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RIETI BBL Webinar
Handout

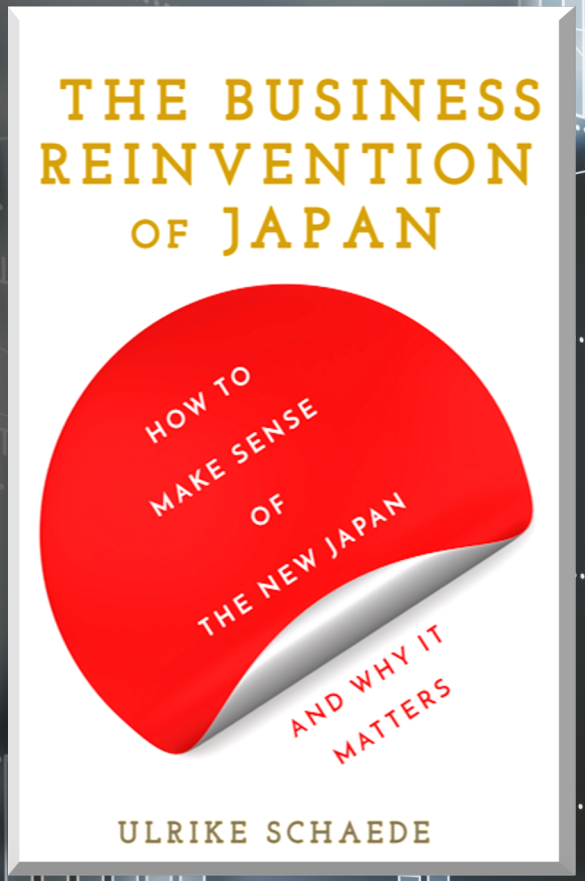
Business Reinvention of Japan and DX: Challenges and opportunities

October 15, 2021

Speaker: **Ulrike SCHAEDE**

The Business Reinvention of Japan and the DX: Challenges and Opportunities

KAISHA の再興



Ulrike Schaede
UC San Diego, School of Global Policy and Strategy (GPS)

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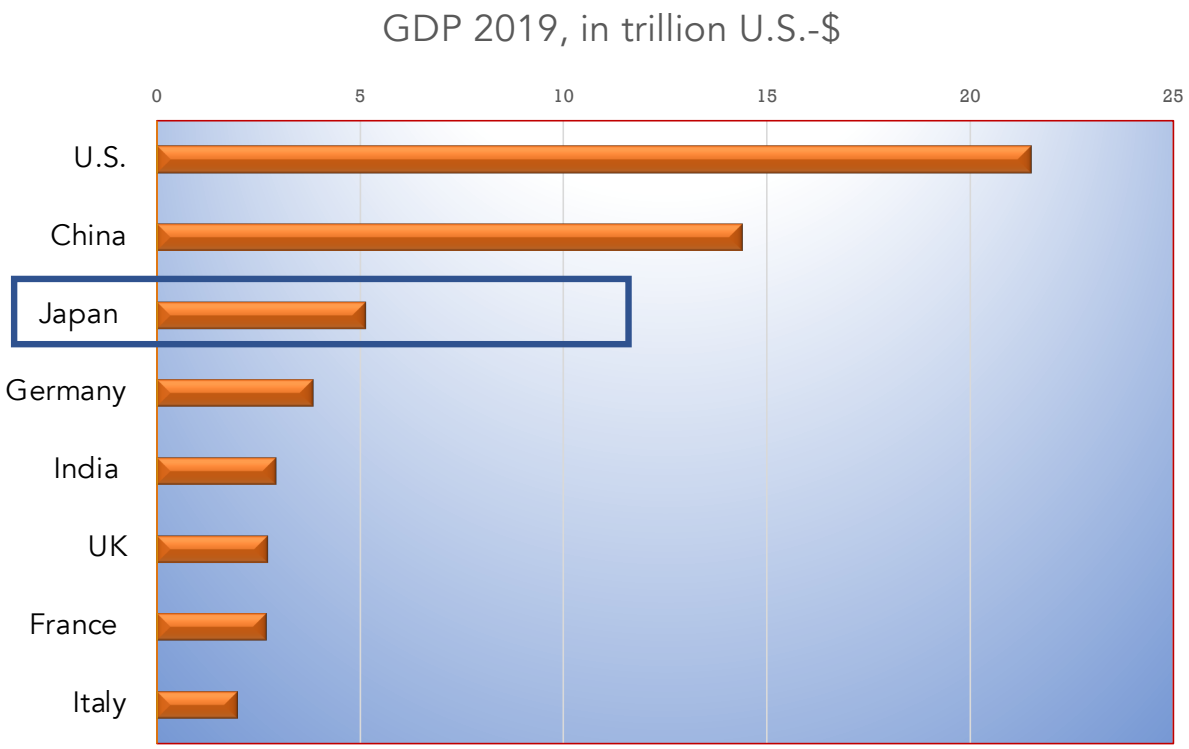
@ RIETI BBL

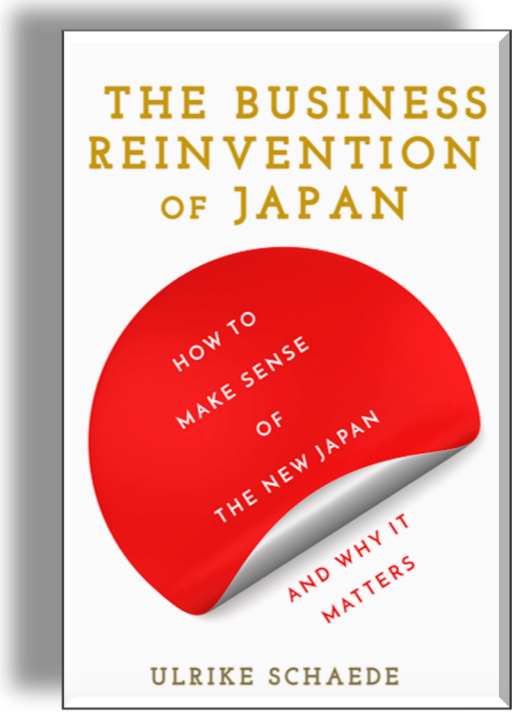
Many doubters:

- "Japan has had 20 years of stagnation"
- "… and deflation"
- "ageing and shrinking society and workforce?"
- "Atrophy in the regions?!"
- "What about the government debt"?
- "..or the limited role of women in the workforce?"
- "Too many inefficiencies!"
- Zombie firms!
- "Productivity is not increasing"

If it is all so bad, then why is Japan still the third largest economy in the world?

