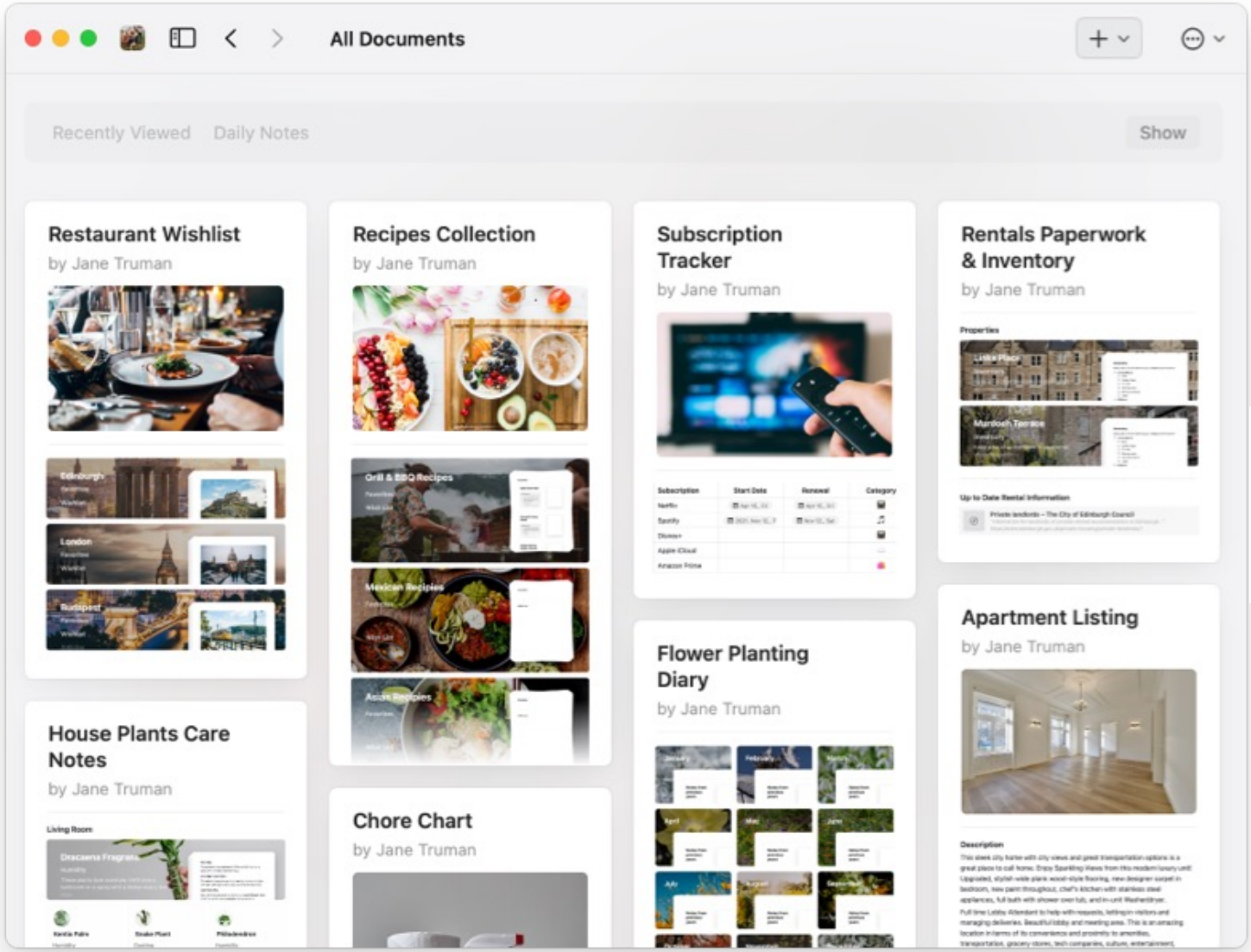
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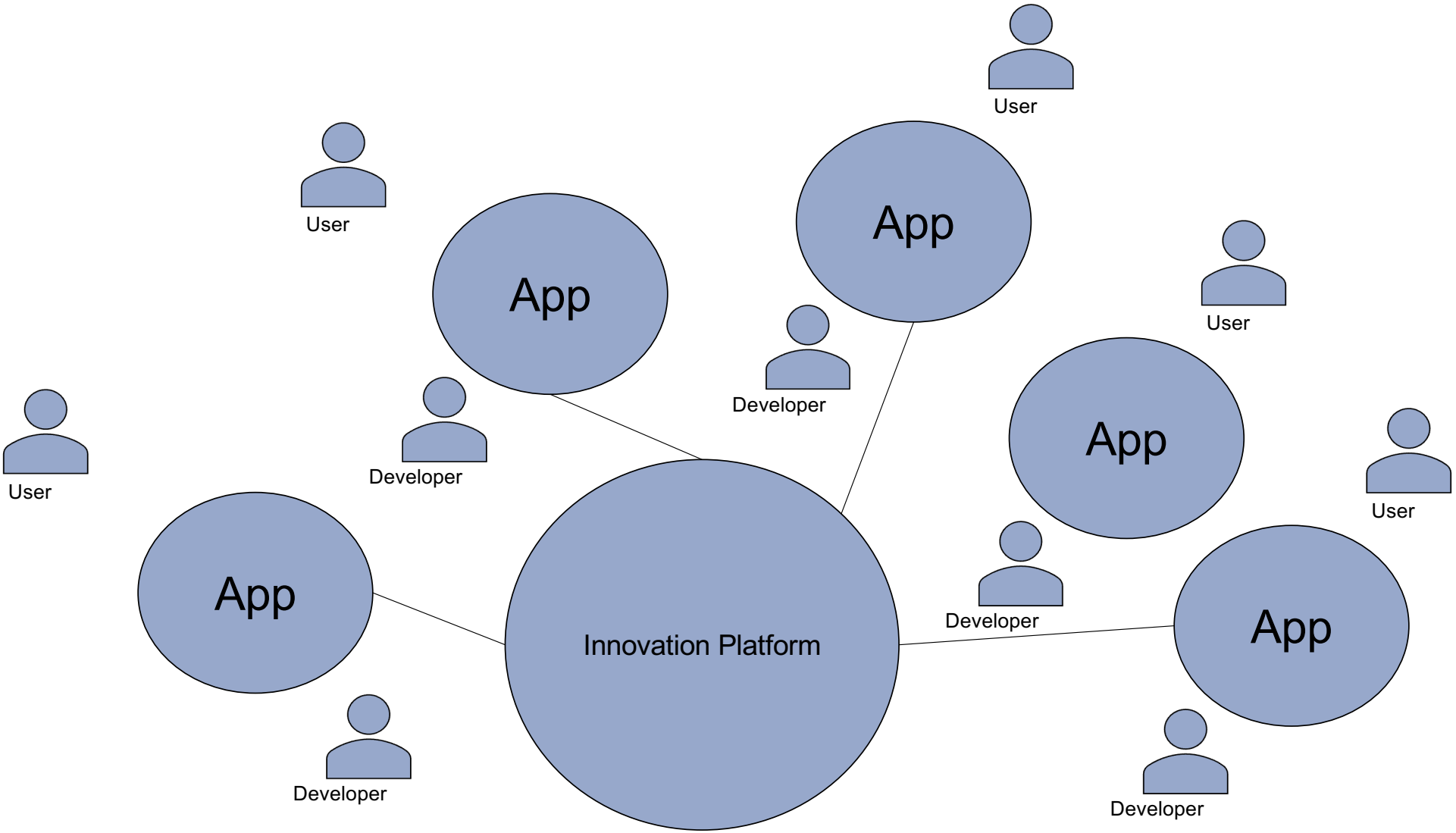
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User
User
App
App
User
Developer
User
Developer
App
User
App
Innovation Platform
Developer
App
Developer
Developer

