Security Level:

Insights of Industry Challenges and Collaborating to Build an AI Ecosystem for a Better Connected, Intelligent World

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The Intelligent, Connected World Is Coming

All things sensing

Translate the physical world into digital signals

40 billion smart devices

All things connected

Bring data online, enabling intelligence

100 billion connections

All things intelligent

Applications based on big data and AI

180 billion TB of data generated every year

Source: Huawei Global Industry Vision 2025 (GIV 2025)

Globally, Industry Organizations Actively Contribute to Digital and Intelligence Building

Industry | Economy | Life | Society | Environment

Collaborating for Digital Economy Growth, Building a Better, Connected Intelligent World

Promote consensus → **Stimulate the industry ecosystem** → **Accelerate value creation**

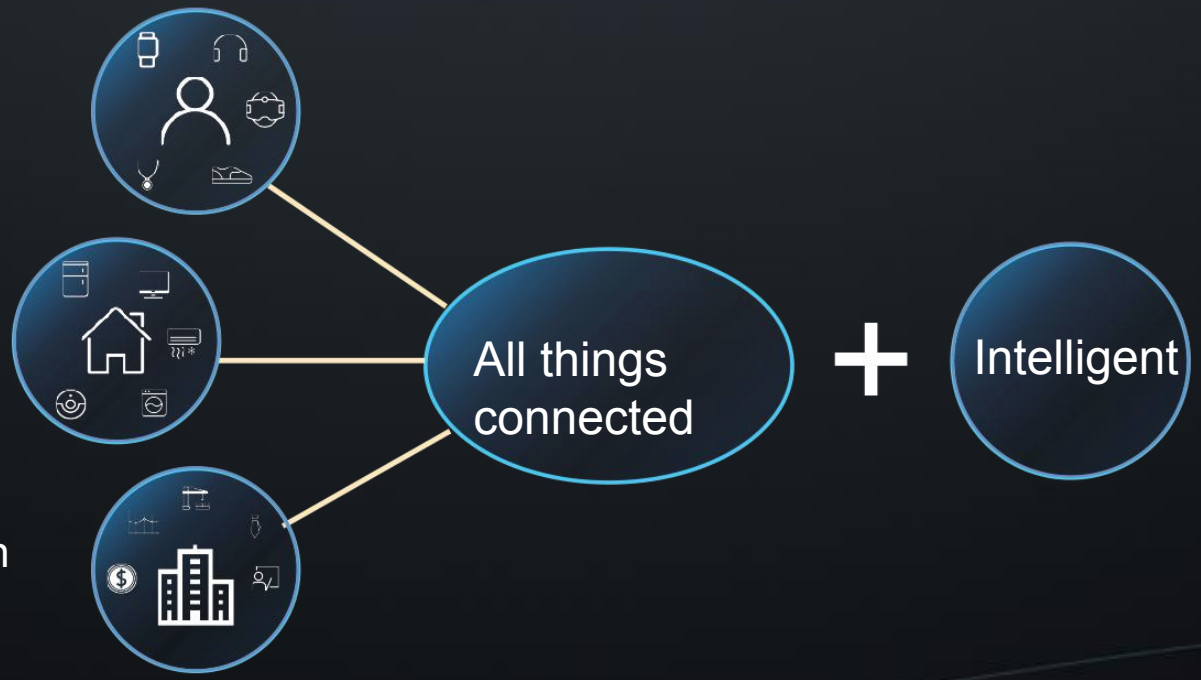
- **Industry collaboration**
- **Technological collaboration**
- **Collaboration on measures**

Huawei Strategy: Be a Pioneer of the Intelligent World, with Focus on ICT Infrastructure and Smart Devices

Bring digital to every person by investing in smart devices to improve user experience across all scenarios, including life, work, entertainment, and fitness.

Bring digital to every home by investing in broadband and home network solutions.

Bring digital to every organization by investing in networks, cloud, big data, and IoT to continue to boost the digital transformation of all industries.



Build a fully connected, intelligent world through ongoing investment in connecting the unconnected and AI, helping drive the convergence of the digital and physical worlds, unlock new potential, and cultivate greater intelligence for all.

There are still many challenges ahead on the journey of AI…

No wind blows in favor of a ship without direction

1、Policy challenges

2、Technology challenges

3、Business challenges

1、Policy Challenges: Inadequate Policy Support for the AI Industry

The US

National Artificial Intelligence Research and Development Strategic Plan

Select Committee on Artificial Intelligence

China

Three Year Action Plan to Expedite the Development of a Next Generation Artificial Intelligence Industry

China Artificial Intelligence Industry Alliance (AIIA)

Clear direction; inadequate support measures

Defined targets; lack of measurement indicators

EU

Declaration on Cooperation on Artificial Intelligence

European Association for Artificial Intelligence

Japan and South Korea

Japan's *Comprehensive Innovation Strategy*

South Korea's *AI R&D Plan*

1、Policy Challenges: AI's Huge Demand for Data VS. Strict Control over Data

Data sovereignty and protection

- Data governance
- Business know-how
- Personal privacy
- Right advocate

VS.