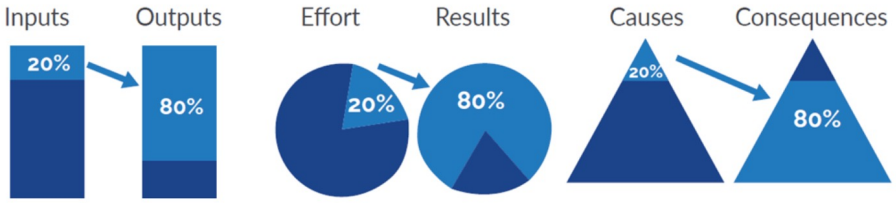
My interest is this:





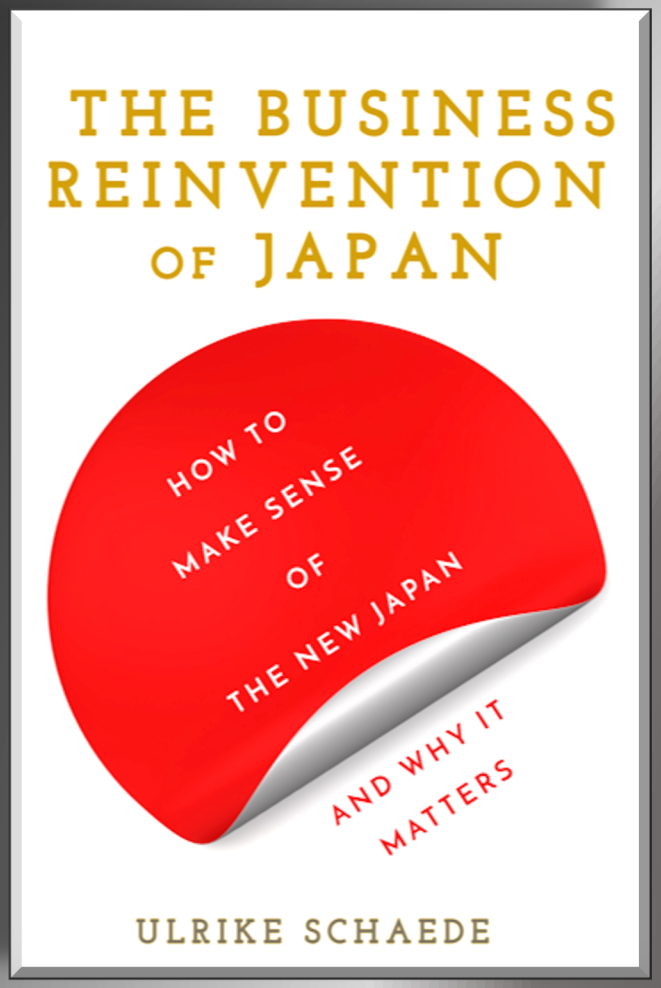
In response to changing global competition, Japan's leading firms have reinvented themselves

- Why Japan **Matters**
  - 3rd largest economy in the world, representing an alternative system, different tradeoffs: Slow and stable
- In **Strategy**: How Japan's best companies have repositioned
  - Aggregate niche strategy: compete in high-end input materials and components
  - "Choose and focus" v 2.0: new corporate identity
- In **Management**: corporate renewal in a tight culture
  - How to manage organizational change
  - New internal processes of work style, space, innovation, efficiency, new tradeoffs of work-life, slow-fast, process-outcome



- Roughly, 80% of outcomes (or outputs) result from 20% of all causes (or inputs)
- In this case, roughly 20% of Japanese companies explain the bulk of Japan's economic performance
- Most existing analysis are of the "80%" of companies that don't
- Today, **let's look at the portion of Japanese companies that make Japan the third largest economy in the world**

How can both be correct? A presentation of the "20-80 rule"



Synopsis

- Japan's leading companies are responding to the new global competition by moving upstream to dominate a series of critical input markets.
- On average, $5 billion market size each: the "*aggregate niche strategy*" (集合ニッチ戦略)
  - Over 500 product categories: strong "Japan Inside" strategy (not visible), new anchor of many Asian supply chains
- Japan's leading companies are among the frontrunners in the DX.
- This requires a complete culture change within these companies. This is now underway.

Why Reinvent?

Global:

- **Japan lost** previous leadership in B2C to South Korea, Taiwan and **China**.
- The new **global of supply chains** require global production networks.
- **The digital transformation (DX):** compete at the global technology frontier

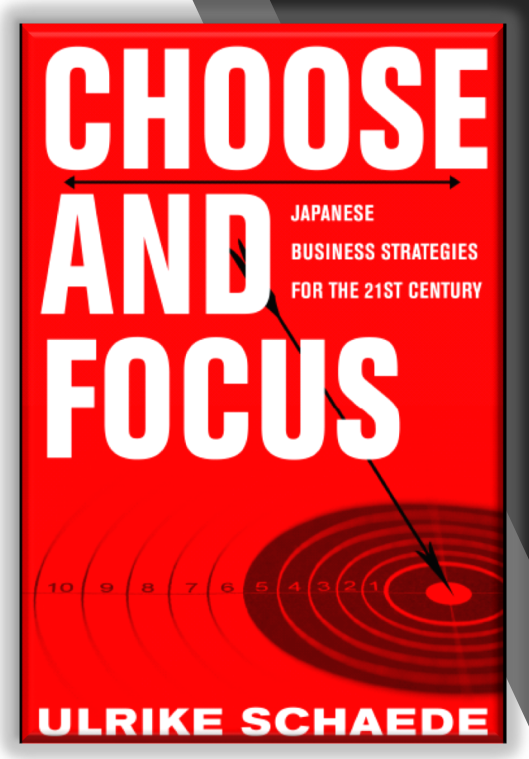
Domestic:

- Employment changes: changing society, **labor shortage**
- Corporate governance reform and **ROE / profitability pressures**

This is an opportunity!

1) Problem: Japan lost its previous competitive advantage in consumer end products.
   - **Is there a way for Japanese companies to respond to and profit from this rise of its neighbors into global leaders?**
2) Globalization and the digital transformation (DX) are bringing huge disruptions for "Industry 4.0" and "Society 5.0".
   - **How can Japanese companies benefit from this technological disruption?**

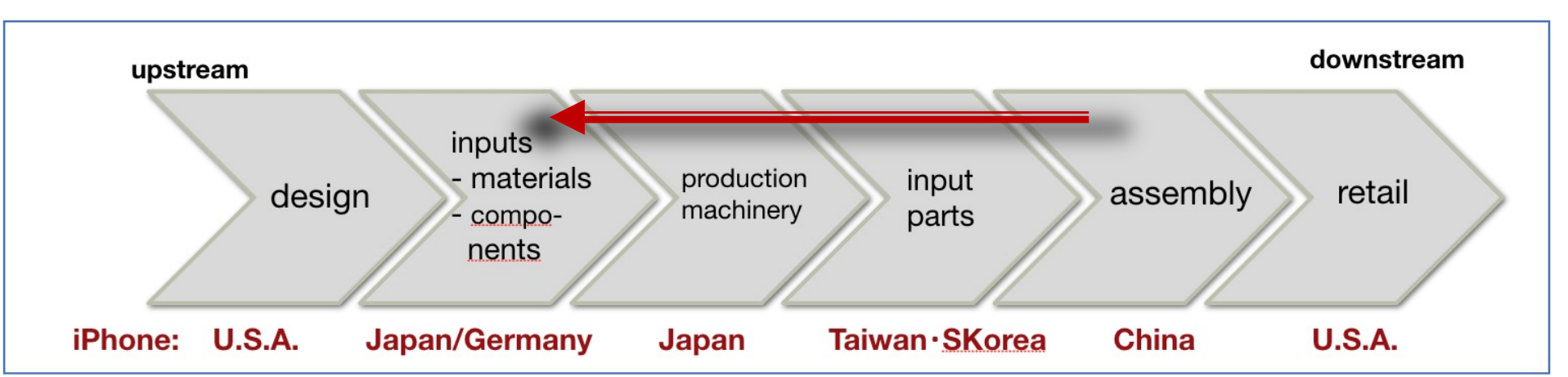
Japan's Post-WWII Success



Cornell University Press 2008

- Postwar Japan industrial policy: geared toward **size**
  - Core: **mass-production of high-quality consumer end products**
  - Success measured in sales and employment: the bigger the better
  - Access to talent, technologies, trade quotas; stock price; higher pay
- Companies grew through **diversification**: business units and subsidiaries
  - The "bubble economy" further stimulated unrelated diversification
  - After the bubble ended, the "3 excesses": debt, people, assets
- After 1998: first wave of "choose-and-focus" 選択と集中
  - Exits, sell-outs, reorganization
  - "Strategic inflection point" and new corporate laws
  - Mostly "low-hanging fruit": non-performing or non-core businesses