Why are innovation platforms so important?



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The platform model allows for **separation of concerns**



The platform owner can concentrate their resources and knowledge on building the foundational technologies that enable other parties to extend them



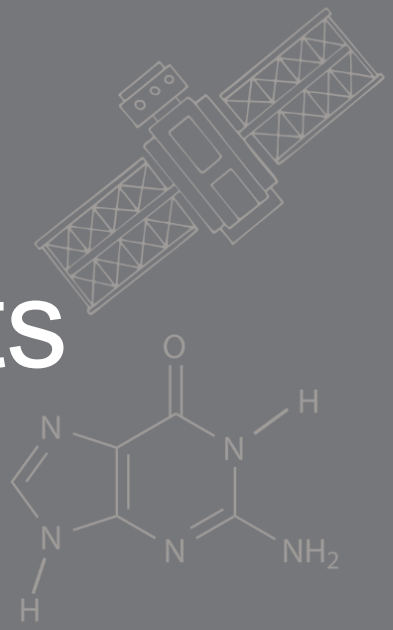
The app developers can concentrate their resources and knowledge on building technologies that meet specific user needs

Key concepts in platform theory

- Network effects
- Bootstrapping
- Boundary resources

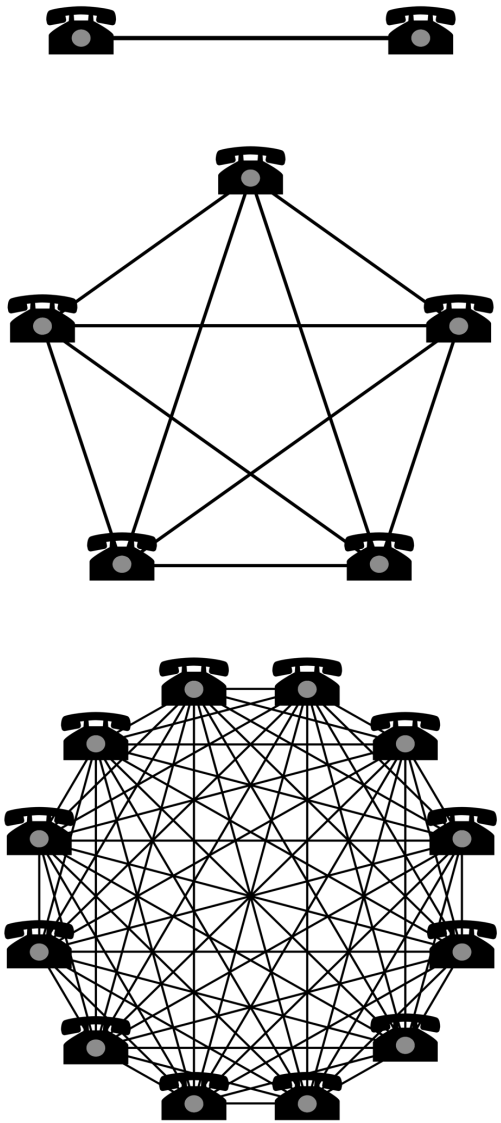


Network effects

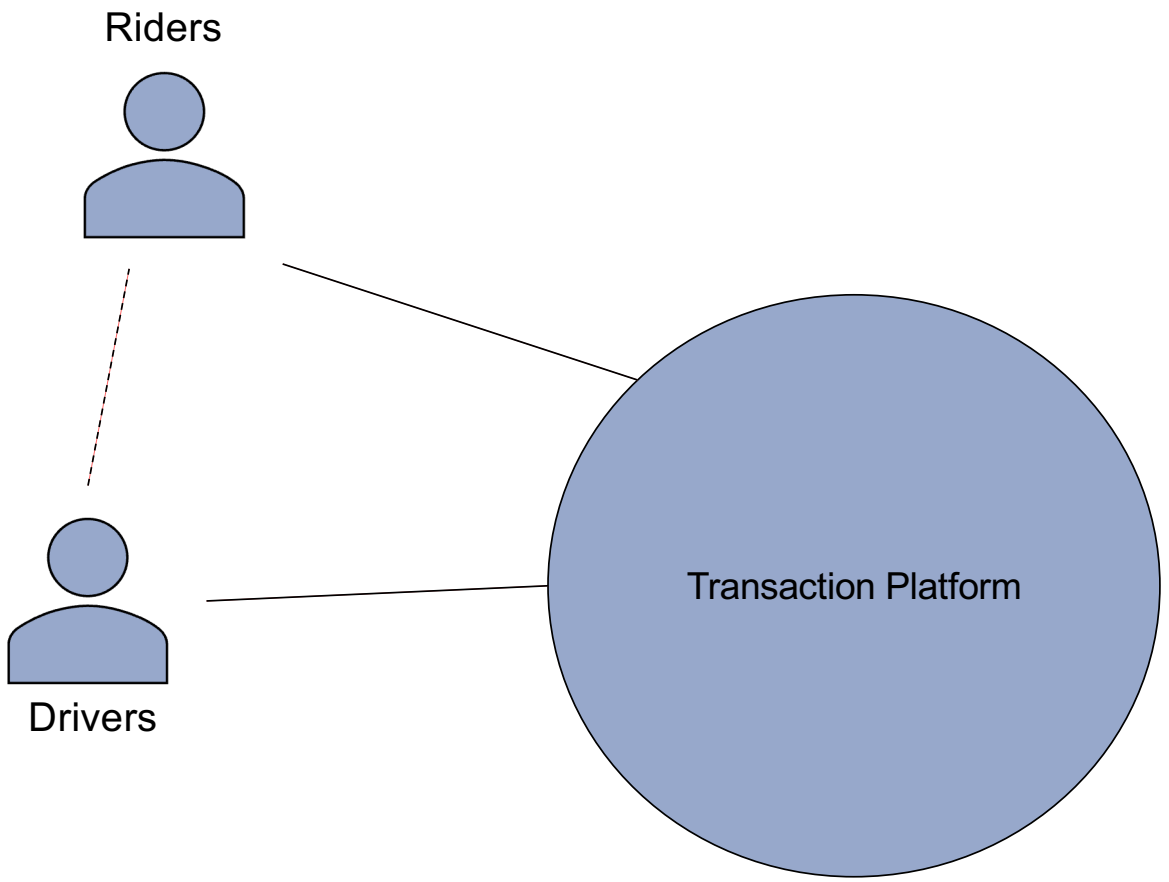


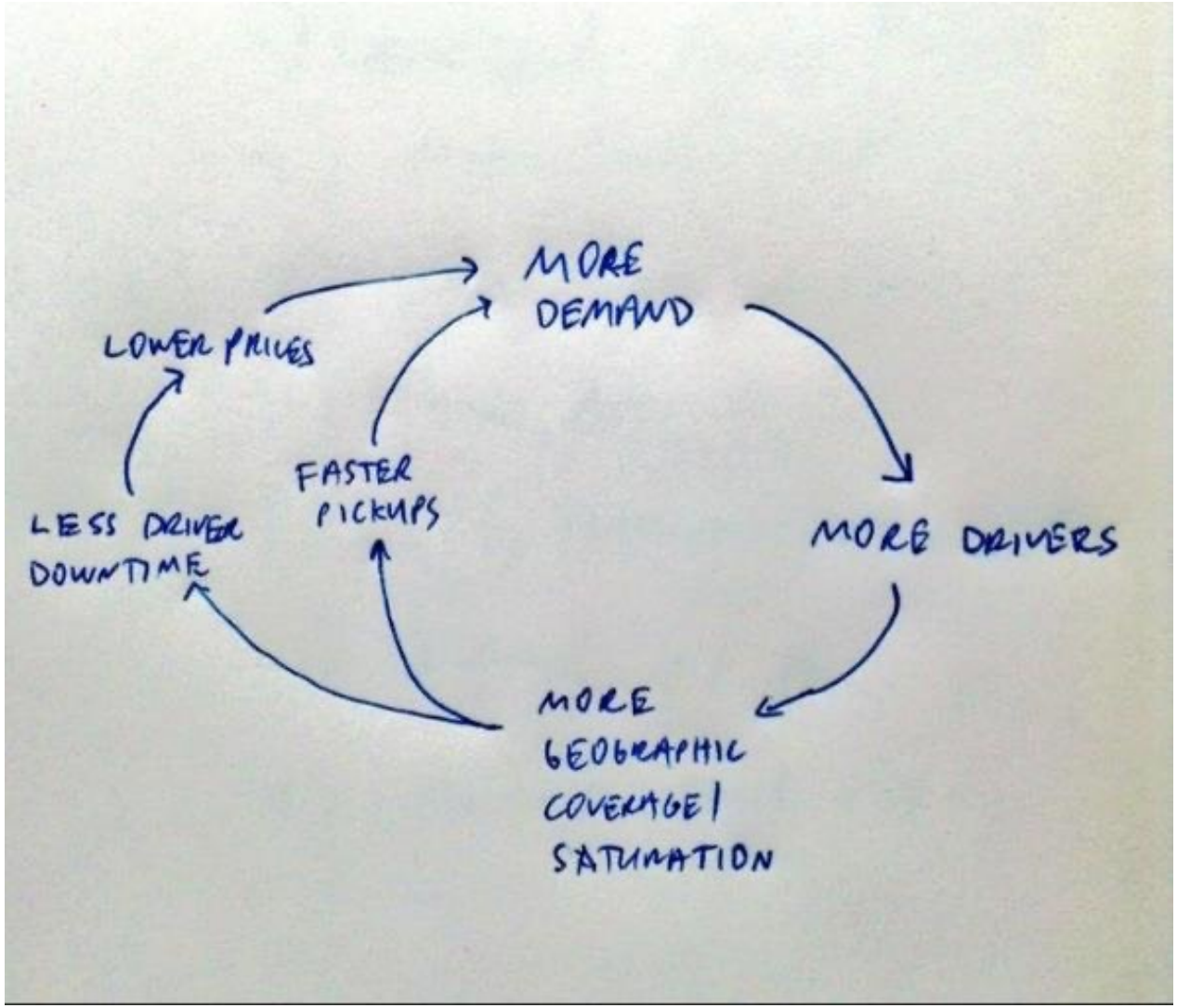


UiO : Institutt for informatikk




Taxi
UBER


Riders
Drivers
Transaction Platform



Parker, Van Alstyne, Choudary, 2016

Bootstrapping (starting something from scratch)









