# Business Models and Platform economy

The Robot Revolution and Industrial IoT International Symposium 2020

Japan-Germany Expert Forum

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# Introduction



In the computer industry, in 1966, IBM developed the System 360, and for the first time a clear interface was defined between software and hardware, and it was successfully modularized, so that another organization can use its unique capabilities to create different products.

Bundesarchiv, B 145 Bild-F077889-0042
Foto: Reineke, Engelbert | 8. April 1988

The apparel industry and the logistics industry have formed a global corporate network for many years. In recent years, advances in IT technology have led to the early establishment of international standard interfaces between open companies such as 3D / PLM, EDI, and XML by GS1 (global standard one) and as a result, platformers that operate an ecosystem of tens of thousands of companies have appeared. In the B2C field, GAFA expanded its service business to about 200 countries at the same time as the global expansion of smartphones, create new business models and industrial structure based on software with zero marginal cost and IT with exponentially improved performance.

In the manufacturing industry, there is a product production ecosystem formed by vertically integrated companies. However, an open platform that can scale out to promote product value as a service is still in the stage of budding cases.

It is considered to be of great significance for both countries that Japan and Germany share such a background, exchange opinions on digitization in the manufacturing industry, and have a common understanding of the overall view of future growth of the manufacturing industry.

# JPN-GER Discussion on Digital Business Models

## Purpose

**Context**

- There are many theses and ideas from a technical perspective (e.g. security, communication, artificial intelligence, etc.)
- There are many claims from an economic perspective (e.g. platform economy, new intermediaries, etc.)
- Often facts in B2C are directly transferred to B2B, but the discussions typically stay on an abstract level and generally do not reach the business level in the manufacturing industry

**Overall objective**

- Illustration of the **economic** importance of digitization for the manufacturing industry, driven by the analysis of selected examples, scenarios and use cases that can be **observed in the market**

**Addressed stakeholder**

- Primarily the **manufacturing industry**, in order to provide guidance in the complex discussions, but also politics and research

**Consequences**

- JPN and GER both **benefit** from a joint discussion because they have a similar understanding of the importance of digitization for the future of the manufacturing industry

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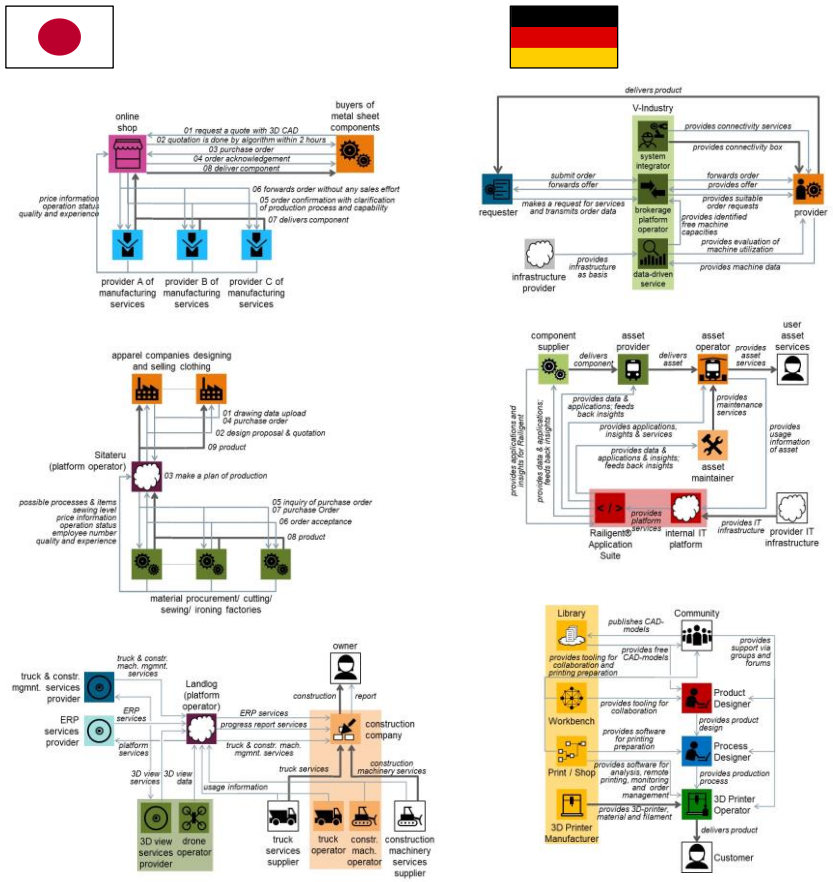
# Overall Evolutionary Approach
## Evolutionary procedure

**Selection** of examples




clear understanding of customer needs and market trends

Structure of **template**

- Overall description → purpose
- Value network → orchestration, platform, ecosystem
- Revenue stream → monetarization
- Business model contract → value
- Business model innovation → disruption