The Globalization of Supply Chains

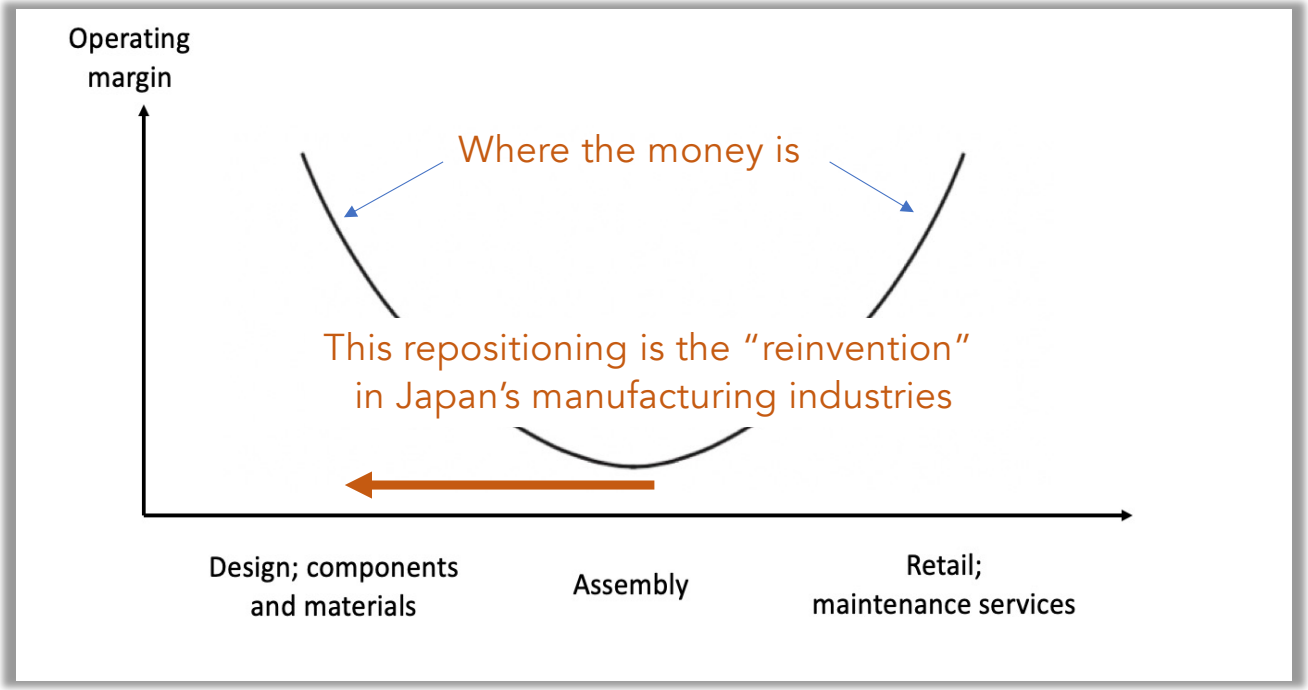


Why Reinvent?

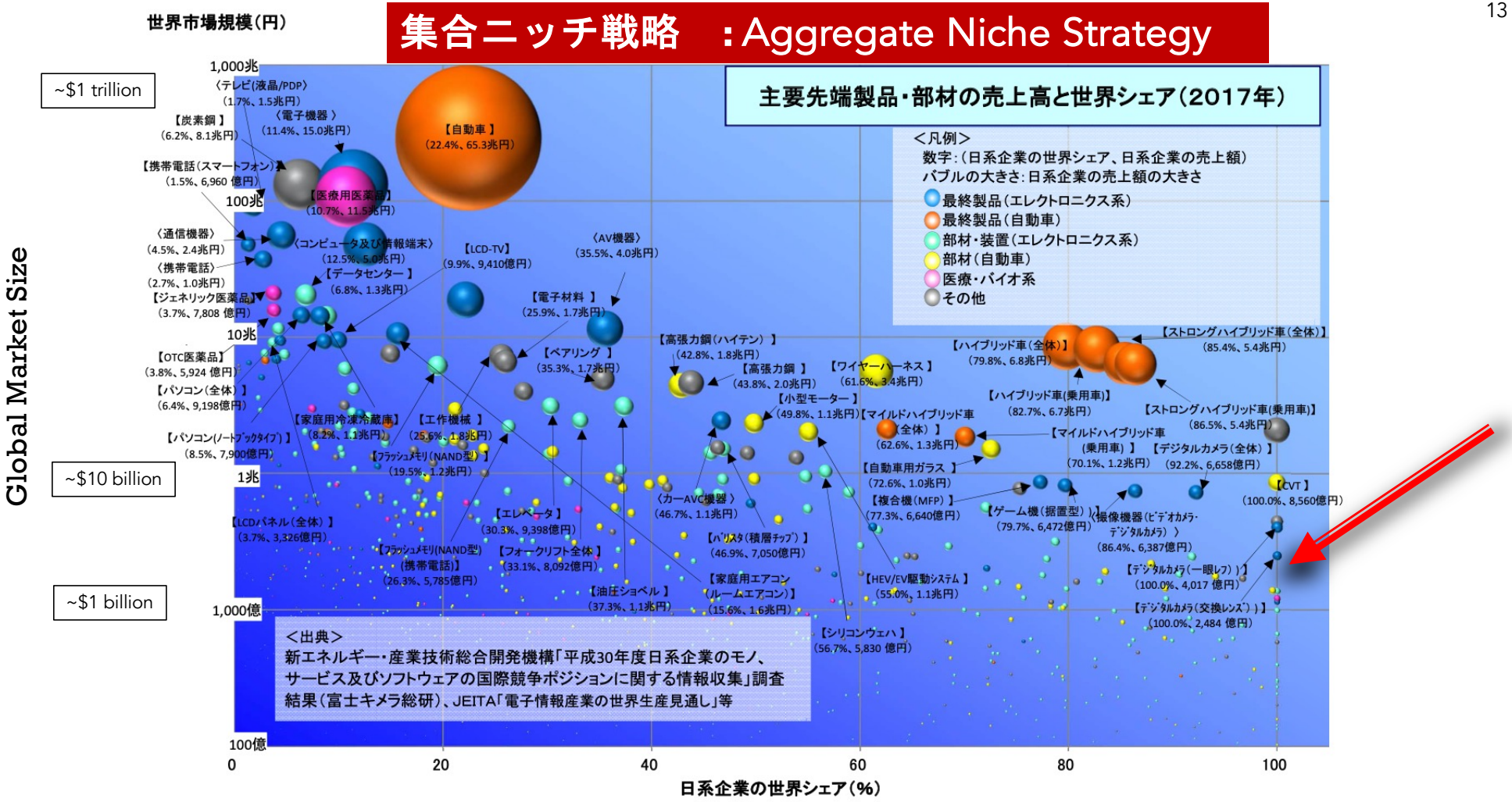
1) Japan will never be as big as China.
2) Need to go where the money is.

The "Smile Curve" of Profits

Move up or down the "smile curve"



集合ニッチ戦略　：Aggregate Niche Strategy



Combined Global Market Share of Japanese Companies (in %)

NOT a "Hidden Champion" Story

集合ニッチ戦略

The Aggregate Niche Strategy

- NEDO/METI: 50%+ market share in about **500** products under study
  - Average size of each market: **about $5 billion**
  - Not just exports: Global production network
- This is a story of **VERY LARGE, listed companies**
  - Fujifilm, JSR, TOK, Showa Denko, DIC, Kaneka, Hitachi, Panasonic, AGC, NEC, …
  - **This is a large firm, "deep tech" innovation strategy**
    - Correct strategy: how to *profit* from the rise of Korea, Taiwan and China?