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Discussion

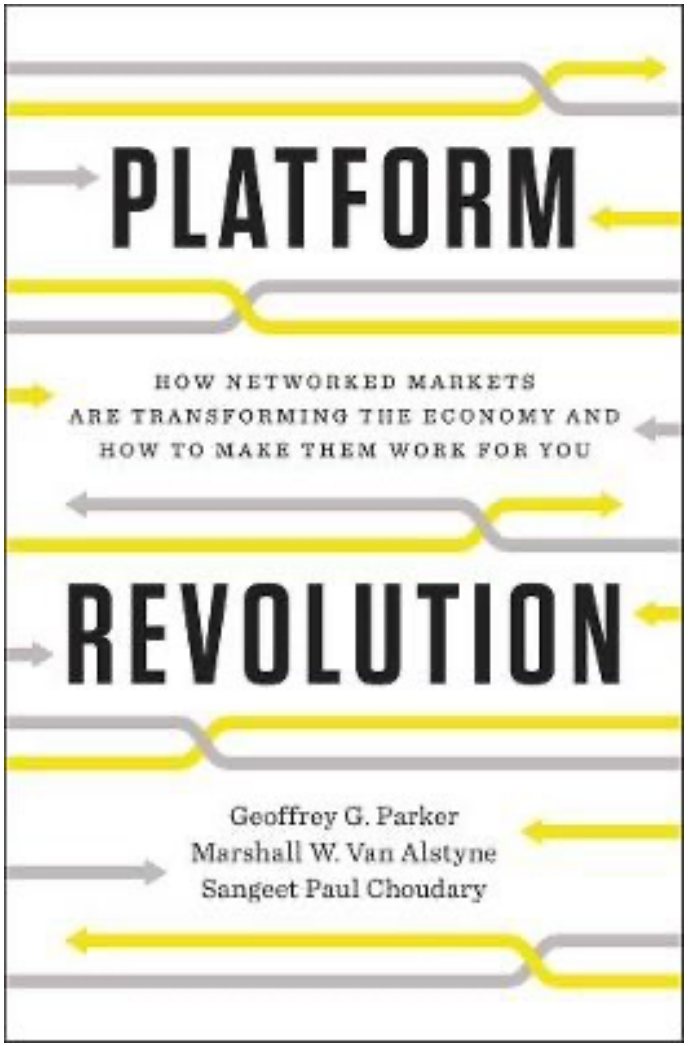
- Given the importance of network effects, what challenge must be handled to establish a platform?



Discussion

- What can a platform bootstrapping strategy look like?




PLATFORM
HOW NETWORKED MARKETS
ARE TRANSFORMING THE ECONOMY AND
HOW TO MAKE THEM WORK FOR YOU
REVOLUTION
Geoffrey G. Parker
Marshall W. Van Alstyne
Sangeet Paul Choudary

Some strategies to handle the chicken – egg dilemma

- Follow the rabbit
- Piggyback (Paypal, eBay)
- Seeding (android, dating sites)
- Micro market (Facebook)