Valuable data flow

- Public data
- Mutually beneficial collaboration
- Value added through data sharing
- Data flow mechanism

2、Technology Challenges: Cost, Energy Consumption, and Fragmented Ecosystem

Fragmented ecosystem

Difficult to share capabilities

Difficult to accumulate knowledge

Difficult to migrate application

Long cycle of ecosystem building

High cost

High power consumption

2、Technology Challenges: Little Standardization and High Application Threshold

Slow innovation

- Rapid development of AI technologies
- Patent protection

Technical standards

Security is not guaranteed

- Street signs fool self-driving cars
- iPhone fingerprint authentication vulnerabilities

Security standards

Unreliable product quality

- Apple's facial recognition tricked by a mask
- Amazon Echo was accidentally activated
- Facebook shut down its chatbot

Quality evaluation standards

Closed systems

- Lack of collaboration among manufacturers
- Industry giants close the ecosystem by means of open source, binding platform, and so on

Interoperability interface specifications

- **Basic standards**
- **Platform/Support standards**
- **Key technical standards**
- **Product and service standards**
- **Application standards**
- **Security/Ethical standards**

2、Technology Challenges: Data Difficult to Collect and Low Quality

Data source

Access

Integrate

Use

Data decides the quality and outcome of work

Data quality

- Inadequate data volume
- Improper data distribution
- Interference caused by incorrect data
- Delay in data acquisition

3、Business Challenges: Demand-Supply Mismatch and Ongoing Exploration of an Ecological Mechanism for Shared Success