2 dimensions of the aggregate niche

1. One company occupies several adjacent technology niches.
   - This makes the company globally successful (company dependency).
   - Examples:
     - JSR in photoresists, polarizer film, brightness film, etc.
     - Nitto in adhesives and advanced materials for electronics, construction, etc.
     - FANUC in numerical controls, robotics, factory automation
2. Several Japanese companies occupy one technology niche.
   - This makes Japan successful (country dependency).
   - Examples:
     - Fine chemicals for electronics (Japan: 80% world market share)
     - Various sensors for factory/system automation (Japan: 45~100%)
     - Carbon fiber for airplanes, automobiles, bicycles, golf clubs (Japan: 65%)
     - Semiconductor materials and manufacturing equipment (Japan: 45~100%)

集合ニッチ戦略: Together, these create clusters of power.
Deep-tech niches are difficult-to-make and difficult-to-copy.
Not big enough for China.

選択と集中 Choose and Focus v. 2.0

Still too many conglomerates

- 25% of JPX400 firms had more than 100 subsidiaries
- trading at "conglomerate discount", many still stooped in old processes

To respond to the rise of China, now need choose-and-focus v. 2.0

- Japan will never be as big as China
- Needs to compete through speed and technologies

How? Go on a diet, and become a different athlete

- Be quicker and smarter than the others
- Compete through technology, not size
- Create dependencies and profit margins
- Change the "identity" of the company: new core competencies and busine
- Change the corporate culture

This is happening now!


The Future:
How can Japan
compete in the
DX?

New Vocabulary

- Digital Transformation = "DX"
  - also CX, IX, BX (corporate/industry/bio)
  - sometimes called 4IR, "fourth industrial revolution")
- No "DX" in the U.S. yet
  - portemanteu words for the disruption, ending with "-tech"
    - fintech (financial services), insurtech (insurance), agrotech (agriculture), proptech (real estate), matech (marketing), medtech (health sciences and medical devices)
- For manufacturing: "Industry 4.0"
- For society overall: "Society 5.0"

What is the DX?

Trigger: Great advances in communication technologies, computing powers and analytical techniques

Hardware

- Vision and sensing technologies
- 5G
- Autonomous systems and robotics
- The “cloud”

Note: Japanese and German companies are very strong here.

Software

- Artificial intelligence and machine learning (AI/ML)
- “Big Data”: new data drilling and data mi techniques
- Blockchain, open ledger

Note: It is not clear who will win here. Currently the U.S. is strong.

https://business.nikkei.com/atcl/gen/19/00109/

Toyota as an MaaS company
New Production *and* New Use Patterns

*CASE: Connectivity, Autonomous, Sharing/Subscription and Electrification

The New Toyota

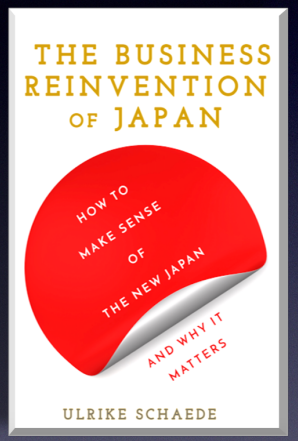
- Today: sells 9 million cars annually, $250 billion
- By 2030: sell no cars, but provide transportation services
  - Mobility-as-a service
  - subscription model: like Netflix or Spotify
- Car Worker of the future
  - IT/platform/services, i.e., office worker
- What does that new business model look like?
  - lower revenues, steady and high recurring profit
  - differentiation not through car manufacturing, but JIT delivery of people
  - sell services to those customers on the platform

Could this be the reality by 2030?

For business, this means new manufacturing processes, new products to develop, new ways to generate profits, new global competition, and a need for a new type of employee.

Emerging Employment Changes

- Skills
  - Education reform
  - Reskilling 学び直し: old patterns of lifetime learning helpful
- Options for top 10% smartest
  - Job-changing increasing： 転職、第二次就活
  - Workstyle Reform: 働き方改革
  - “Dual jobs”: 副業・兼業, especially “総合職兼業” (highly unusual)



Manufacturing

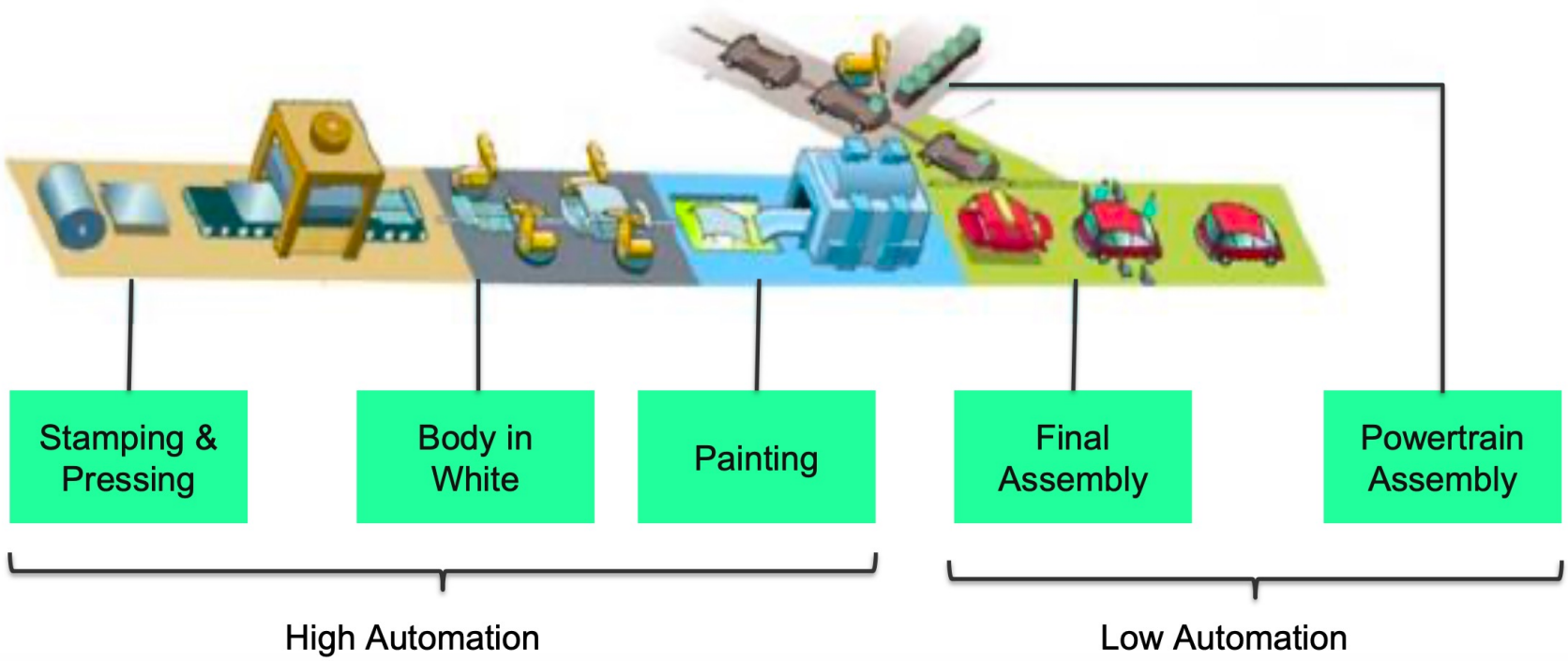
Chance #2: Industry 4.0: Digital Manufacturing