Follow the rabbit





Piggyback





Seeding



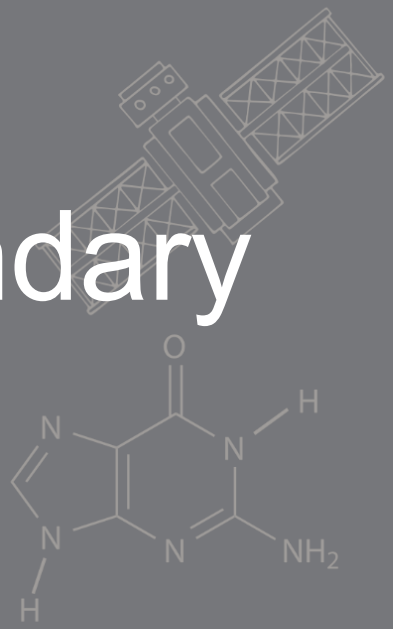
Micro market





Establishing boundary resources

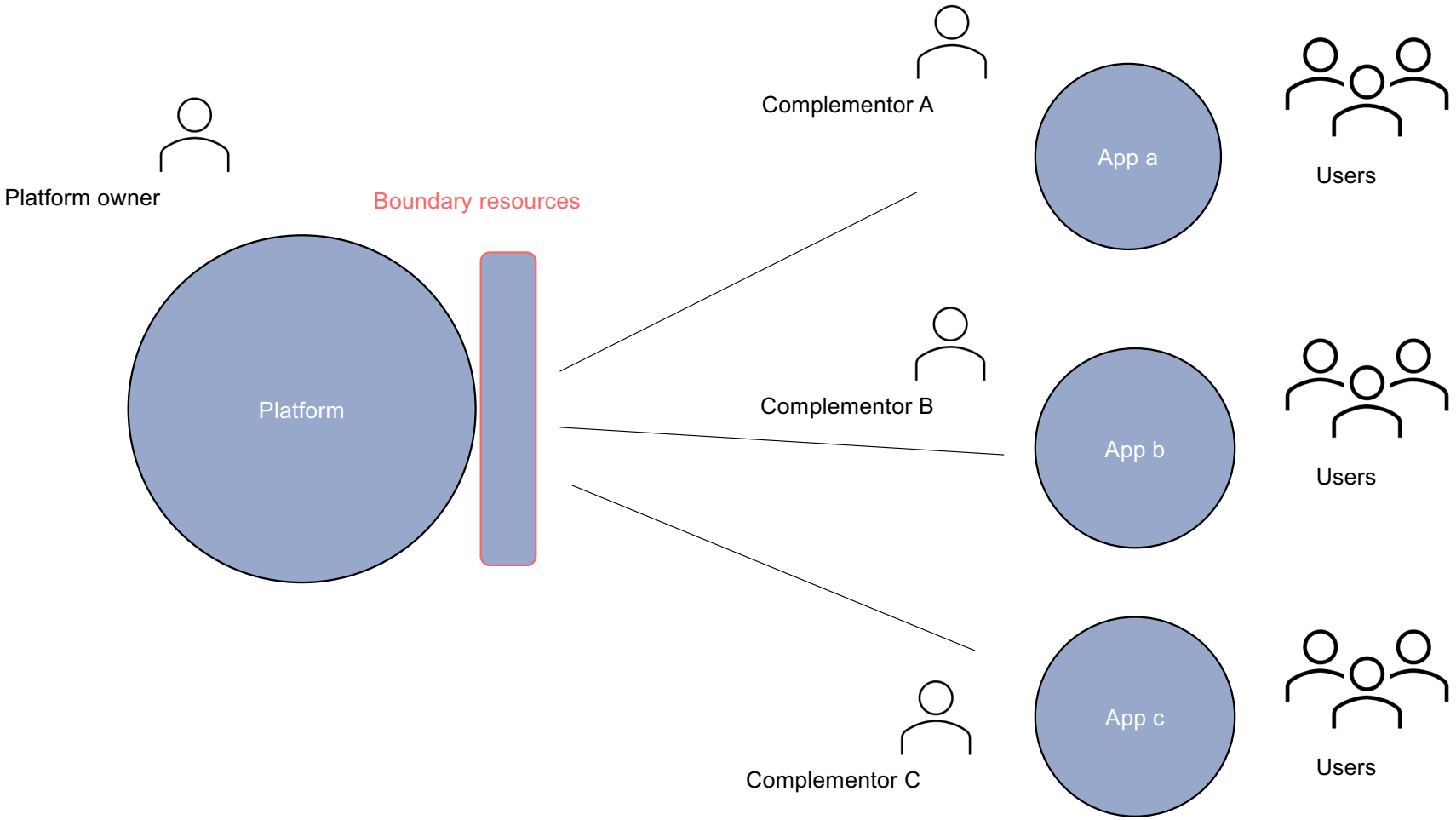






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Boundary Resources: The software tools and regulations that serve as the interface for the arm's-length relationship between the platform owner and the application developer


Platform owner
Boundary resources
Platform
Complementor A
App a
Users
Complementor B
App b
Users
Complementor C
App c
Users

Obtain the geographic location and orientation of a device.

iOS 2.0+ iPadOS 2.0+ macOS 10.6+ Mac Catalyst 13.0+ tvOS 9.0+ watchOS 2.0+

Overview

Core Location provides services that determine a device's geographic location, altitude, and orientation, or its position relative to a nearby iBeacon device. The framework gathers data using all available components on the device, including the Wi-Fi, GPS, Bluetooth, magnetometer, barometer, and cellular hardware.

You use instances of the `CLLocationManager` class to configure, start, and stop the Core Location services. A location manager object supports the following location-related activities:

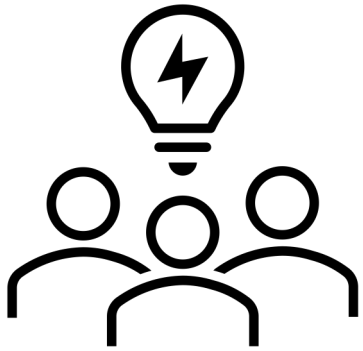
- **Standard and significant location updates.** Track large or small changes in the user's current location with a configurable degree of accuracy.
- **Region monitoring.** Monitor distinct regions of interest and generate location

Discussion

- What types of boundary resources do you think a platform needs to offer?



Platform perspective on AI



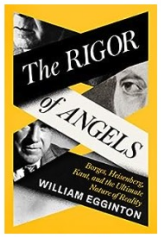
Two contemporary developments:

- Platforms utilizing AI in the way it they offer value to third parties
- Platforms exposing AI functionality to third parties

Two contemporary developments:

- **Platforms utilizing AI in the way it they offer value to third parties**
- Platforms exposing AI functionality to third parties

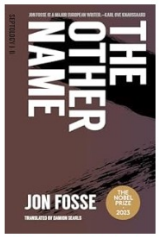
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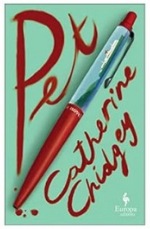
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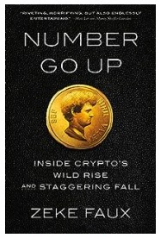
The MANIAC
★★★★½ 61
Kindle Price: $14.99



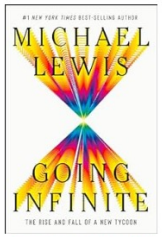
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★★★★½ 349
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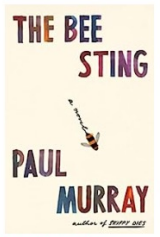
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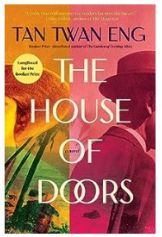
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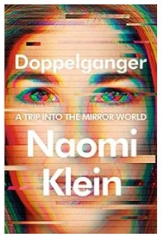
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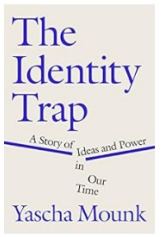
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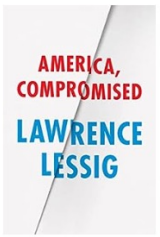


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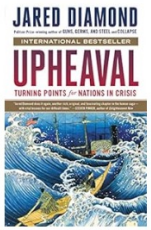
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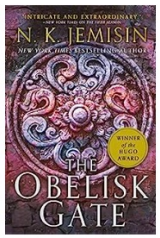
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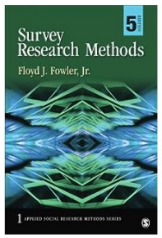
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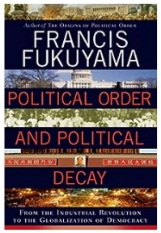
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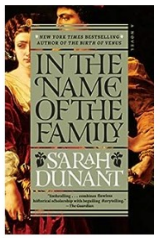
The Obelisk Gate
★★★★½ 23,803



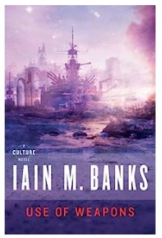
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★★★★½ 161
Kindle Price: $52.20



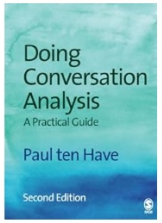
Political Order and Political...
★★★★½ 1,218
Kindle Price: $11.30



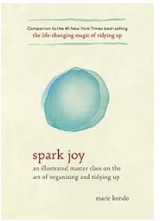
In the Name of the Family: A Novel
★★★★☆ 2,038
Kindle Price: $9.99