analysis of underlying mechanism and principles

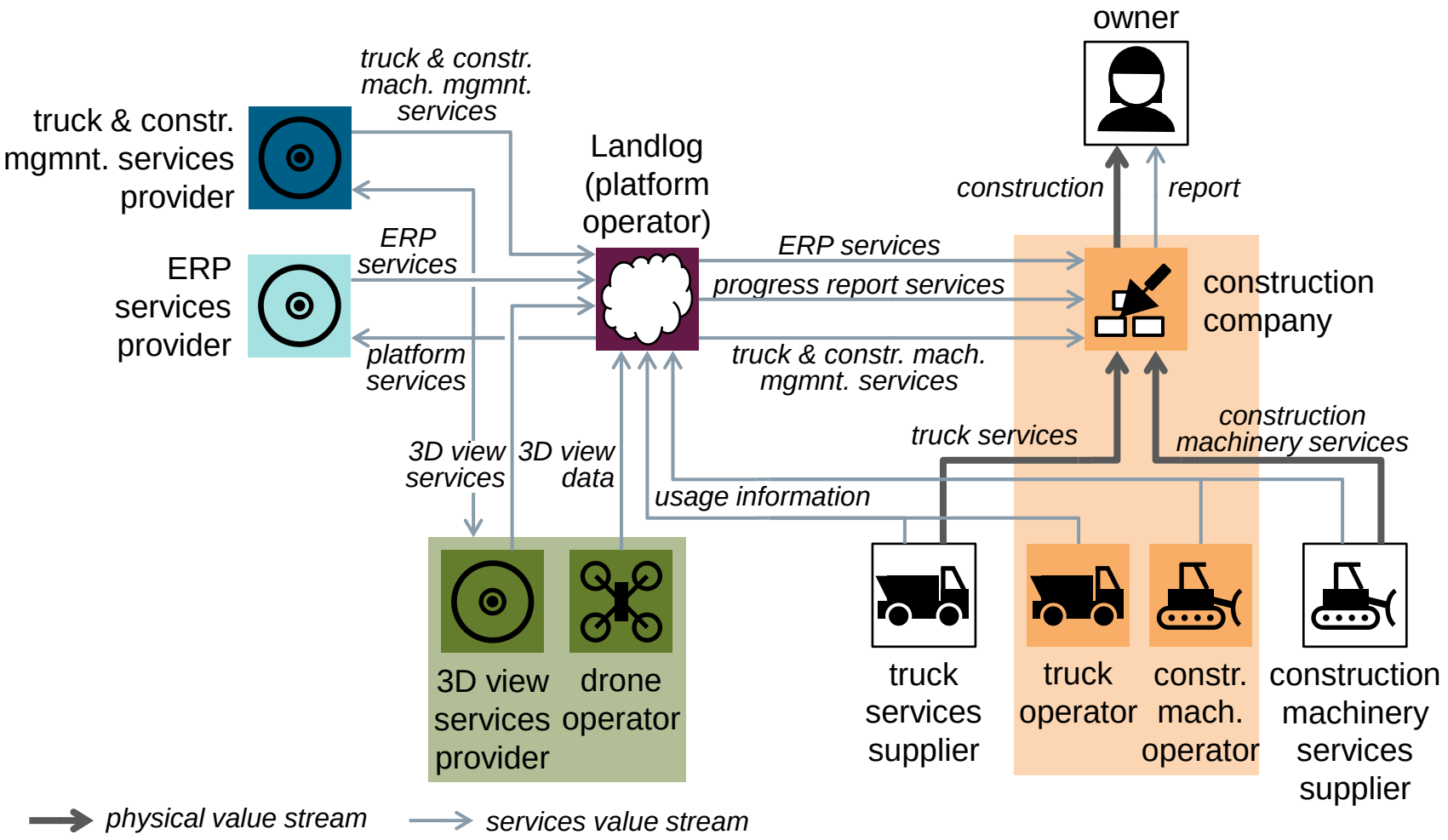
Conclusions (still in discussion)

- Different **purposes** of business models, ecosystems and digital platforms
- Different **architectures** of business models, ecosystems and digital platforms
- **Communication** of lessons learnt and best practices

feedback to manufacturing industries and input to look for further candidates

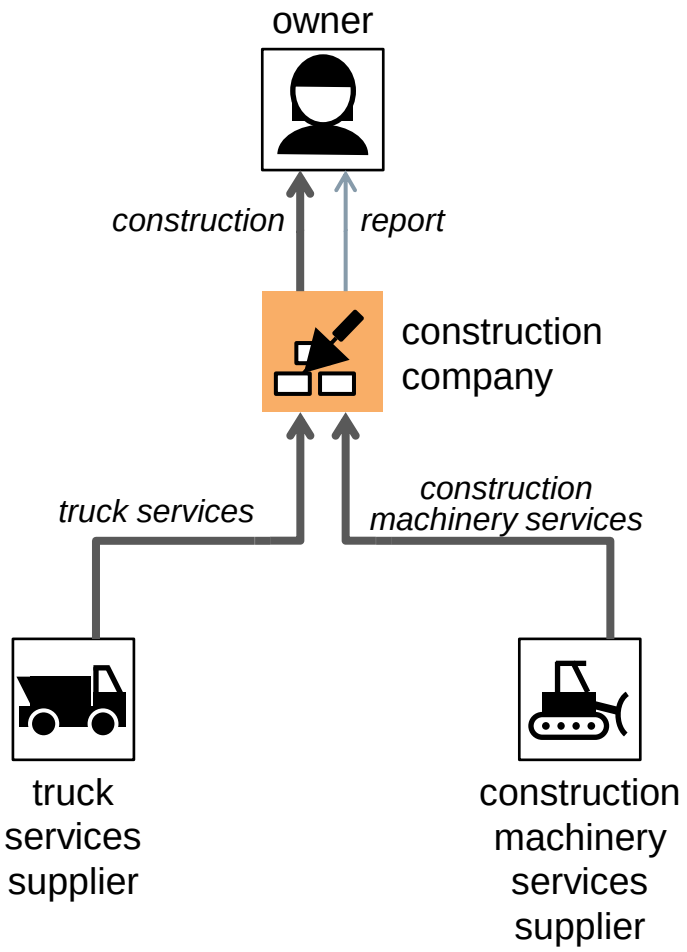
# Landlog: Platform for monitoring and managing daily construction activities

