



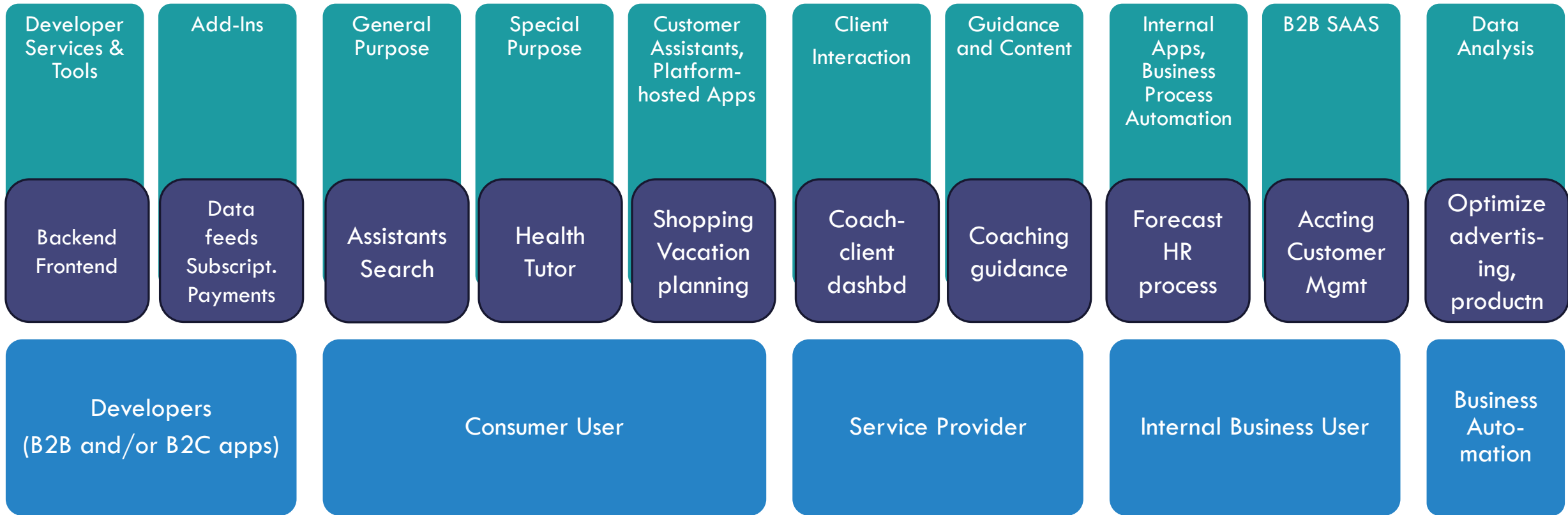
OPPORTUNITIES AND CHALLENGES FOR AI ADOPTION

Professor Susan Athey
Stanford University

MANY TYPES OF AI APPLICATIONS

Each type has distinct data & development requirements, general vs. specific data, user interface/guardrails