Use of Weapons
★★★★☆ 4,671

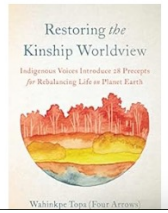


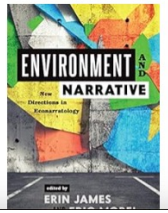
Doing Conversation Analysis
★★★★½ 12
Kindle Price: $52.50

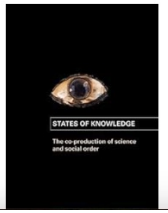


Spark Joy: An Illustrated Master...
★★★★½ 8,913

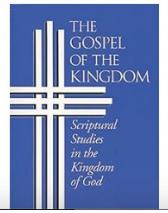
Top picks for you

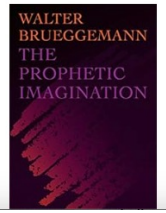


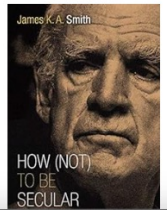


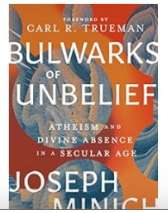


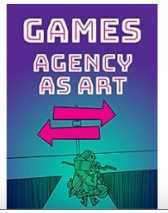


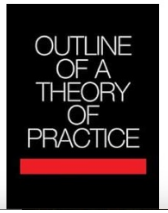












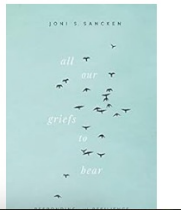
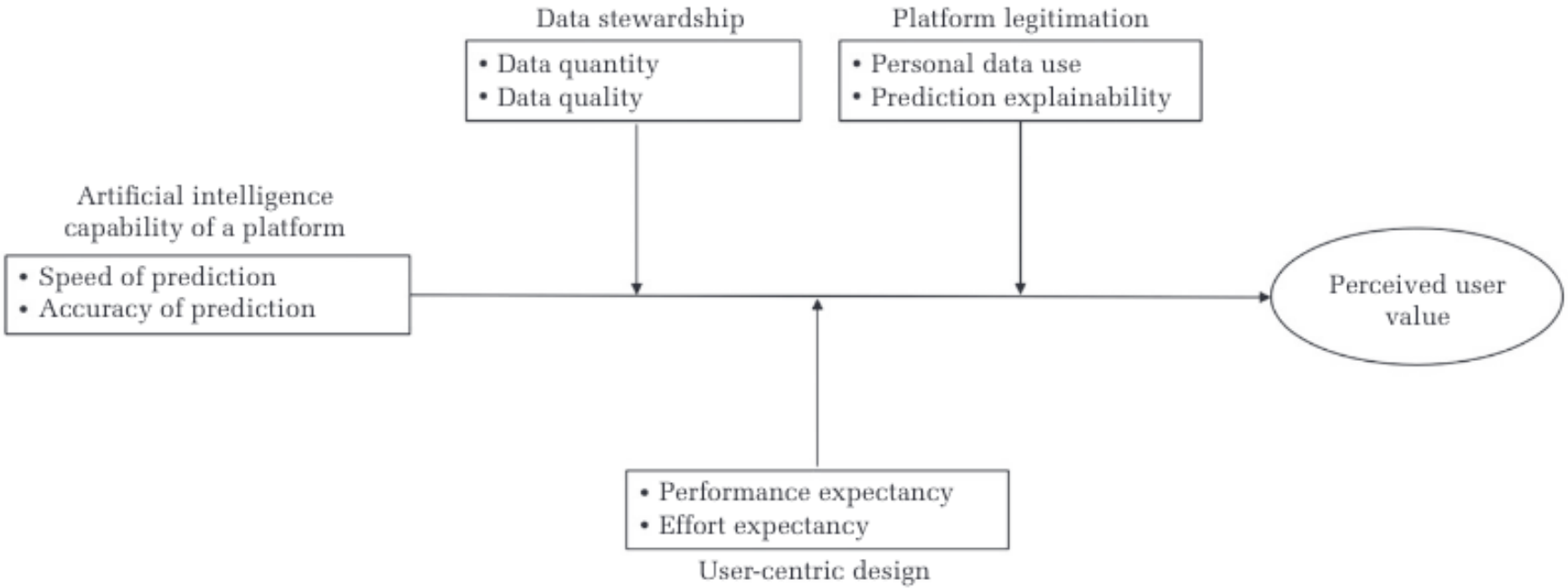


FIGURE 1
Model of Data Network Effects



Gregory, R. W., Henfridsson, O., Kaganer, E., and Kyriakou, S. H. 2021. "The Role of Artificial Intelligence and Data Network Effects for Creating User Value," *Academy of Management Review* (46:3), Academy of Management, pp. 534–551. (https://doi.org/10.5465/amr.2019.0178).

Two contemporary developments:

- Platforms utilizing AI in the way it they offer value to third parties
- **Platforms exposing AI functionality to third parties**

OpenAI

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AWS Machine Learning Blog

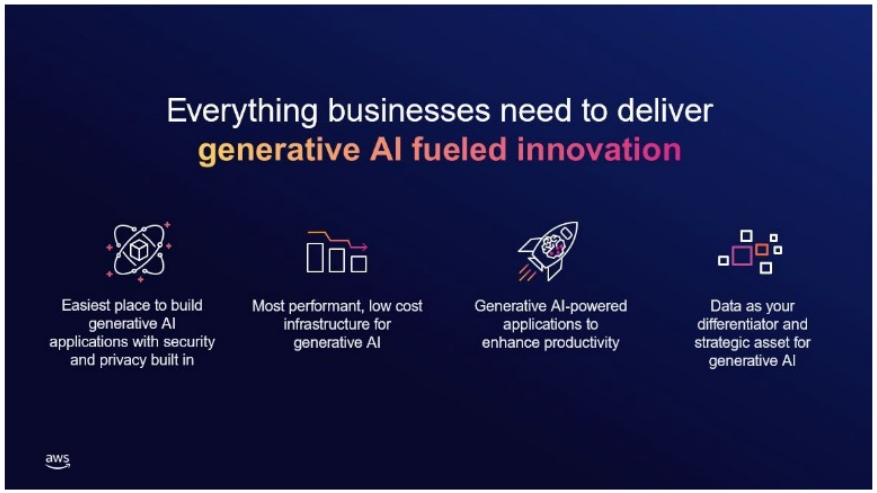
Announcing New Tools to Help Every Business Embrace Generative AI