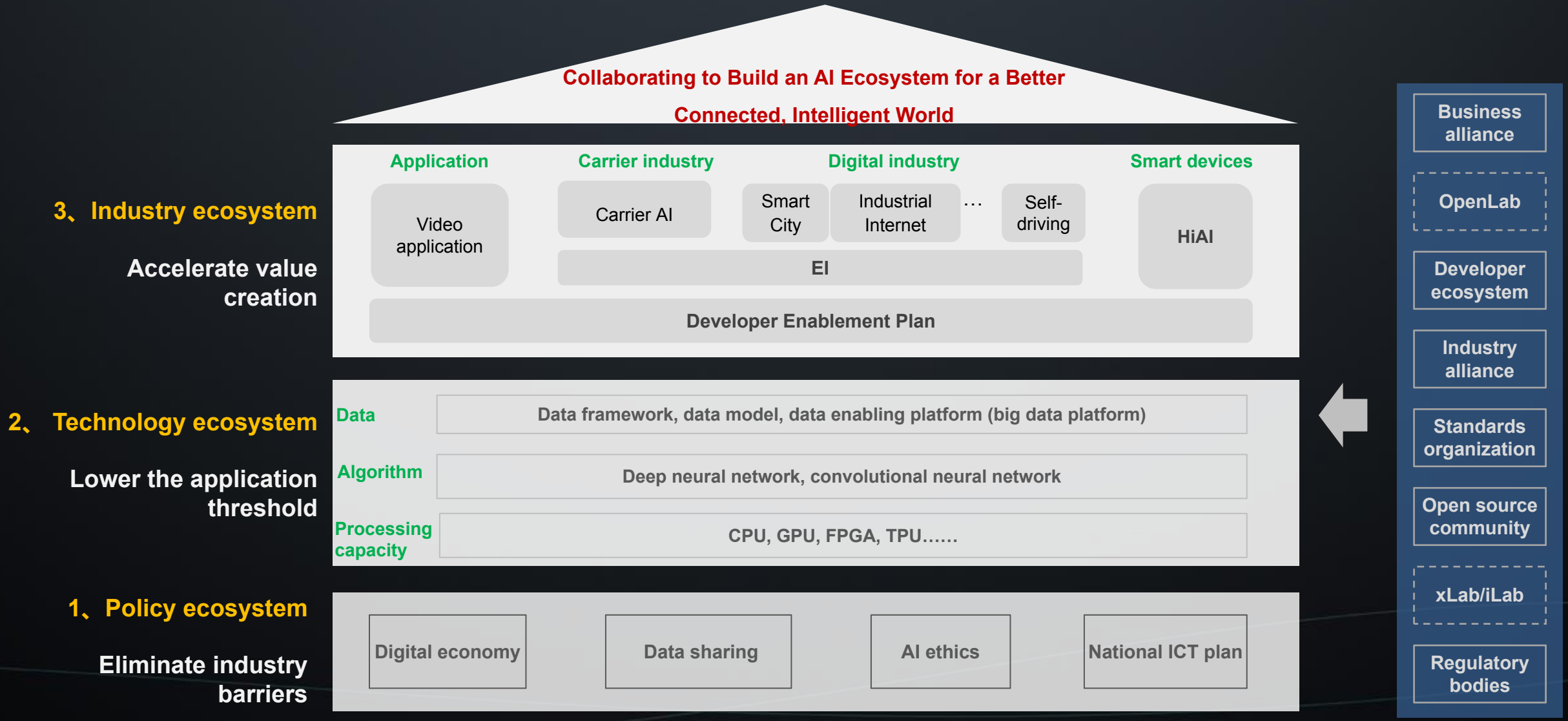
Demand-side concerns

- Do not understand AI value
- Underestimate AI due to lack of success examples
- Departments threatened by AI are reluctant to adopt it
- Large upfront investment

Supply-side shortcomings

- Unclear about enterprise application scenarios
- Technology fragmentation
- Ongoing AI advancement, making investments quickly obsolete

Outline for Developing the AI Industry



Topics for Open Discussion

What industrial problems and challenges face AI in your industry?

- **What policies should be formulated to eliminate these barriers and guide AI industry development?**
- **How can we adopt the full-stack AI technology to lower the application threshold and enable AI industry development?**
  - **How can we accelerate construction of the AI ecosystem?**
  - **Which modules can be standardized or open-sourced to reduce fragmentation?**
  - **What methods may speed up data sharing and flow?**
- **How can we effectively match supply side and demand side to accelerate value creation and drive AI industry development?**

Thank You.

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GIO Roundtable:
Platform Ecosystems, AI and Business Models

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MIT Leading Disruption

MITSloan

Initiative on the Digital Economy

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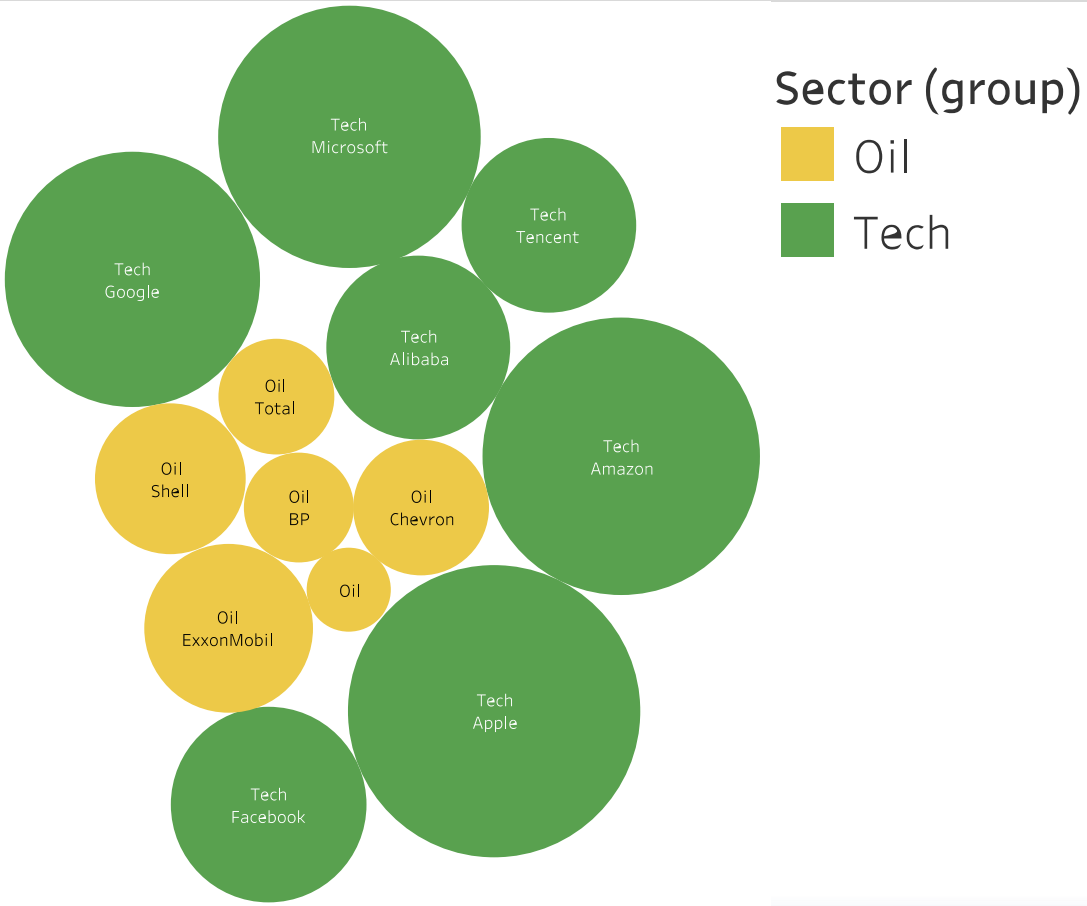
Tech Platforms Pass Energy Globally