- IoT, 5G, constant connectivity, big data, AI
- The disruption of the “production automation pyramid”
- Where the DX will materialize first.

https://www.smctraining.com/en/webpage/indexpage/312

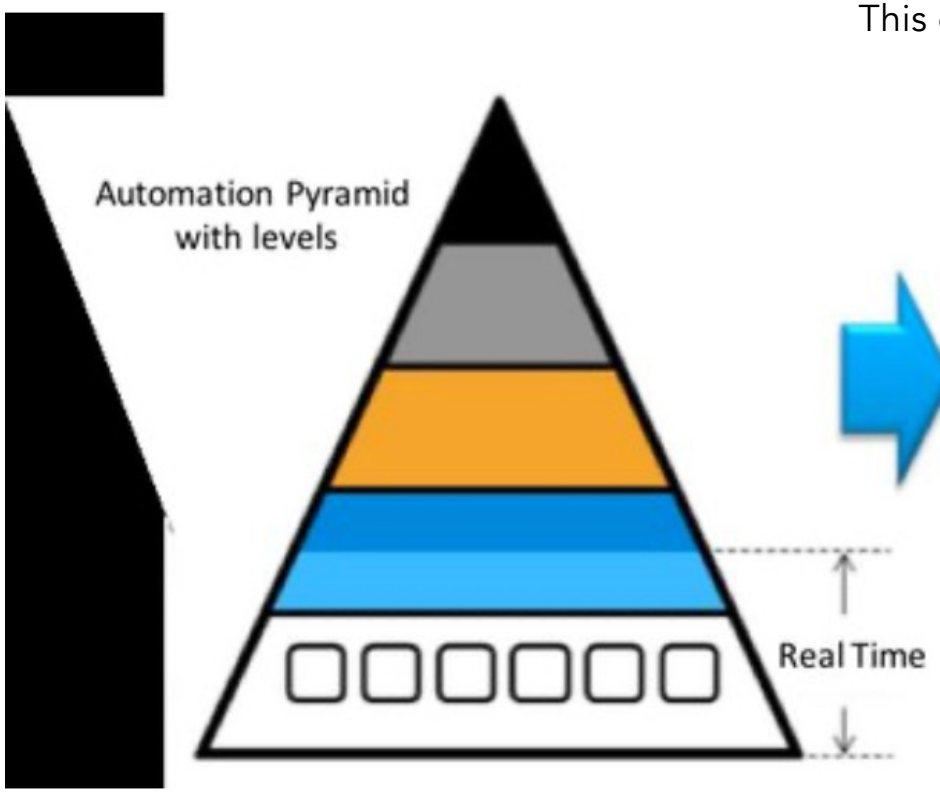
Factory Automation: Automotive

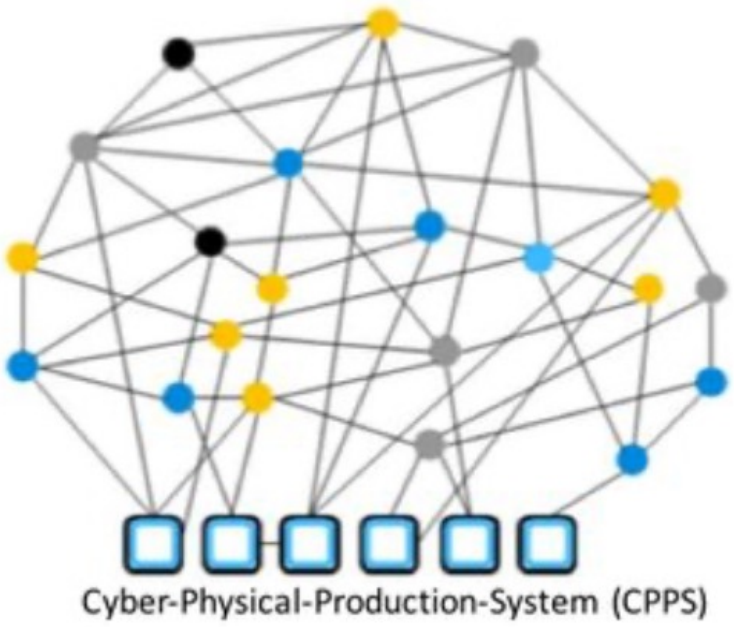
- An automotive manufacturing line can have as many as 600 individual workcells and manufacturing steps



Source: Alberto Moel, Veo Robotics

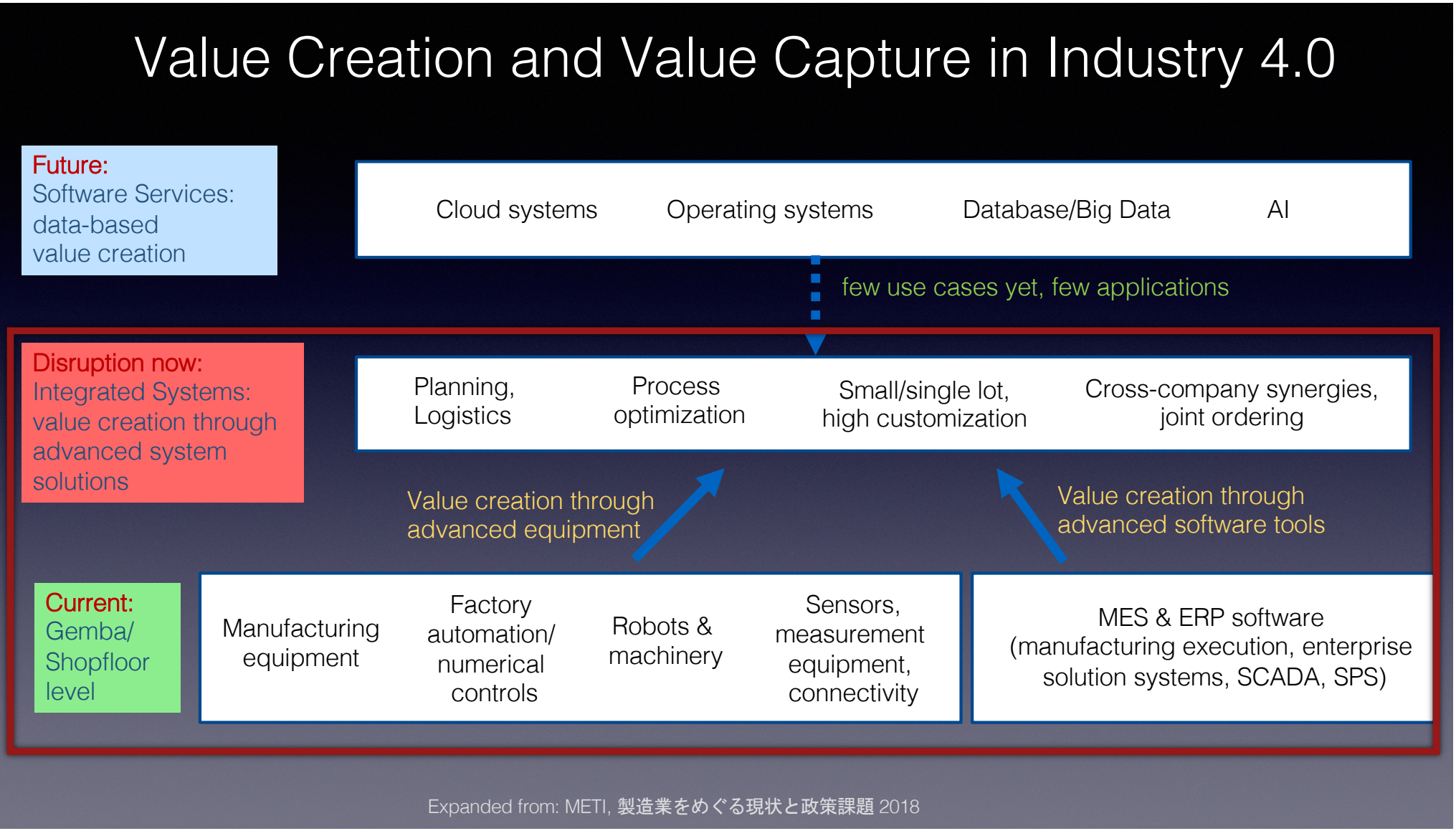
This does not exist yet… but it is beginning to happen!
The first real use case of AI/ML.