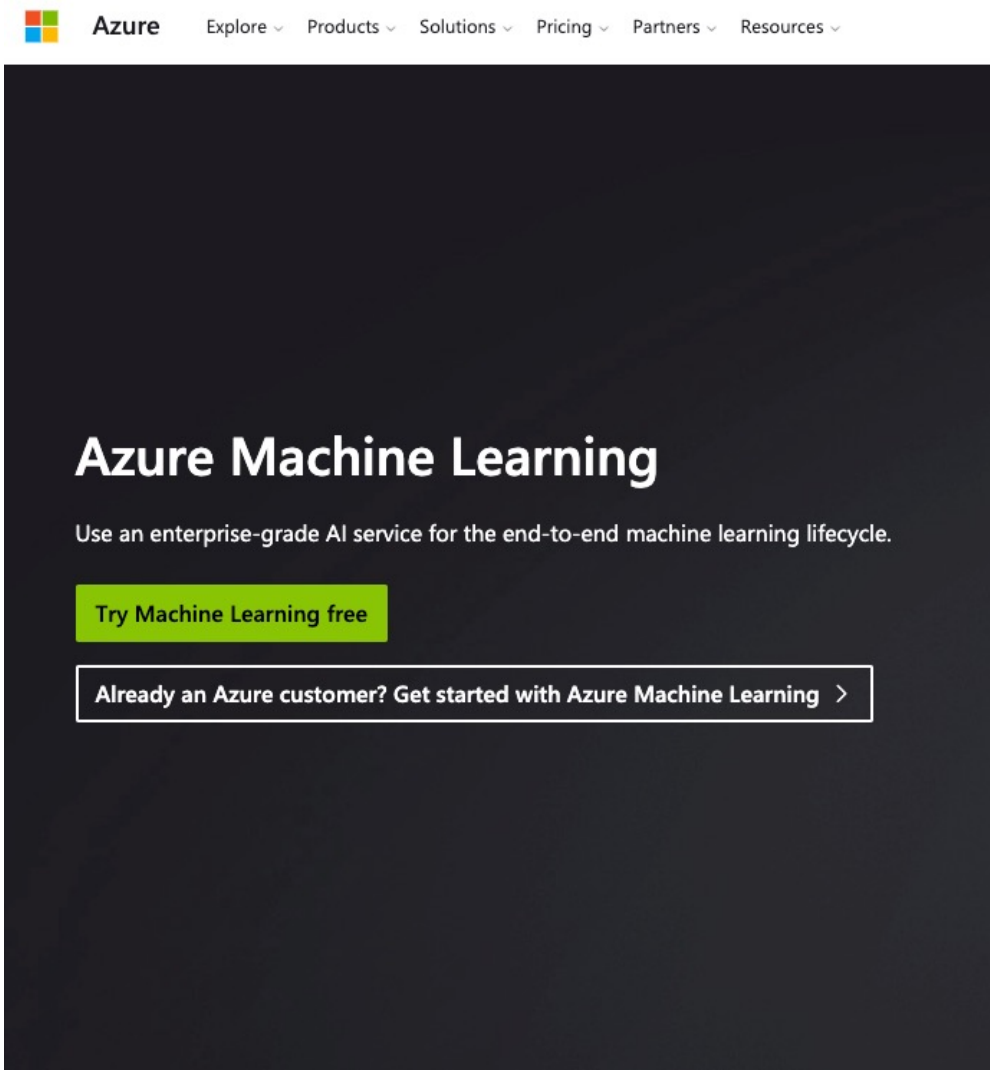
by Swami Sivasubramanian | on 28 SEP 2023 | in Announcements, Artificial Intelligence, Generative AI | Permalink | Comments | Share

From startups to enterprises, organizations of all sizes are getting started with generative AI. They want to capitalize on generative AI and translate the momentum from betas, prototypes, and demos into real-world productivity gains and innovations. But what do organizations need to bring generative AI into the enterprise and make it real? When we talk to customers, they tell us they need security and privacy, scale and price-performance, and most importantly tech that is relevant to their business. We are excited to announce new capabilities and services today to allow organizations big and small to use generative AI in creative ways, building new applications and improving how they work. At AWS, we are hyper-focused on helping our customers in a few ways:

- Making it easy to build generative AI applications with security and privacy built in
- Focusing on the most performant, low cost infrastructure for generative AI so you can train your own models and run inference at scale
- Providing generative AI-powered applications for the enterprise to transform how work gets done
- Enabling data as your differentiator to customize foundation models (FMs) and make them an expert on your business, your data, and your company

To help a broad range of organizations build differentiated generative AI experiences, AWS has been working hand-in-hand with our customers, including BBVA, Thomson Reuters, United Airlines, Philips, and LexisNexis Legal & Professional. And with the new capabilities launched today, we look forward to enhanced productivity, improved customer engagement, and more personalized experiences that will transform how companies get work done.





Discussion

- What are the implications of future AI-enabled development is all based on the large platforms?



Big AI: Cloud infrastructure dependence and the industrialisation of artificial intelligence