Market capitalization of top tech platforms now ~ 4x the oil "Supermajors"
($5.1T vs $1.3T)



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World's Most Valuable Companies Q3 2018

Company	Market Cap ($B)
Apple	1,091
Amazon	977
Microsoft	877
Alphabet (Google)	840
Berkshire Hathaway	523
Facebook	474
Alibaba	424
Tencent	388
JP Morgan Chase	379
Johnson & Johnson	370

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InterBrand: 2017 Global Brands

@InfoEcon

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A great shift is occurring in the economy

The transition to Internet era firms resembles the transition to Industrial era firms … but for the opposite reason

Giants of Supply Side Economies of scale

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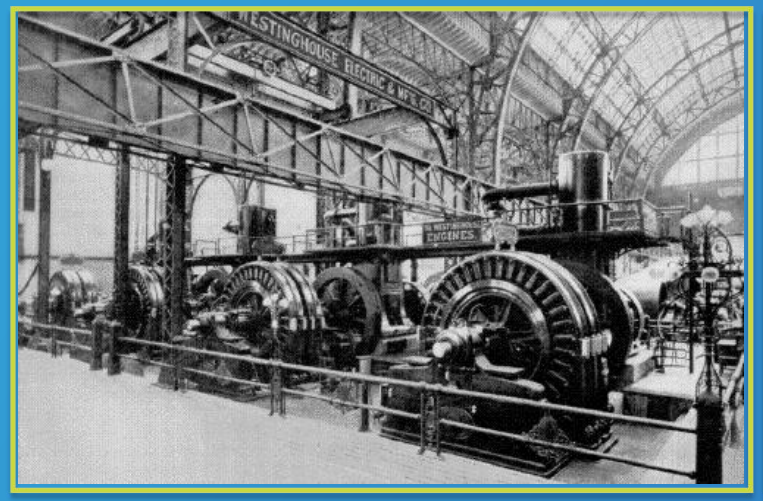
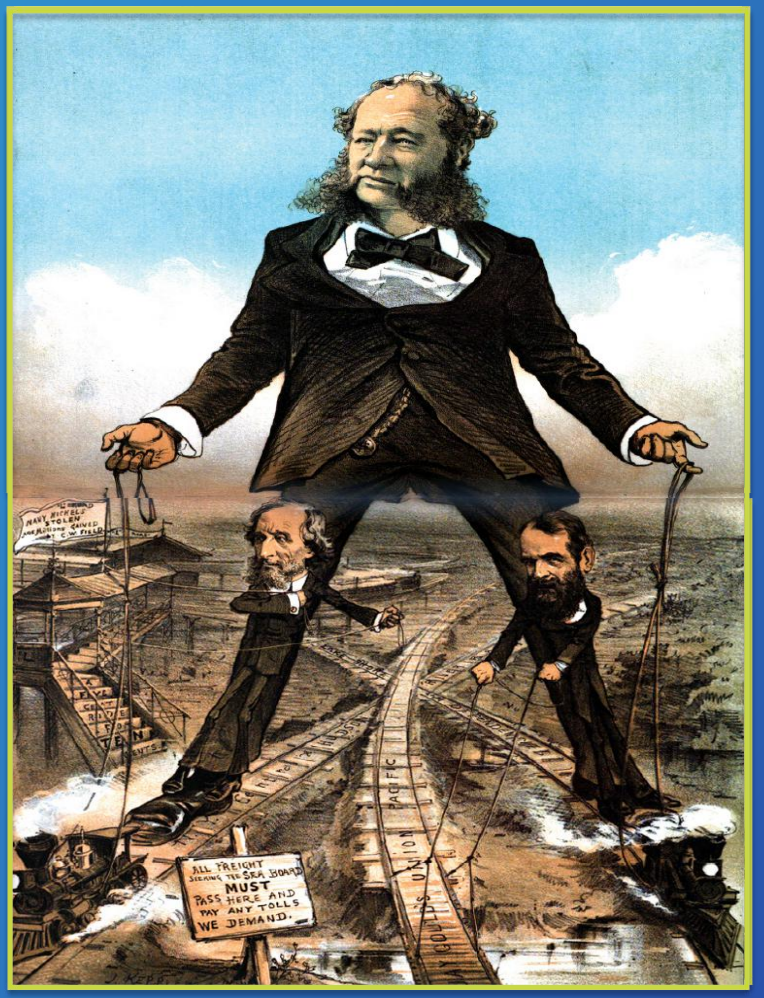
Electric Dynamo 1893