## Value Streams



# Landlog: Platform for monitoring and managing daily construction activities

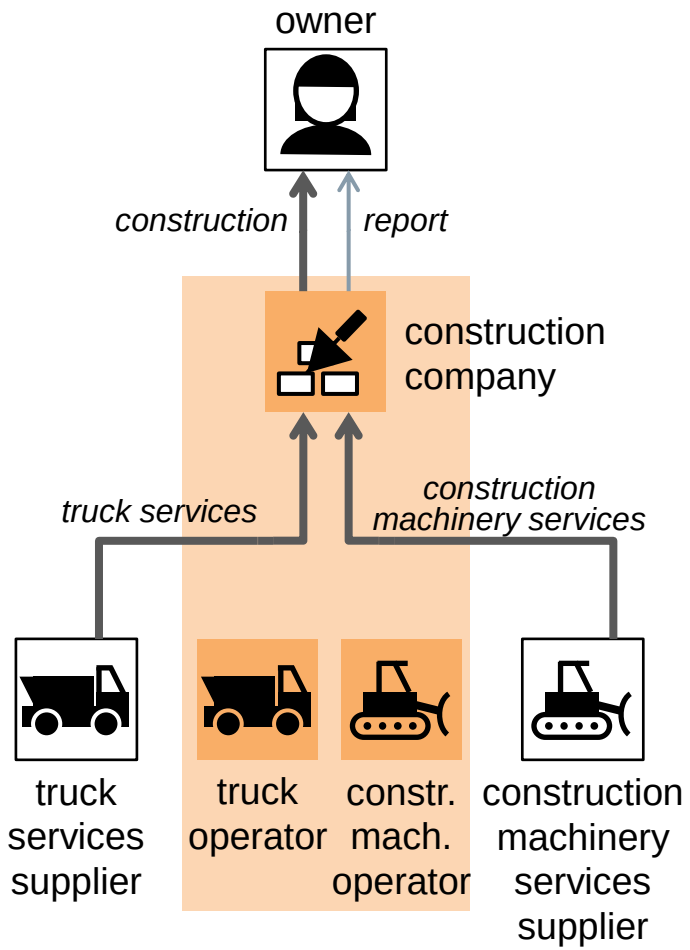
## Value Streams




*physical value stream* *services value stream*

# Landlog: Platform for monitoring and managing daily construction activities

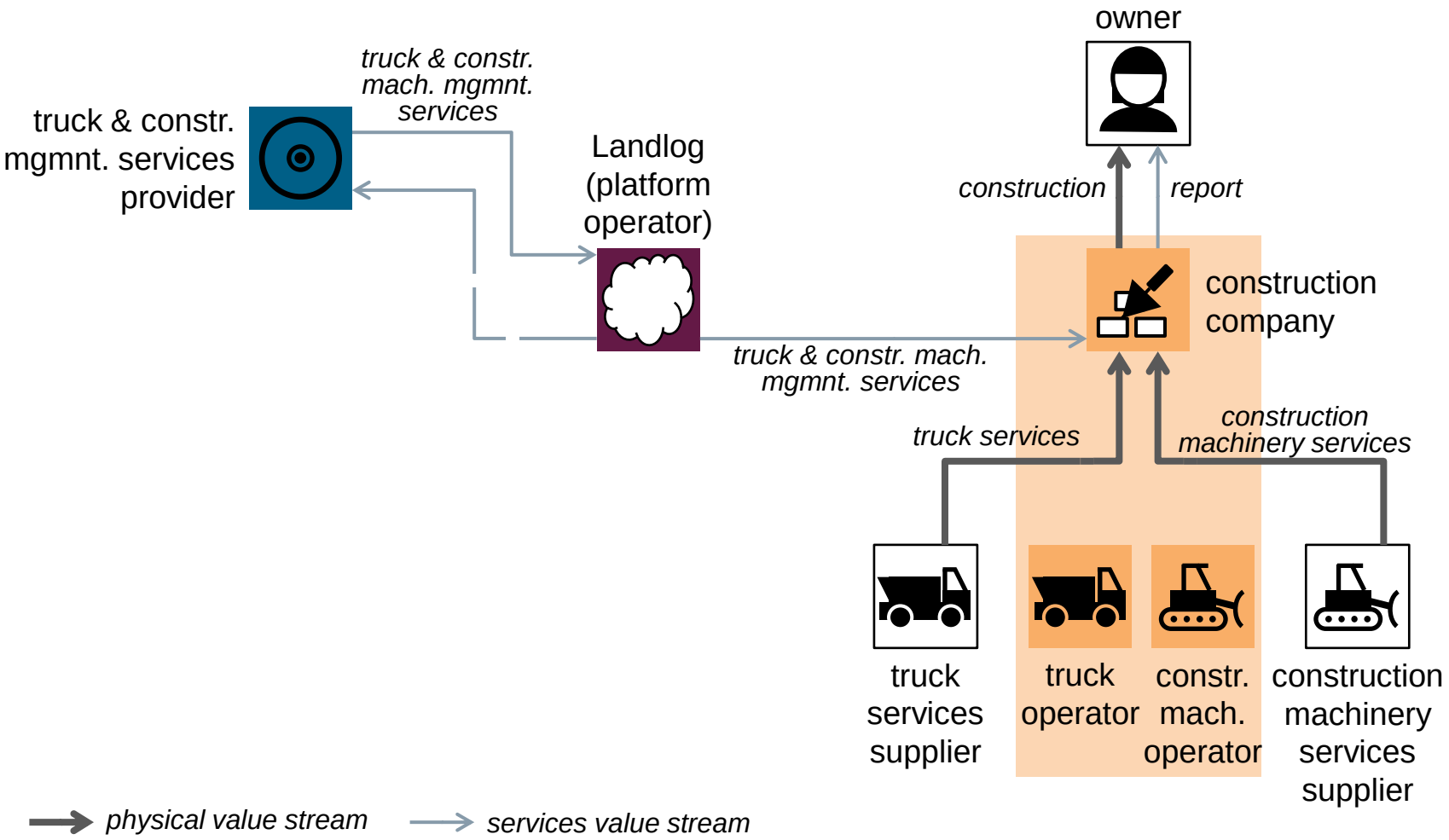
## Value Streams




*physical value stream* *services value stream*