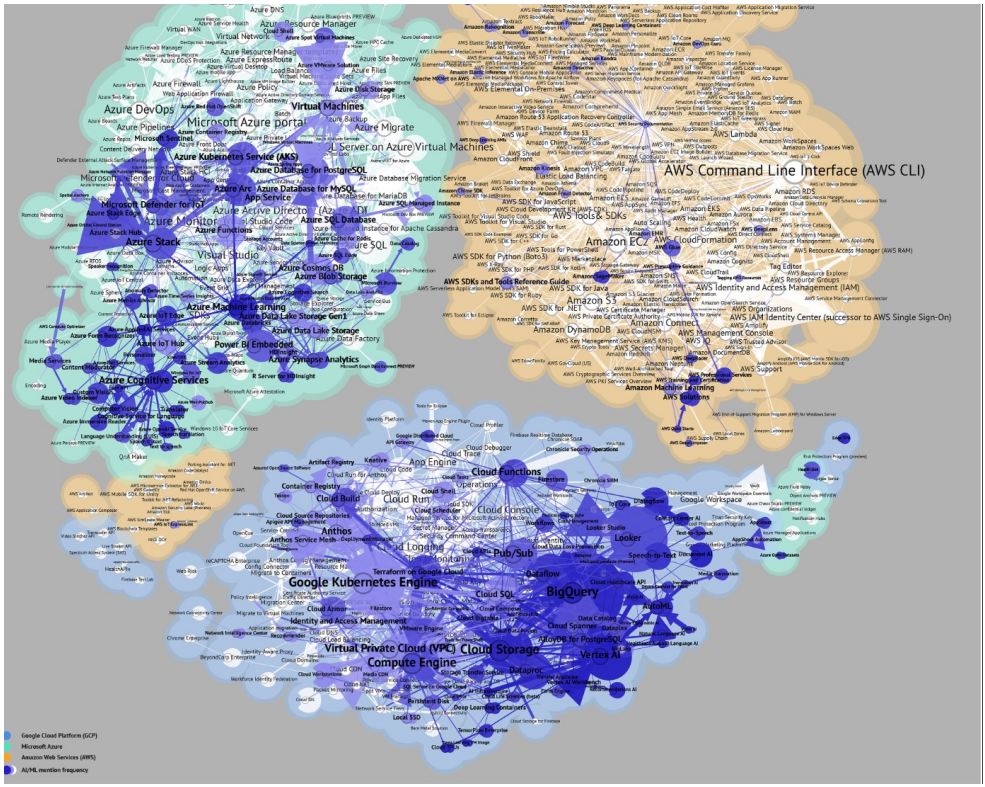
Fernando van der Vlist, Anne Helmond, and Fabian Ferrari View all authors and affiliations

All Articles | https://doi-org.ezproxy.uio.no/10.1177/20539517241232630

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Abstract

Critical scholars contend that 'There is no AI without Big Tech'. This study delves into the substantial role played by major technology conglomerates, including Amazon, Microsoft, and Google (Alphabet), in the 'industrialisation of artificial intelligence'. This concept encapsulates the shift of AI technologies from the research and development stage to practical, real-world applications across diverse industry sectors, resulting in new dependencies and associated investments. We employ the term 'Big AI' to encapsulate the structural convergence of AI and Big Tech, characterised by the profound interdependence of AI with the infrastructure, resources, and investments of these major technology companies. Using a 'technographic' approach, our study scrutinises the infrastructural support and investments of Big Tech in the AI sector, focussing on corporate partnerships, acquisitions, and financial investments. Additionally, we conduct a detailed examination of the complete spectrum of cloud platform products and services offered by Amazon, Microsoft, and Google. We demonstrate that AI is not merely an abstract idea but an actual technology stack encompassing infrastructure, models, applications, and an ecosystem of applications and companies relying on this stack. Significantly, these tech giants have seamlessly integrated all three components of the stack into their cloud offerings. Furthermore, they have developed industry-focussed solutions and marketplaces aimed at attracting third-party developers and businesses, fostering the growth of a broader AI ecosystem. This analysis underscores the intricate interdependence between AI and cloud infrastructure, emphasising the industry-specific aspects of cloud AI.


Azure DevOps
Microsoft Azure portal
Virtual Machines
Azure Migrate
Azure Kubernetes Service (AKS)
Azure Database for PostgreSQL
Azure Database for MySQL
Azure Database for MariaDB
Azure SQL Managed Instance
Azure Active Directory
Azure Monitor
Azure Functions
Azure Stack
Visual Studio
Azure Cosmos DB
Azure Blob Storage
Azure Machine Learning
Azure Data Lake Storage Gen1
Azure Data Lake Storage
Azure Data Factory
Azure Synapse Analytics
Azure Cognitive Services
Power BI Embedded
Azure IoT Hub
Azure Resource Manager
Azure Virtual Desktop
Azure Firewall
Azure Policy
Azure Disk Storage
Azure Backup
Azure Files
Azure SQL Database
Azure Cache for Redis
Azure Container Registry
Azure Front Door
Azure Private Link
Azure Load Balancer
Azure Virtual Network
Azure Spot Virtual Machines
Azure VMware Solution
Azure Site Recovery
Azure Application Gateway
Azure Web Apps
Azure Pipelines
Azure Boards
Azure Artifacts
Azure Test Plans
Azure DNS
Azure Blueprints PREVIEW
Azure Service Health
Azure Monitor
Azure Sentinel
Azure Security Center
Microsoft Defender for IoT
Azure Stack Edge
Azure Stack Hub
Azure Sphere
Azure Time Series Insights
Azure Digital Twins
Azure Event Grid
Azure Logic Apps
Azure Functions
Azure Data Share
Azure Stream Analytics
Azure HDInsight
Azure Databricks
Azure Data Explorer
Azure Purview
Azure Video Analyzer
Azure Media Player
Azure Media Services
Azure Cognitive Search
Azure Bot Service
Azure Form Recognizer
Azure Immersive Reader
Azure Video Indexer
Azure Metrics Advisor
Azure Personalizer
Azure Anomaly Detector
Azure Content Moderator
Azure Translator
Azure Speech Services
Azure Language Understanding
Azure Computer Vision
Azure Face
Azure Ink Recognizer
Azure Immersive Reader
Azure Bot Service
Azure Form Recognizer

Yann LeCun ∞
@ylecun

AI systems are fast becoming a basic infrastructure.
Historically, basic infrastructure always ends up being open source (think of the software infra of the internet, including Linux, Apache, JavaScript and browser engines, etc)
It's the only way to make it reliable, secure, and customizable.

Future AI assistants will mediate everyone's interaction with the digital world. This is way too foundational and powerful to be proprietary.

In the future, AI assistants will constitute the repository of all human knowledge. If we want it to represent all the world's knowledge and culture, the training and fine-tuning will have to be crowd sourced. Just like Wikipedia.

Oversett innlegg

> **Alex Volkov** @altryne · 20. sep.
> Based @ylecun
>
> "AI is going to become a common platform... it needs to be open source if you want it to be a platform on top of which a whole ecosystem can be built
> ...
> Vis mer