Ford Model T 1908



Acklam Ironworks 1924

Standard Oil 1909

Colossus of (Rail) Roads

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Giants of *Demand* Side Economies of scale

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Online Books

Desktop OS

Mobile

Merchant Commerce

Social Networks

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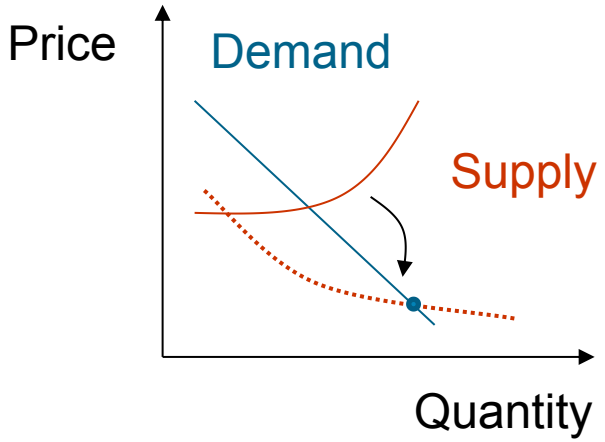
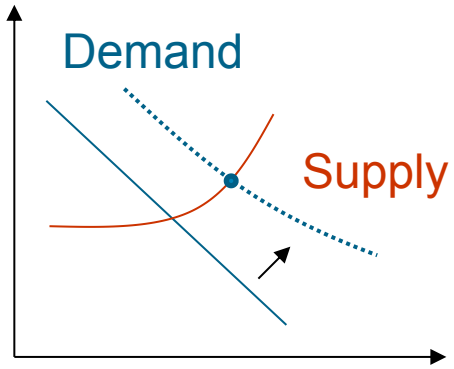
Economies of Scale