# Landlog: Platform for monitoring and managing daily construction activities

## Value Streams



# Landlog: Platform for monitoring and managing daily construction activities

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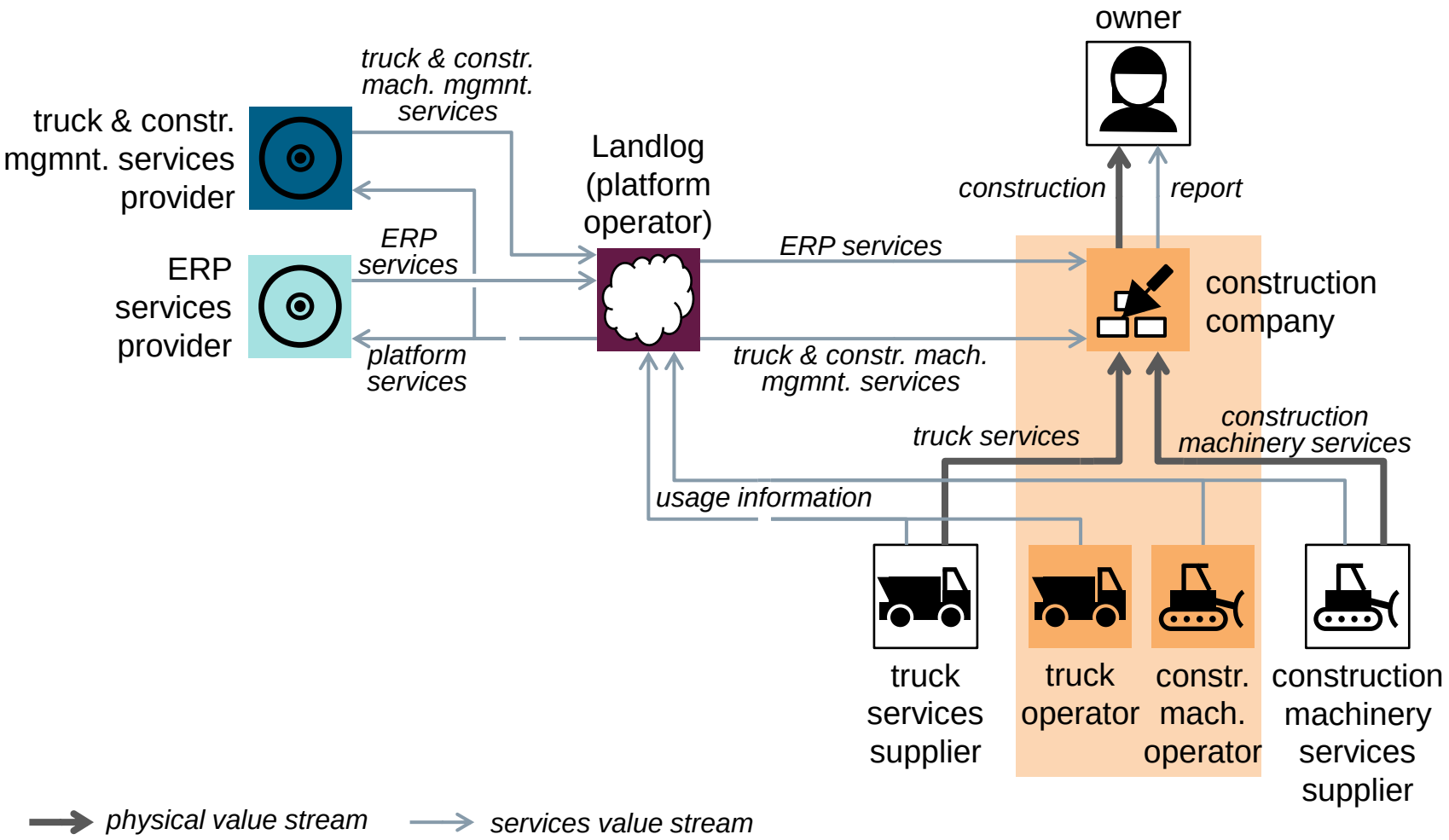

# Landlog: Platform for monitoring and managing daily construction activities

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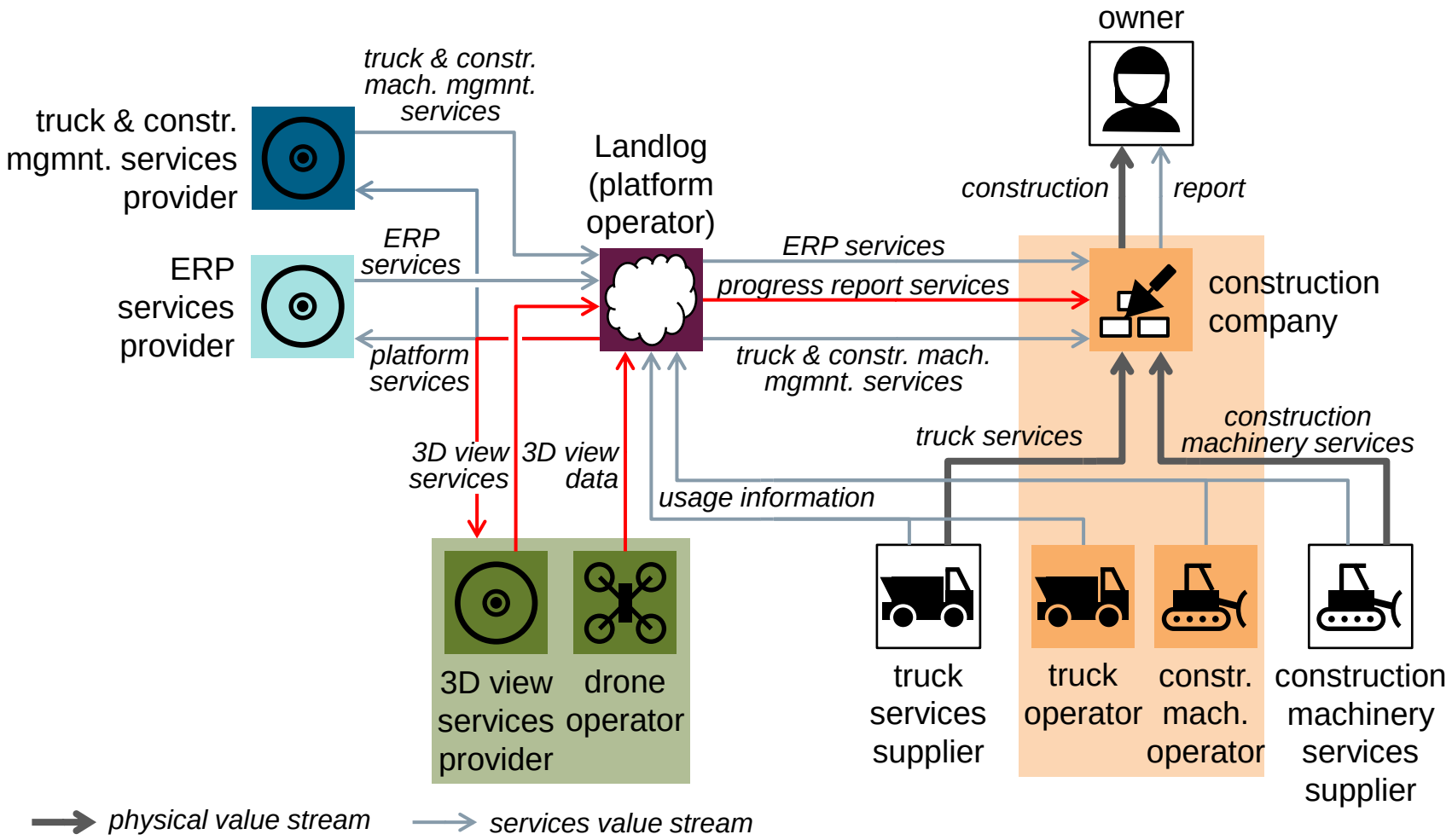