Example application categories



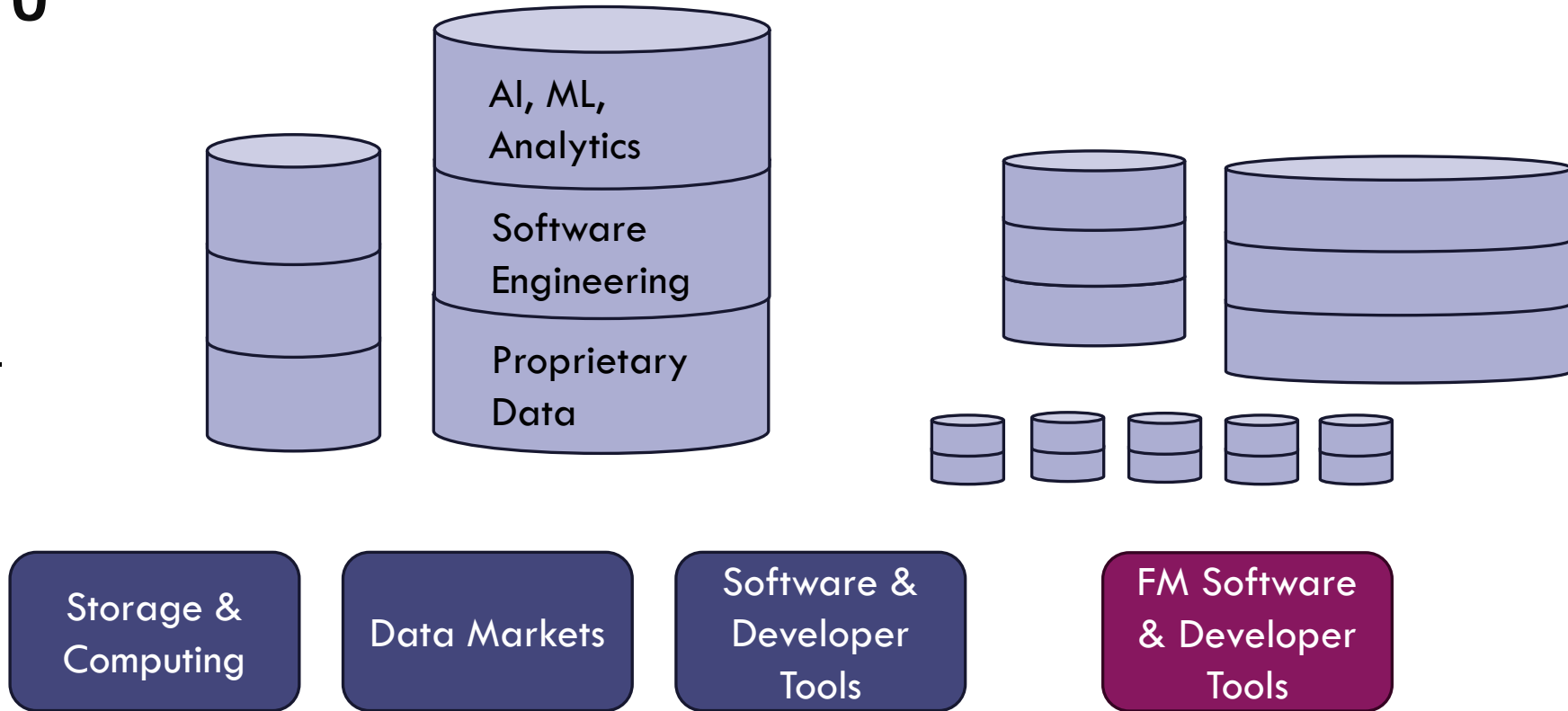
Target user of AI

User/business adoption requires complementary investments, human capital, tech

MODERN AI LEADS TO RESTRUCTURING

2010s AI/ML:

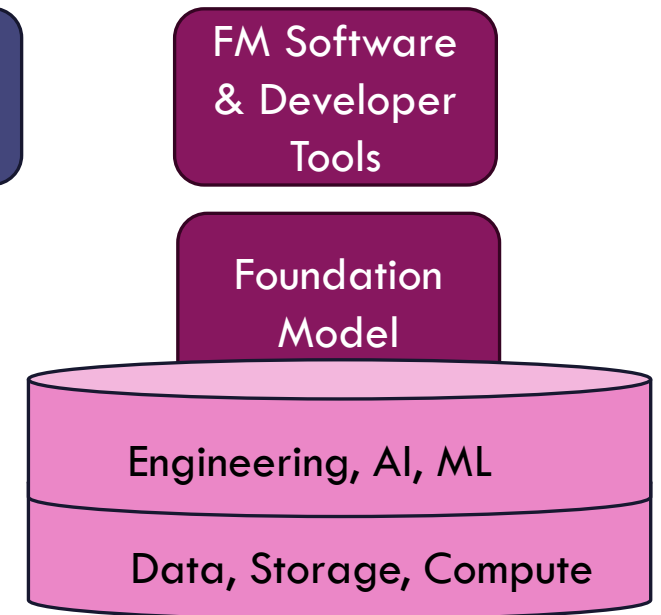
- Shift towards more general-purpose inputs
- Significant silos
- Barriers to entry/adoption



Foundation model paradigm:

- General-purpose data and learning in foundation models
- Apps do not recreate basic understanding