Supply Econ of Scale



- Falling average costs
- Monopoly production
- Utilities, Semiconductors

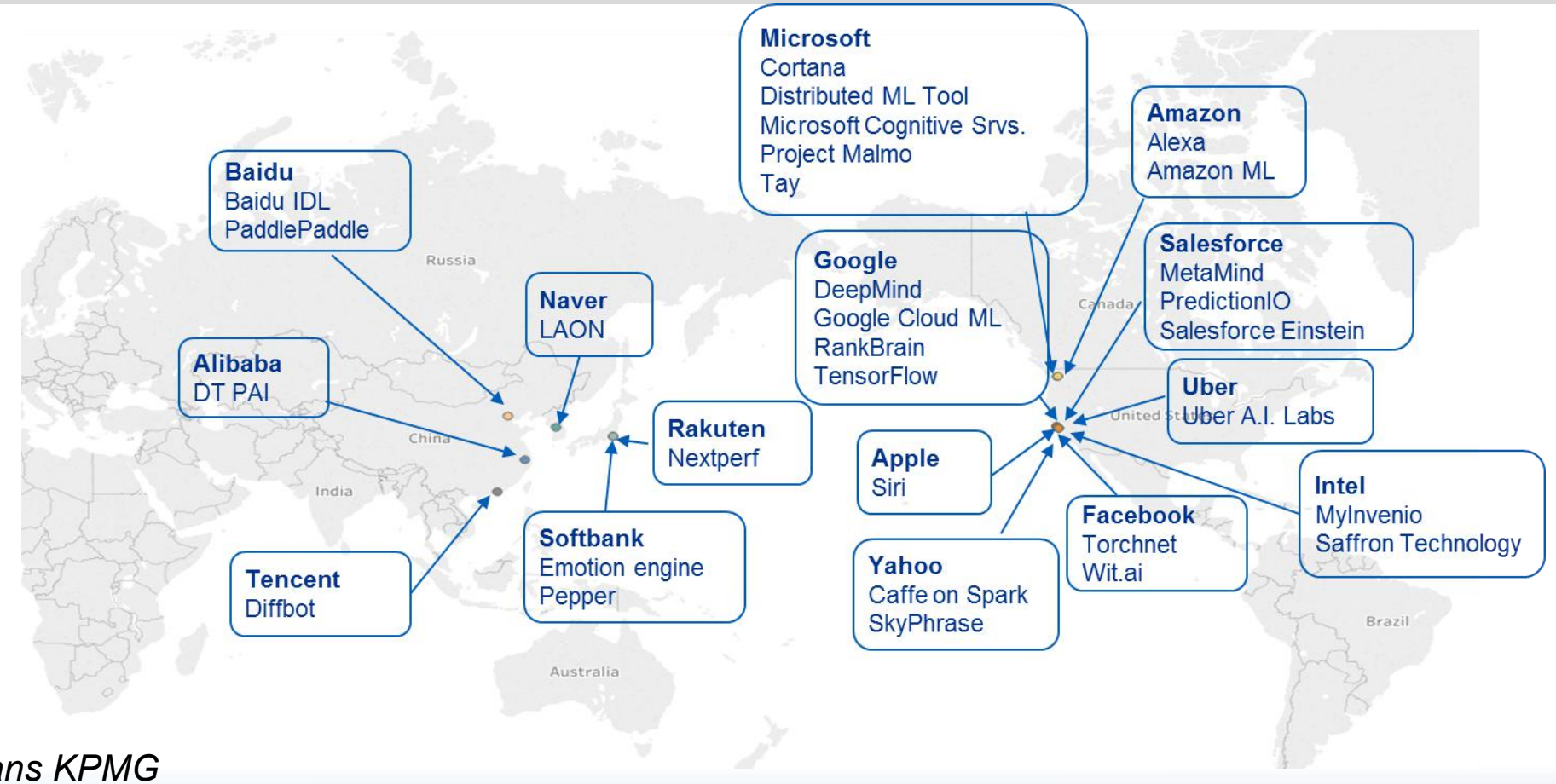
Demand Econ of Scale



- Rising average value
- Monopoly consumption
- IM, Social Networks

"Platform Ecosystems: How Developers Invert the Firm" MISQ 2017

AI Programs Globally



Source: Peter Evans KPMG

Data ➔ AI ➔ Better Offerings ➔ Data …

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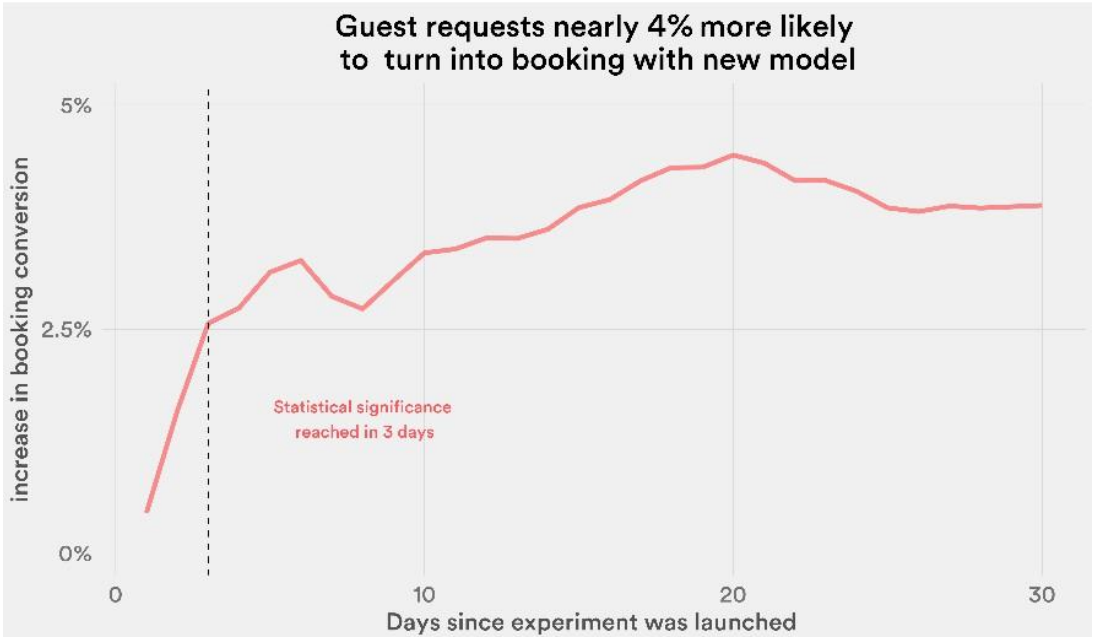
Machine Learning

- Airbnb achieved 4% gain in bookings in 10 days juggling stay preferences of guests and hosts: short v long stays, last-minute request v notice, high occupancy v only occasional.
- Hosts that set prices within 5 percent of ML recommended rental rate were 4x as likely to book



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Pressing Questions

1. What are you doing in AI?
2. What is the business model for AI? Who will capture value: platforms? Partners? Users? Regulators?
3. Which application domains will benefit from AI next?
4. Which AI modules can be standardized or open sourced to lower entry barriers?
5. How can we improve AI data sharing and circulation?
6. AI can predict purchases and also gender, religion, and voting. Who will safeguard privacy and how?

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GIO Operating Model

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What does it mean to be “open”?

Who gains access changes the business model.