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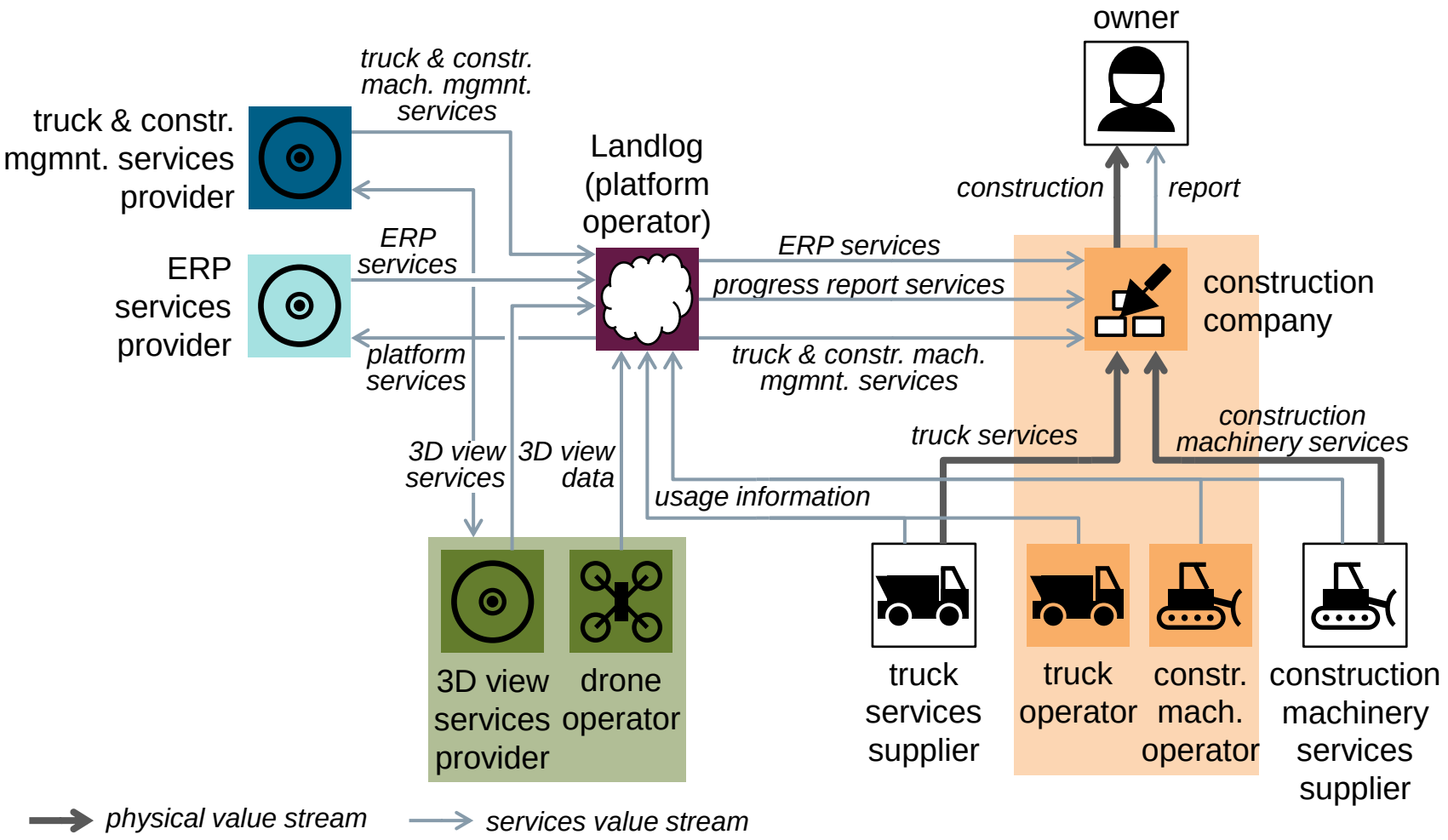
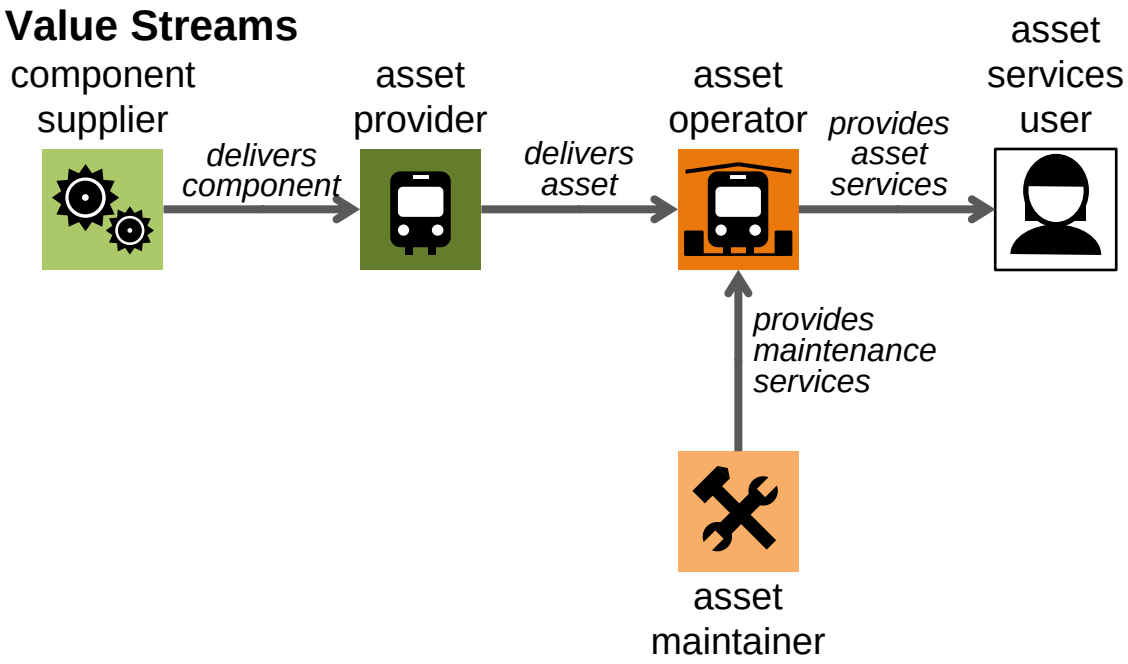
# Landlog: Platform for monitoring and managing daily construction activities