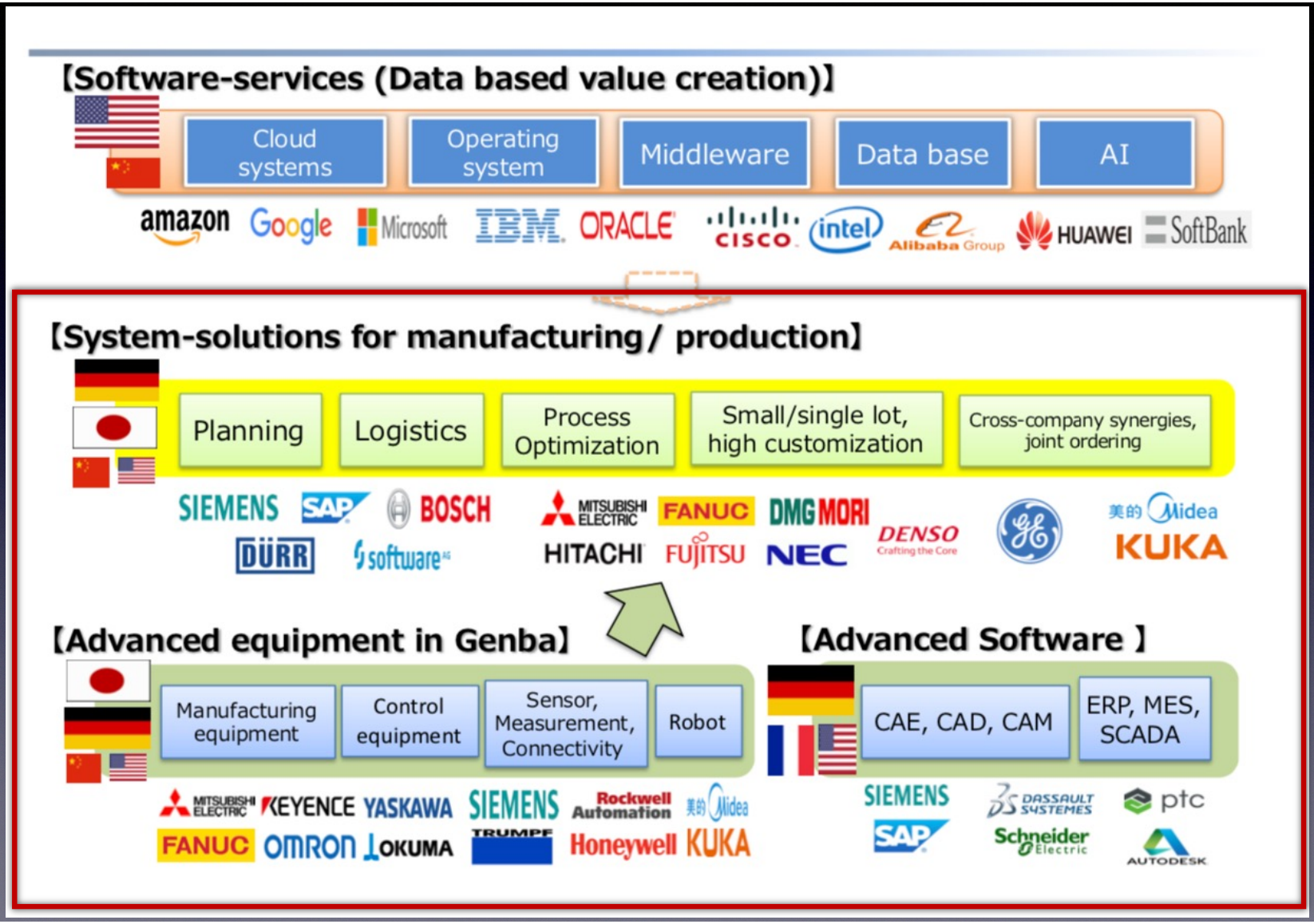


https://www.researchgate.net/publication/323921237_Service-oriented_communication_model_for_cyber-physical-production-systems/figures?lo=1