•₃ Low/no code



SOME (OF MANY) POTENTIAL SCENARIOS FOR AI MARKET

Impact and Importance of Open Models

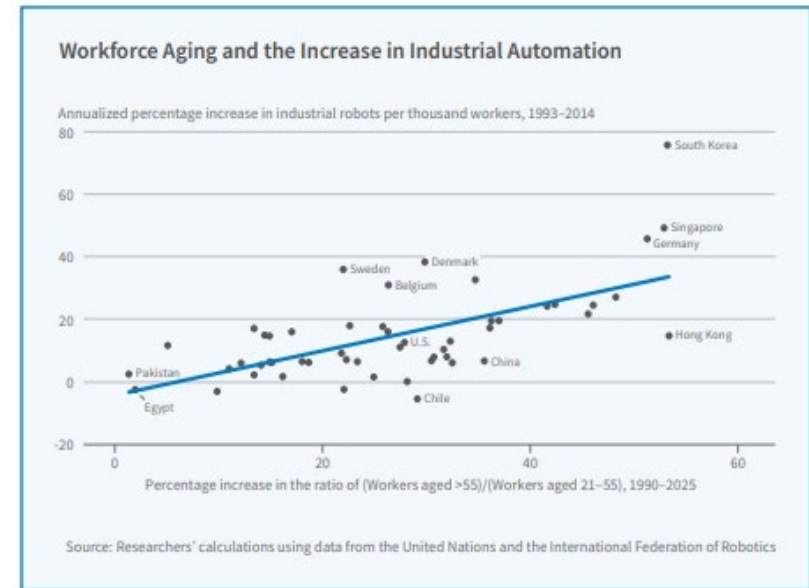
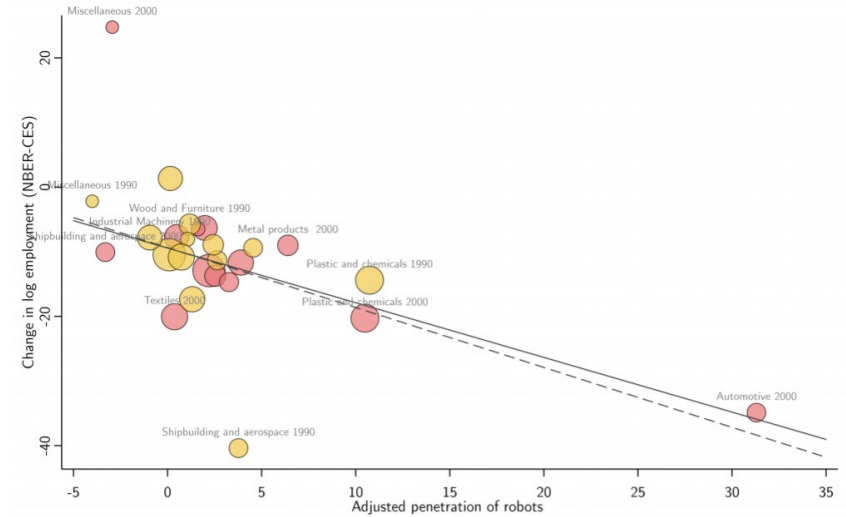
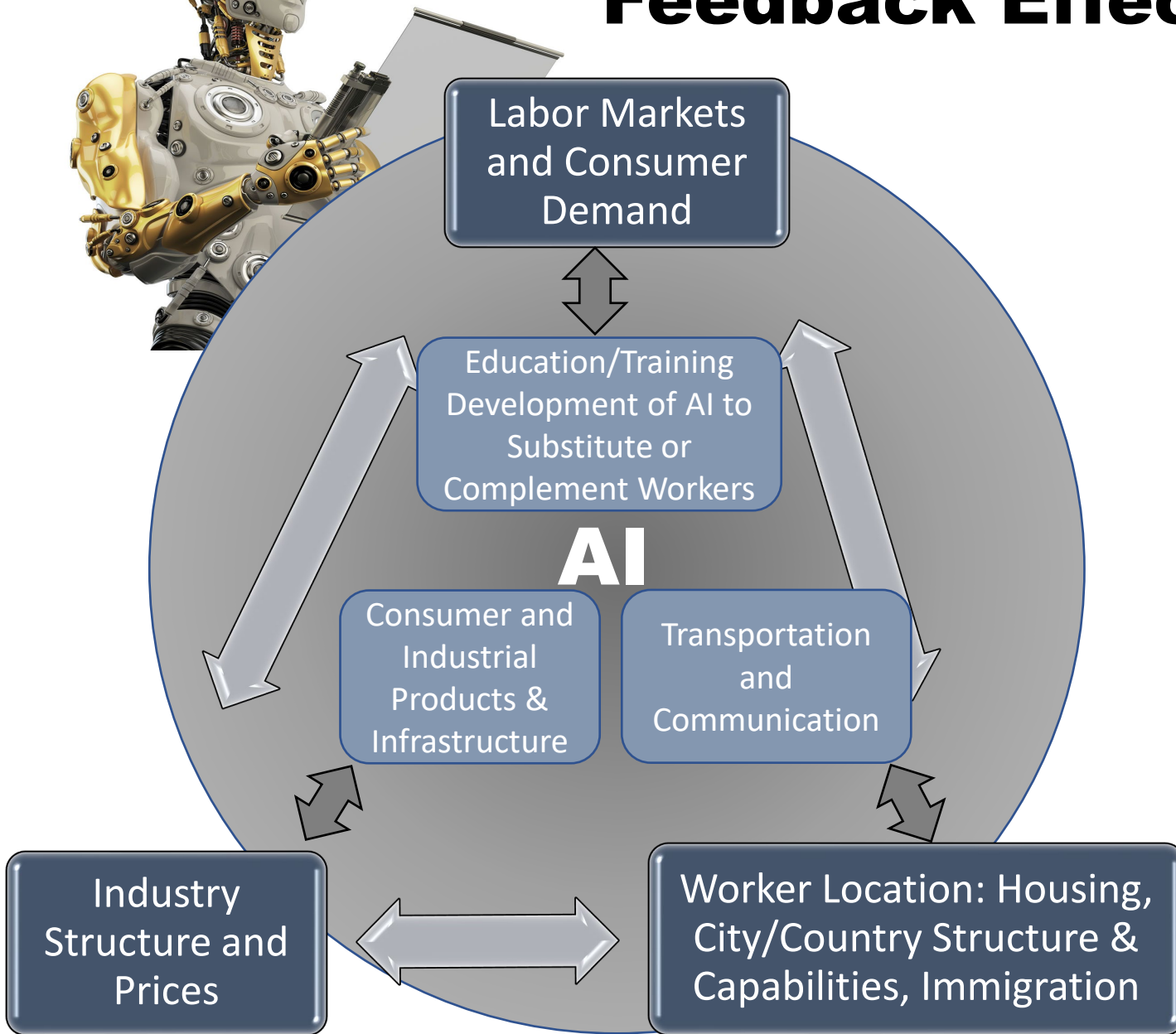
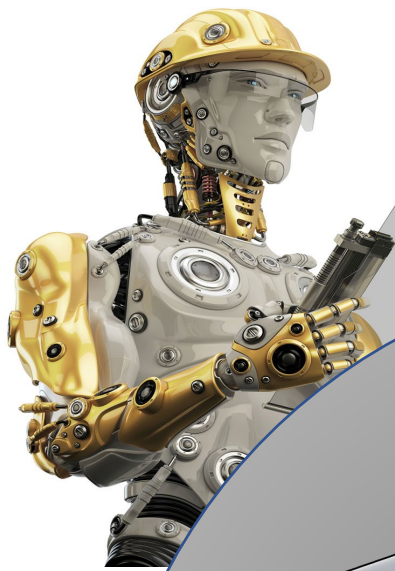
Open/Interoperable Scenario