## Value Streams



# Railigent: Application suite for intelligent asset management

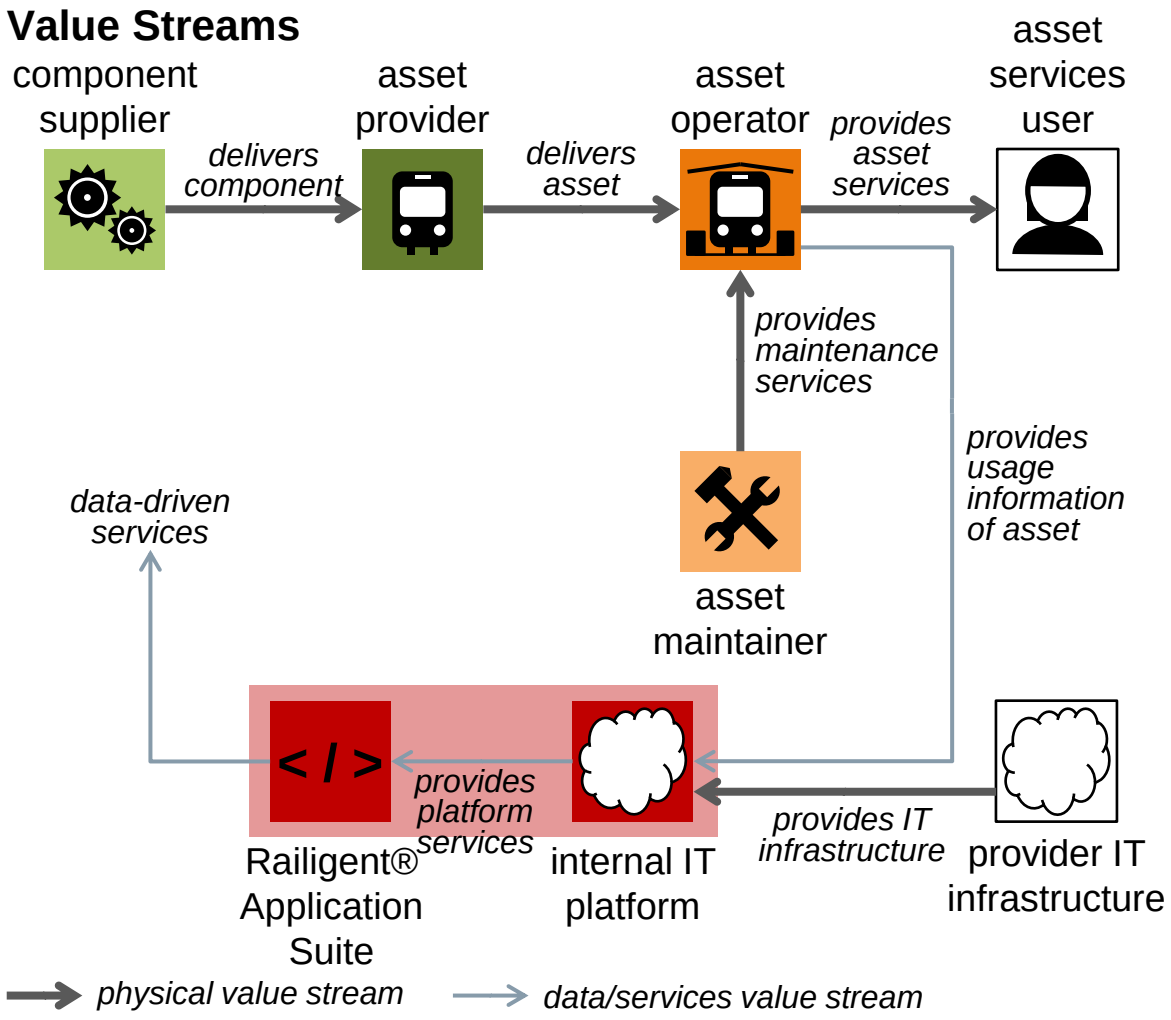
## Classical value network (example rolling stock)




*physical value stream* *data/services value stream*

# Railigent: Application suite for intelligent asset management

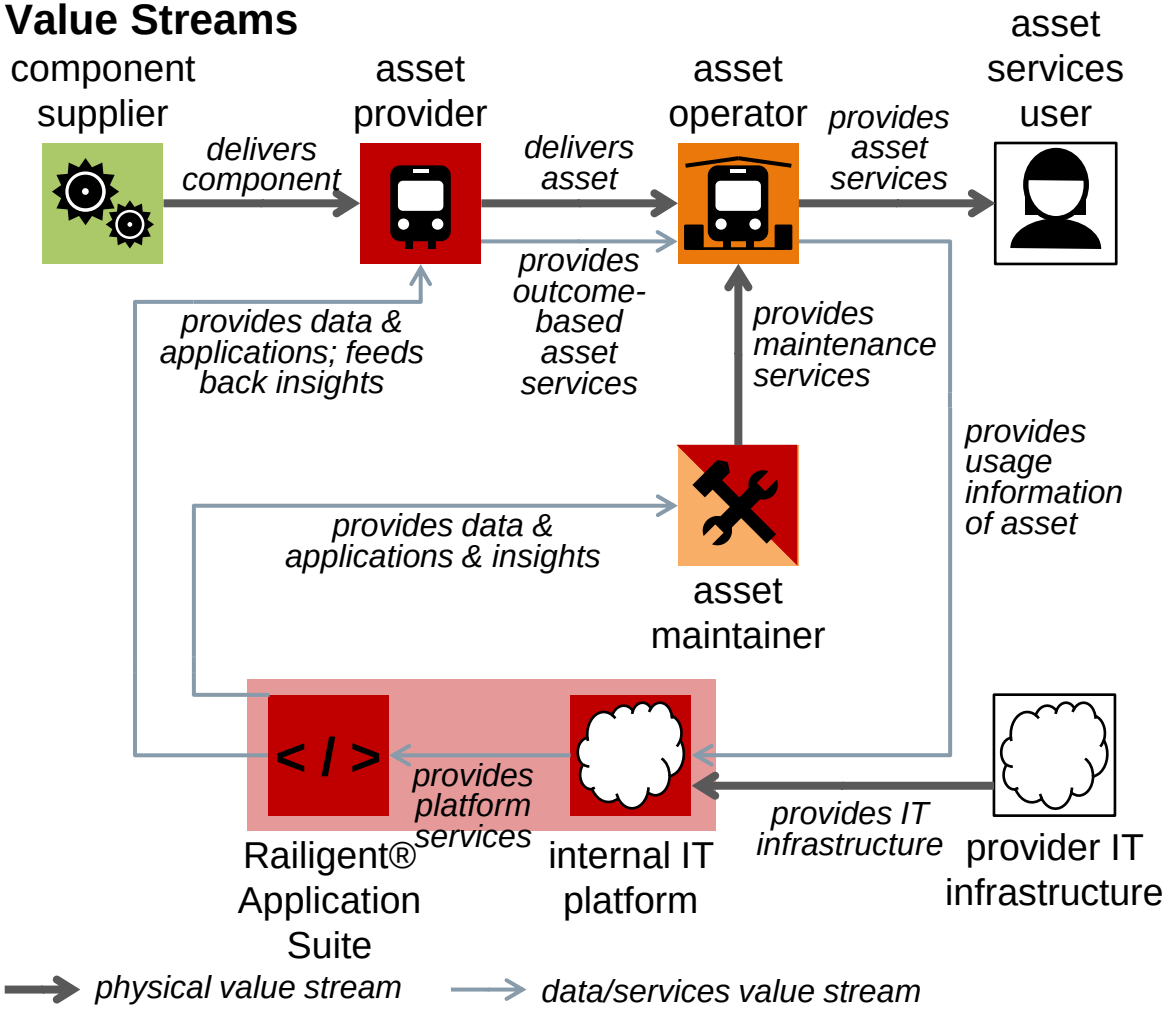
## Extension of value network by an IIoT platform operator