Value Creation and Value Capture in Industry 4.0



Expanded from: METI, 製造業をめぐる現状と政策課題 2018

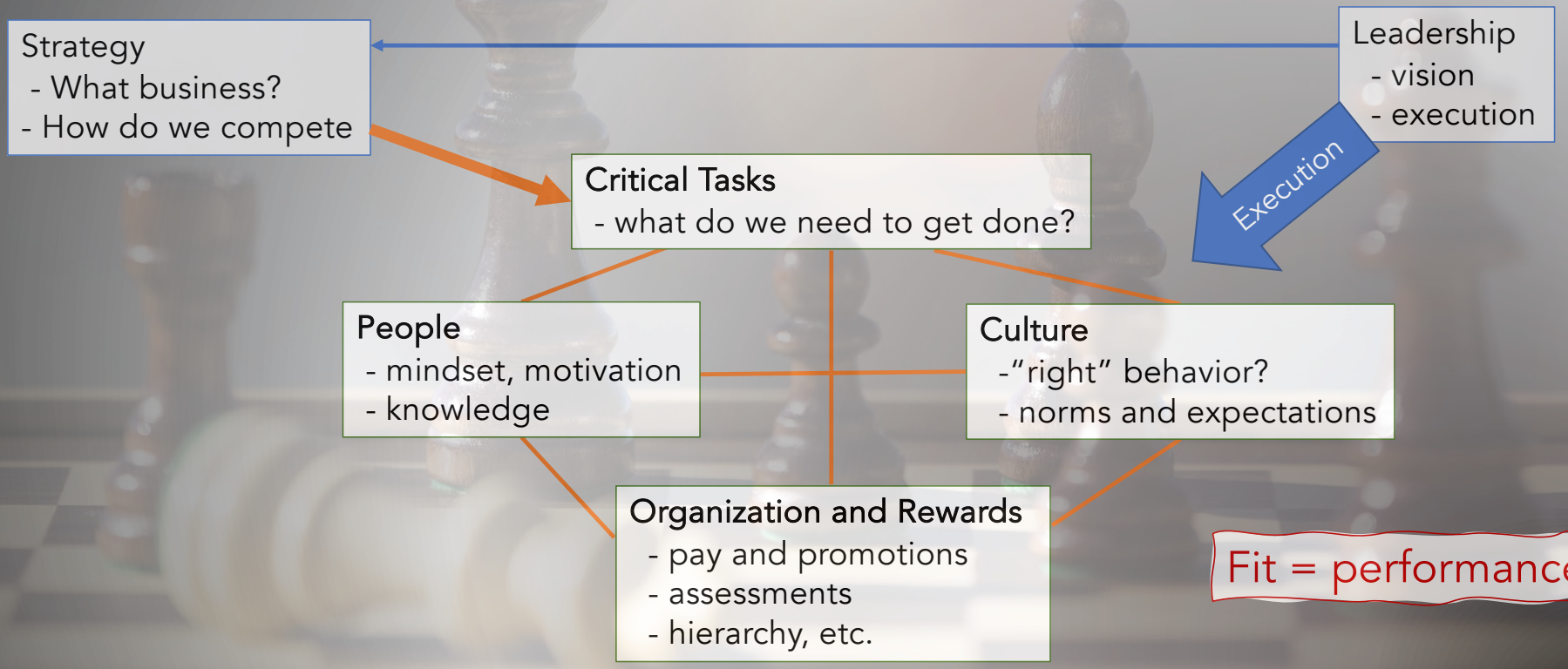

【Software-services (Data based value creation)】
Cloud systems
Operating system
Middleware
Data base
AI
amazon
Google
Microsoft
IBM
ORACLE
cisco
intel
Alibaba Group
HUAWEI
SoftBank
【System-solutions for manufacturing / production】
Planning
Logistics
Process Optimization
Small/single lot, high customization
Cross-company synergies, joint ordering
SIEMENS
SAP
BOSCH
MITSUBISHI ELECTRIC
FANUC
DMG MORI
DENSO
Crafting the Core
Midea
KUKA
DÜRR
software AG
HITACHI
FUJITSU
NEC
【Advanced equipment in Genba】
Manufacturing equipment
Control equipment
Sensor, Measurement, Connectivity
Robot
MITSUBISHI ELECTRIC
KEYENCE
YASKAWA
SIEMENS
Rockwell Automation
Midea
FANUC
OMRON
OKUMA
TRUMPF
Honeywell
KUKA
【Advanced Software 】
CAE, CAD, CAM
ERP, MES, SCADA
SIEMENS
DASSAULT SYSTEMES
ptc
SAP
Schneider Electric
AUTODESK

The Challenge

How do you turn a large, traditional conglomerate with a deep 安全第一 (safety first) corporate culture and entrenched practices and hierarchies into

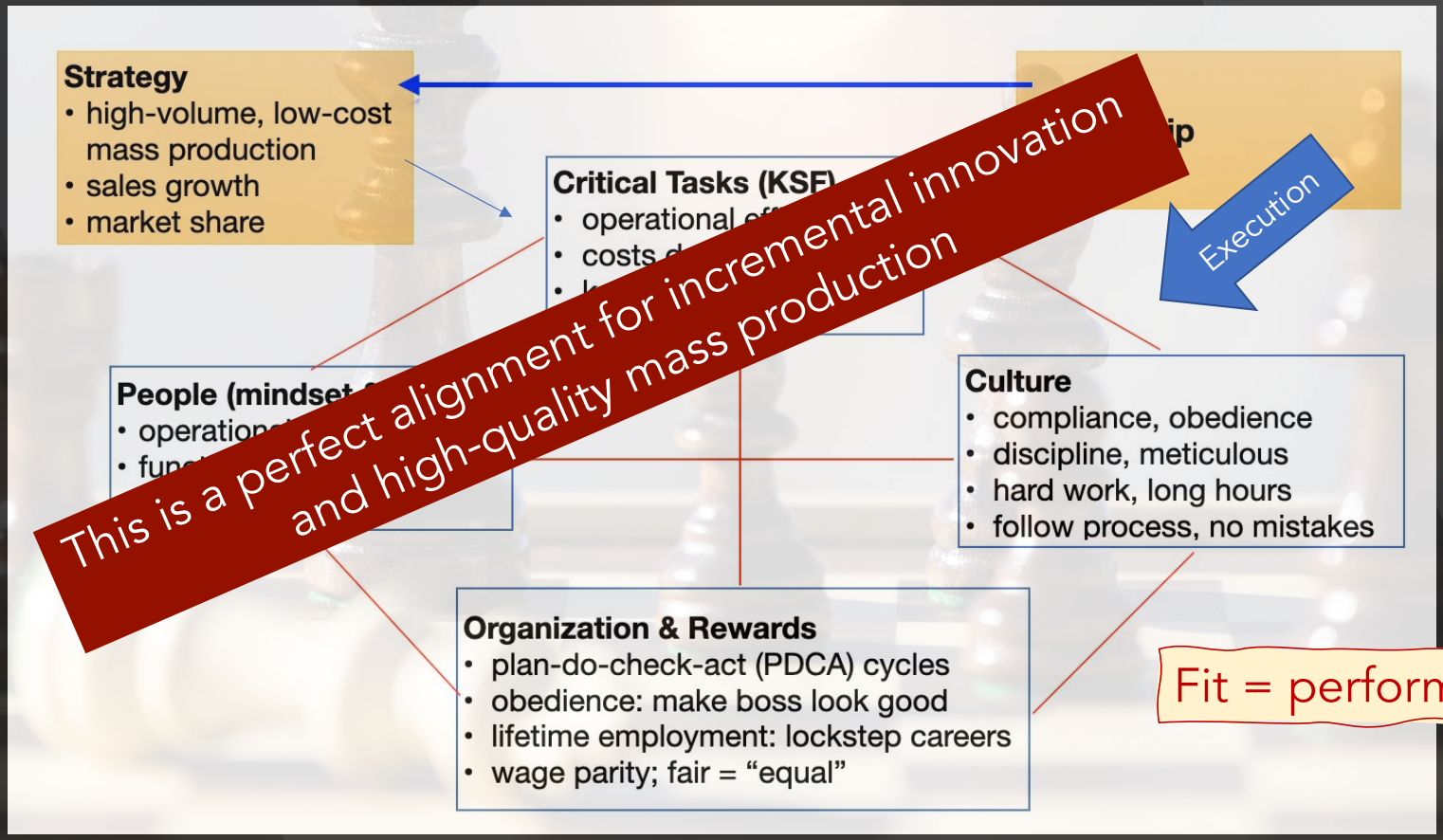
a 21st Century DX competitor that is a leading in breakthrough innovation?