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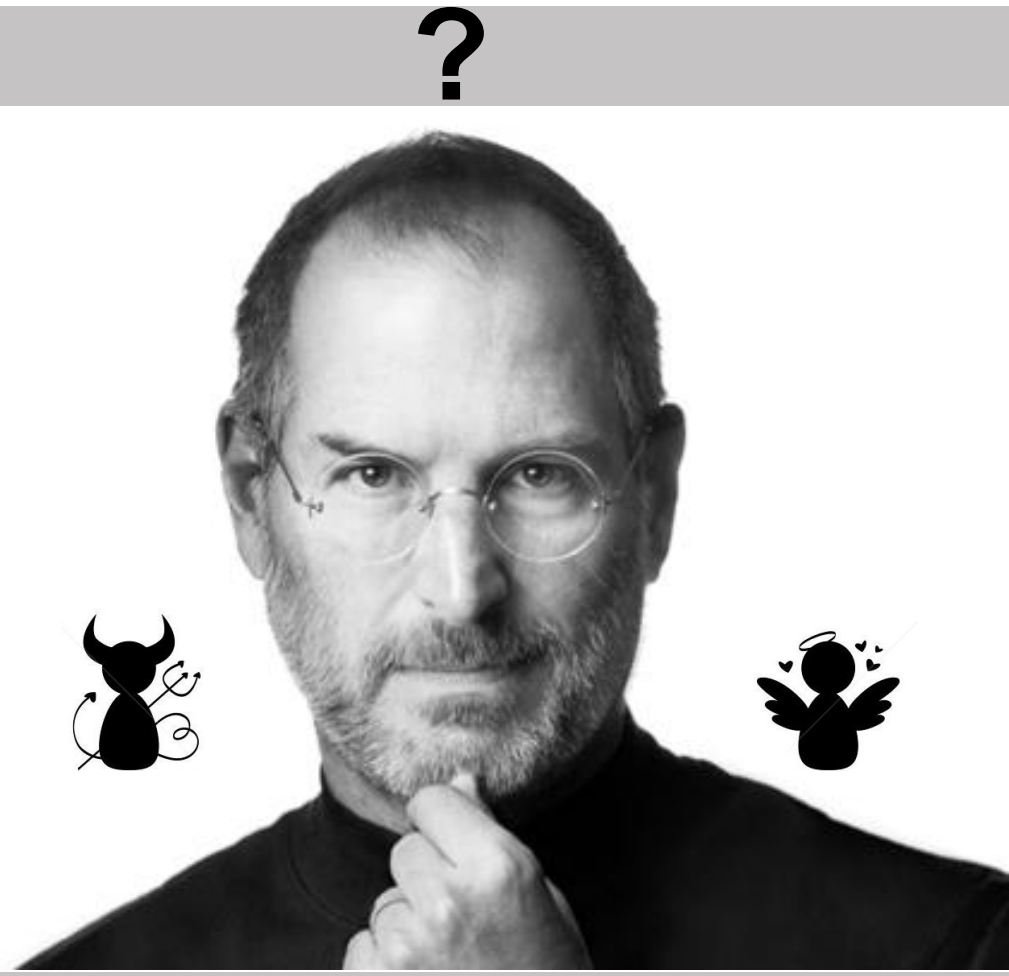
Open vs Closed

Fragmented vs Integrated



Steve Jobs: Mac, Lisa, Next, Pixar, iMac, G4 Cube, iPod, MobileMe, iPhone

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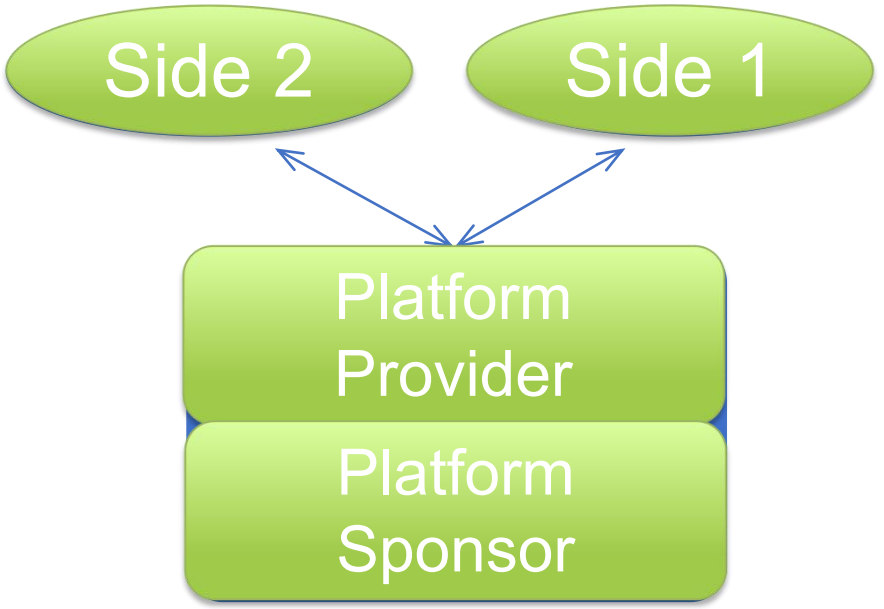
What does controlling openness mean?