# Railigent: Application suite for intelligent asset management

## Deliver outcome-based asset services

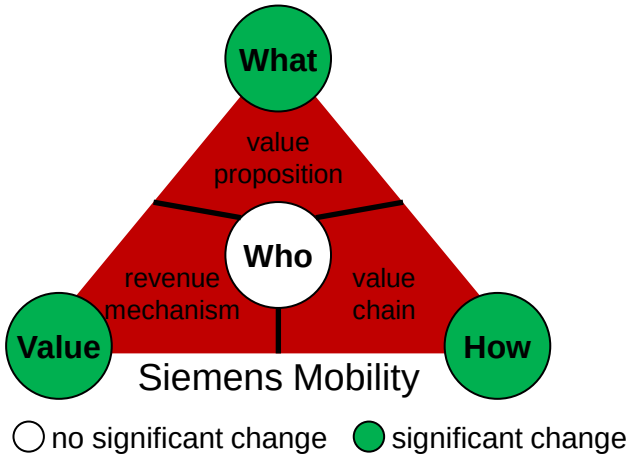
### Value Streams




### Business Model

Major business model changes:

- **Who**: same customers
- **What**: additional outcome-based services
- **Value**: additional revenue stream
- **How**: IIoT-platform extends value network

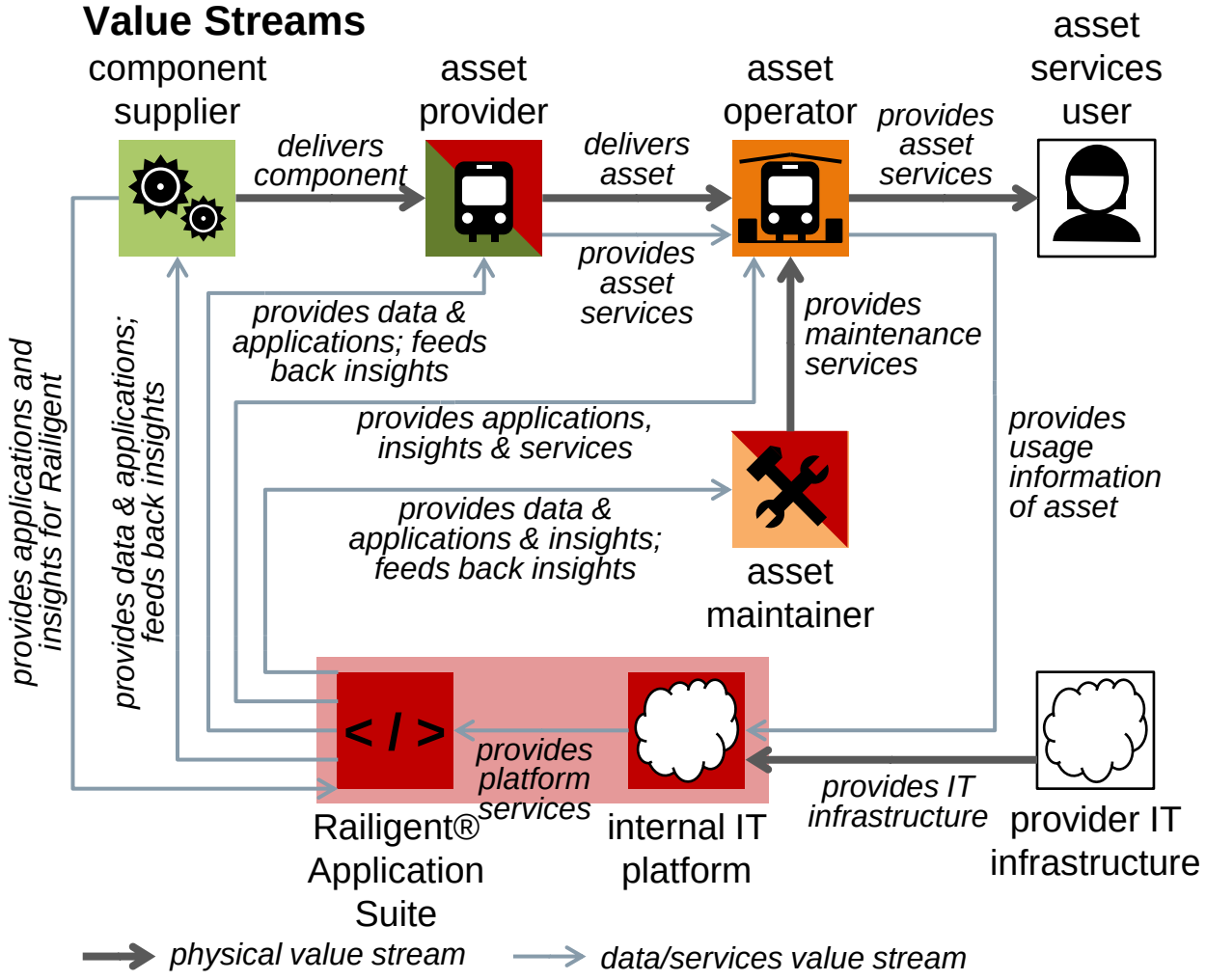



Consequences:

- Right to use usage information of assets based on individual contracts with asset operators