Analytical Tool: The Alignment Model

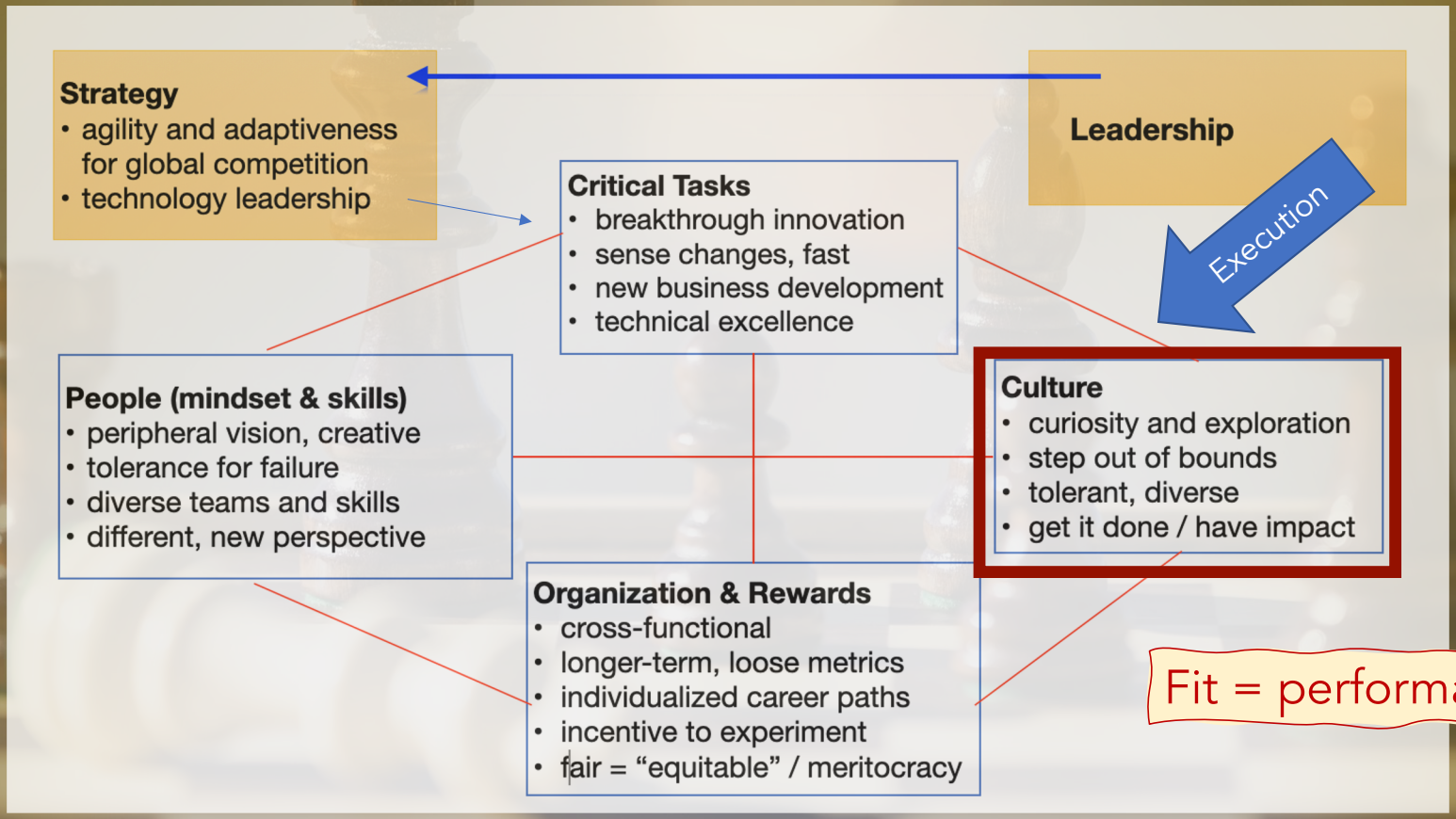


Source: Charles O'Reilly III / Michael Tushman, *The Ambidextrous Organization*

Japan's Post-WWII Alignment Model



The Breakthrough Innovation Alignment



What is "corporate culture" in Japanese?

It is not 文化

- 企業文化 *bunka* (connotes heritage, tradition, deep-seated generic traits of Japan)
- DNA (cannot be changed)
- 社風 *shafū* (how the winds are blowing; no agency)
- カルチャー (sounds too foreign)

Rather, how about "やり方"

- 弊社のやり方 *heisha no yarikata* : "the way we do things around here"
- maybe: 慣行 *kankō* : "our practices"

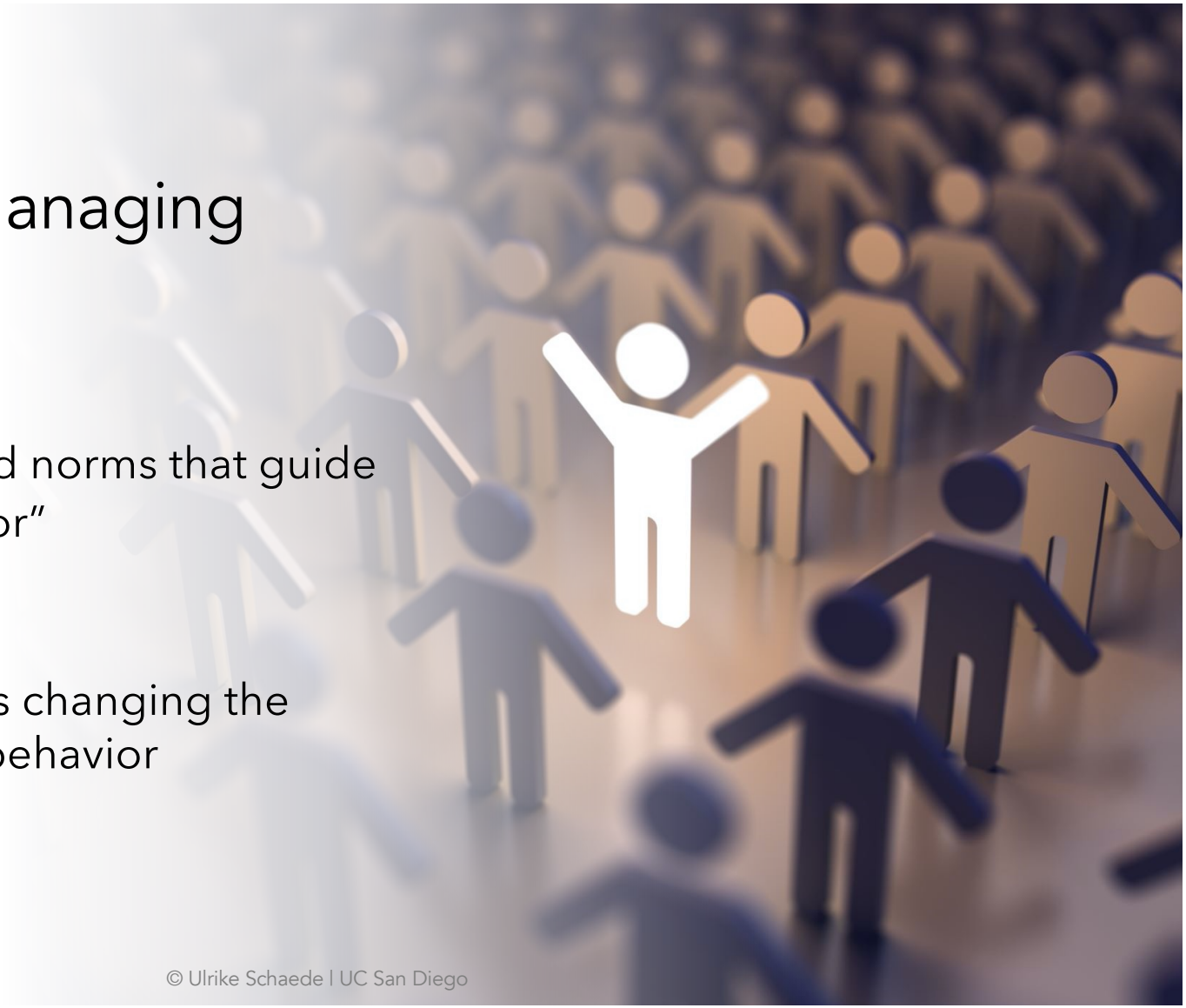
How to change culture?

Culture has 3 dimensions

- Culture = socially created standards that shape our understanding of what is right and wrong
- Norms have three dimensions: content, consensus, and intensity
  - ***Content*** is the actual behavior that is prescribed.
  - ***Consensus*** is the degree to which people agree that the norms are important.
  - ***Intensity*** is the extent to which deviance is tolerated.
- Content differs by setting
  - E.g., Football stadium v. Beethoven symphony v. Karaoke

Implications for Managing Culture Change

- Culture = socially created norms that guide the "appropriate behavior"
- This can be managed!
- To change culture means changing the definition of the "right" behavior



Takeaways: Can Japan grab the moment?

Japan's leading companies are undergoing a "pivot" and a reinvention. By moving into difficult-to-make and difficult-to-copy global niches, they can maintain global competitive advantage.

These pivots require great effort of internal reorganization and culture change, and will take at least a decade to fruition.

They also bring huge competitive advantage, especially in digital manufacturing.

The DX is only just beginning. Can Japan grab the "lucky moment"?

Thank you!

Ulrike Schaede
School of Global Policy & Strategy
University of California San Diego
uschaede@ucsd.edu
www.thejapanologist.com