1. Open Access
2. Extend Platform
3. Touch Customers
4. Change Platform

Split IP control from customer contact control

(just like division of rights & ownership)



See ‘’Opening Platforms: How When & Why” (2011) Eisenmann, Parker & Van Alstyne

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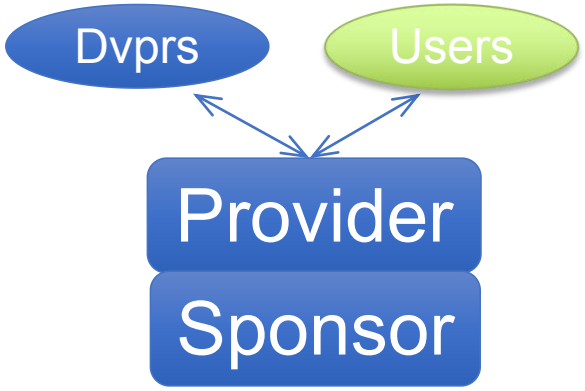
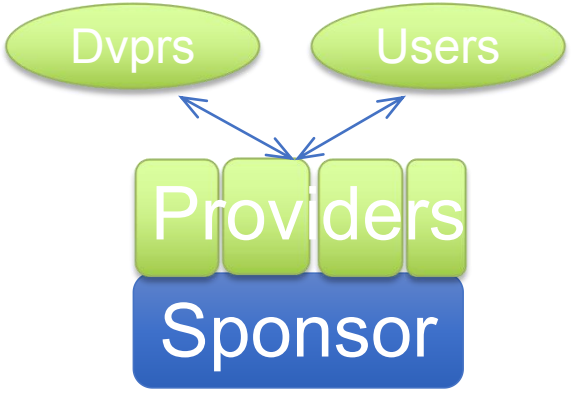
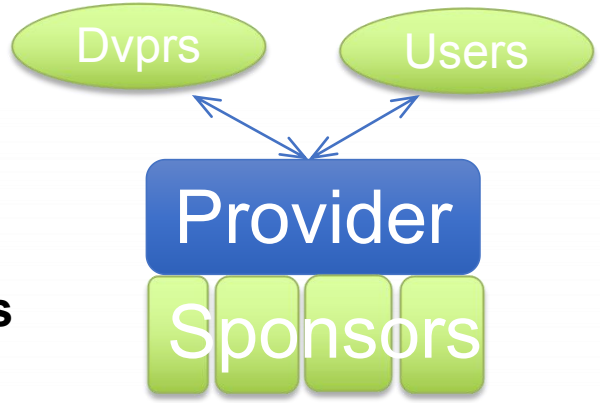
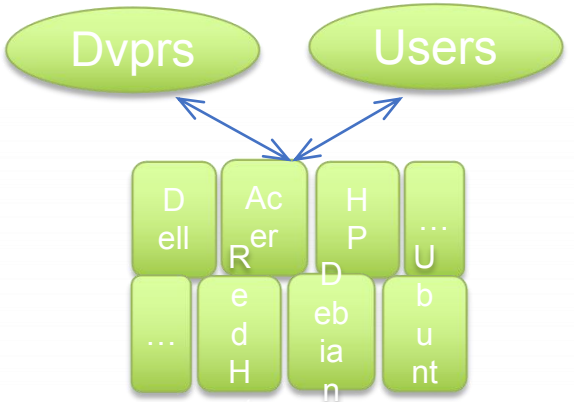
Models for Organizing Platforms

	One Provider	Many Providers
One Sponsor	 1) Proprietary: e.g. Mac	 2) Licensing: e.g. Android
Many Sponsors	 3) Joint Venture: e.g. Visa, Orbitz, Hulu	 4) Shared: e.g. Linux

Federated Governance Principles

Principle of Subsidarity: decision rights should be decentralized to the point closest to the affected parties

Principle of Internalization: decision rights should be elevated to the point where multi-party network effects are visible

and

the decision maker must be accountable for consequences affecting those parties

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Pressing Questions

1. What industry policies will accelerate AI industry development?
2. What's your best proposal for improving ecosystem governance to support AI?
3. What one commitment would you ask of ecosystem partners or trade association members (and be willing to do yourself)?

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Caution: Add Value – Don't Just Collect Tolls!

Long distance calls were highly profitable until…

10¢ text msgs were highly profitable until…

Construction loans in Chinese cities, until…

Taxi medallions hugely profitable, until…

skype™

… Skype used packet switching to route around circuits

WhatsApp

… WhatsApp used data plans to route around IM channel

蚂蚁金服
ANT FINANCIAL

… Alibaba bought a bank that gave it banking authority

UBER

… Uber made 1 resource act like another, changed the laws!

Telecos, banks, taxi cos thought they were regulated & secure

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