# Railigent: Application suite for intelligent asset management
## Extension to ecosystem

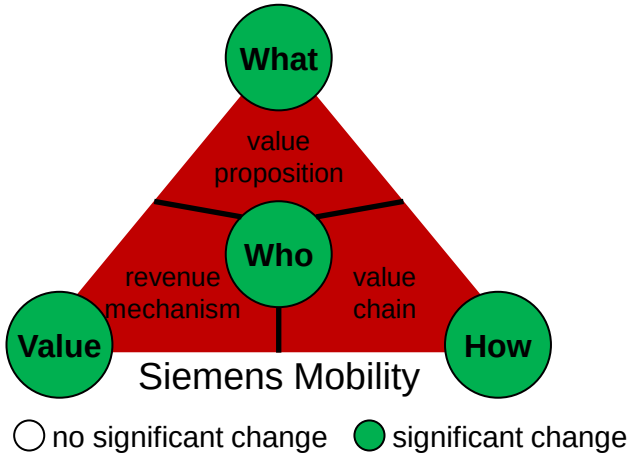
### Value Streams




### Business Model

Major business model changes:

- **Who** & **how**: other asset provider – typically competitors – and component supplier as new customers
- **What** & **value**: acting as value integrator with different value propositions & revenue mechanisms
  - Managed services
  - Software as a service
  - Insights as a service
  - Outcome as a service

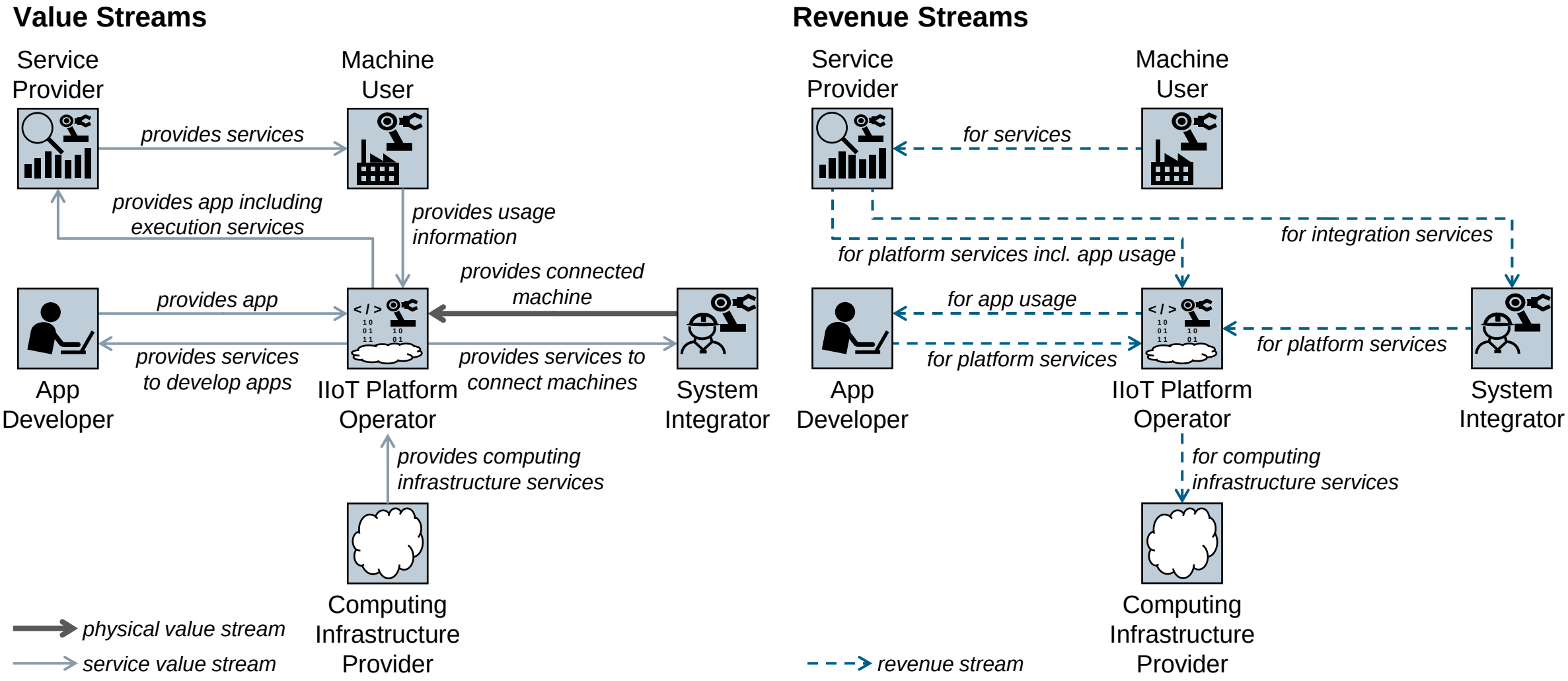


# First conclusions from elaborated examples

| | Description | Purpose of platform | Platform pattern | Business model of platform operator | Revenue stream of platform operator |
|---|---|---|---|---|---|
| CADDI | Manufacturing platform for metal sheet bending | Matching demand and supply | Brokerage platform | Provision of metal sheet bending services | For delivered bended metal sheet |
| SITATERU | Organizer of supply chain for apparel companies | Matching demand and supply | Brokerage platform | Provision of manufacturing services for apparel products | For manufactured apparel product |
| Landlog | Platform for monitoring and managing daily construction activities | Improvement of value-chains of a customer | Cloud-based IIoT-platform | Data-driven services | For platform services (consumption based) |
| V-INDUSTRY | Digital procurement of components | Matching demand and supply | Brokerage platform | Operation of platform<br>Data-driven services | For successful transaction<br>For data-driven services (time based) |
| Railigent | Application suite for intelligent asset management | Improvement of value-chains of a customer | Cloud-based IIoT-platform | Performance improvement<br>Operation of platform | For services and data (outcome or consumption based) |
| GrabCAD | 3D printing & CAD collaboration software | Provision of technical infrastructure to lock a community to a product | *open* | Support of current business model (improve market penetration of current products) | No revenues from platform operation |

# Analysis: Identification of Generic Platform Patterns

## Example Cloud-based IIoT Platform



# Summary and Outlook

**Publication of analysis results and lessons learnt**

Planned structure of report:

- Introduction
- JPN and GER examples
  - Overall description (purpose)
  - Value network and revenue streams
  - Business model contract
  - Business model innovation
  - Miscellaneous
- Analysis of the examples
- Outlook

Publication date: April 2021 (planned)

**Further elaboration on digital business models**

Analysis of the dynamics of platform business model mechanisms and network effects

Investigation of platform pattern

Exchange with Germany-Japan Standardization Experts, especially in the context of edge platforms

Elaboration of further examples if necessary

Dissemination of lessons learnt

Discussions on business models and platform economy still need to be deepened, but we would like to evolve by combining the views of both sides as a reference and stimulus in our cooperation between Japan and Germany.

**Thank you!**