- Closed models better than open models, charges
- Open models available, “good enough” when combined with fine-tuning + add-ons
- Cloud providers host many models + developer tools, support interoperability
- Low-code developer tools, plug-ins, analysis
- Content creators (?) – may be data market
- Widespread adoption, competitive prices for applications

Closed/Concentrated Scenario

- Closed models much better than open, high prices
- General purpose/one-stop-shop dominates, perhaps with apps on top or app store
 - Barriers to entry based on usage data flywheel
- Possible exclusives of foundation model w/ other layers
- Barriers to entry in applications
- Content creators squeezed by dominant AI platforms
- Slower adoption, focus on high profit areas

AI and the Economy: Feedback Effects Abound



Acemoglu and Restrepo (2018, 2020)

SORTING THROUGH POTENTIAL SCENARIOS FOR MARKETS

Cost of living vs. reduced wages

Ex: “Good scenario”

1. **Prices fall, demand for services rises, and workers transition** to AI-assisted service jobs
2. Competitive market in AI apps that **improve quality of life, productivity, and lower barriers** to entry
3. Not too many harmful apps/uses

Ex: “Bad scenario”

1. Prices **fall slowly**, labor market effects **concentrated** geographically leading to **downward spiral**
2. AI **developer services expensive**, app markets concentrated and serve only the wealthy or large businesses, **high AI prices**
3. Harmful applications prevalent, interfere with well-being, governance and societal response

- Outcomes depend on navigating transitions
 - Institutions, worker support, redistribution within and across countries
- AI policy and investment affect these trajectories
 - Competition policy and industry structure so benefits are shared with consumers, business customers
 - Invest in worker-augmenting technology
 - Anticipate and mitigate local downward spirals
 - Anticipate adoption frictions, mitigate them in areas that could decrease cost of living or augment workers
 - Mitigation of harmful uses

DATA AND MEASUREMENT CHALLENGES

Frameworks and Data

Frameworks for:

1. AI industry structure, competition by layer
2. Externalities/downstream impacts of categories of applications (good and bad)
3. Adoption frictions
4. Investment in beneficial apps
5. National resilience & capabilities
6. Reconfiguring of role of government & new production technology

Measurement and Research

- Measurement and data collection
- Analysis of impacts, guided by theory & frameworks
- Build tools to help researchers