

GXFS Connect 2023

Manufacturing-X – required capabilities

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Impact and importance of “Data Spaces”

Example: carbon footprint and battery production

Product Carbon Footprint as an example:

- Significant part of global CO2 emissions come directly from industry
- Only 10% (*) are generated in own factories – Scope 1 and 2 (*) depending on production
- Up to 90% (*) of the CO2 emissions are mostly caused by the upstream/downstream supply chain - the Scope 3 emissions
- That is why transparency is needed about the entire CO2 footprint of the product, in order to reduce emissions along the entire value chain

Battery production as an example:

- We have been massively ramping up battery cell production
- But, on the one hand, battery production is enormously energy- and water-intensive. It is partly dependent on other countries.
- Only if we use the potential of digitalization we can produce batteries more sustainably and make ourselves more independent.
Because: 96% of the ingredients of a battery are recyclable per se.
- With the consistent and transparent use of digital twins, we can design more sustainable products - and produce them more sustainably.

Requires data transparency along the entire value chain
This can technically implemented by “Data Spaces”

Data economy and Data Spaces

The industrial context

Drivers of economy

(examples)

Customer needs/values

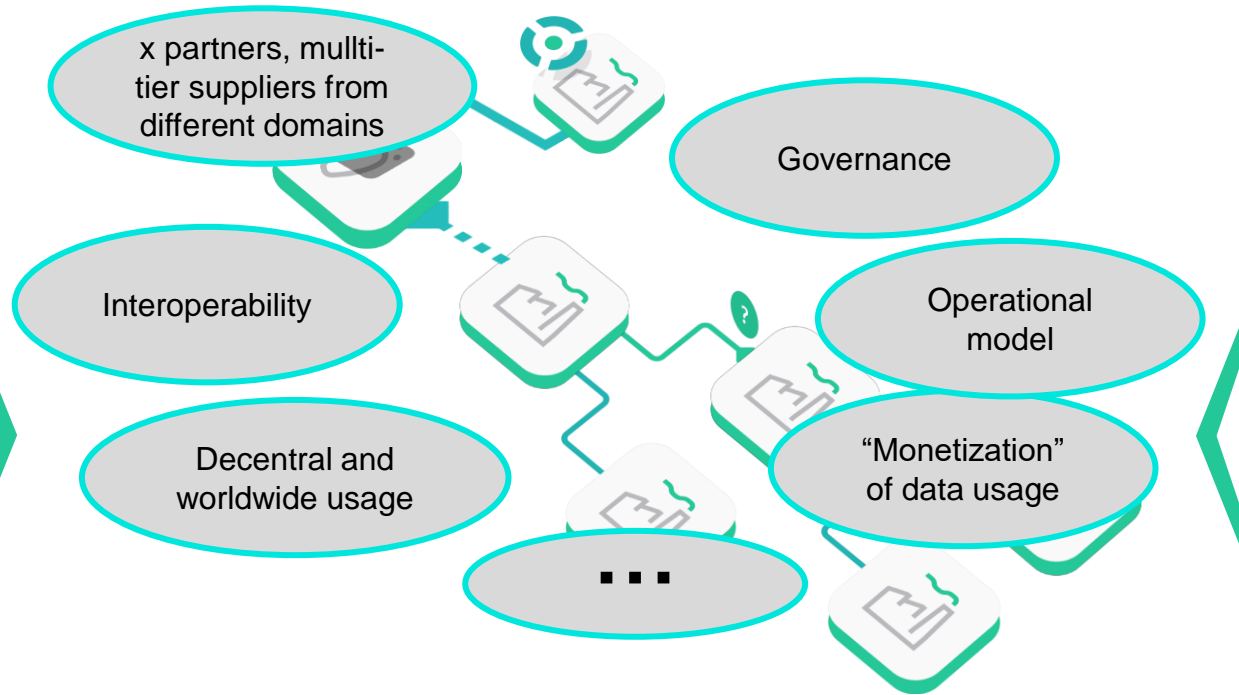
Market needs

Public needs/values

- Responsibility
- Sustainability
- Sovereignty

Regulation

- Data Act
- Dig. Product pass



→ Trust across multiple (unknown) entities needed

... reflected by companies

(examples)

Company values

Compet. Advantage

- technology
- market access,
- resilience, supply chain, ...

Technology

- Towards a de-central architecture
- Enabling Trustworthiness

Business strategy

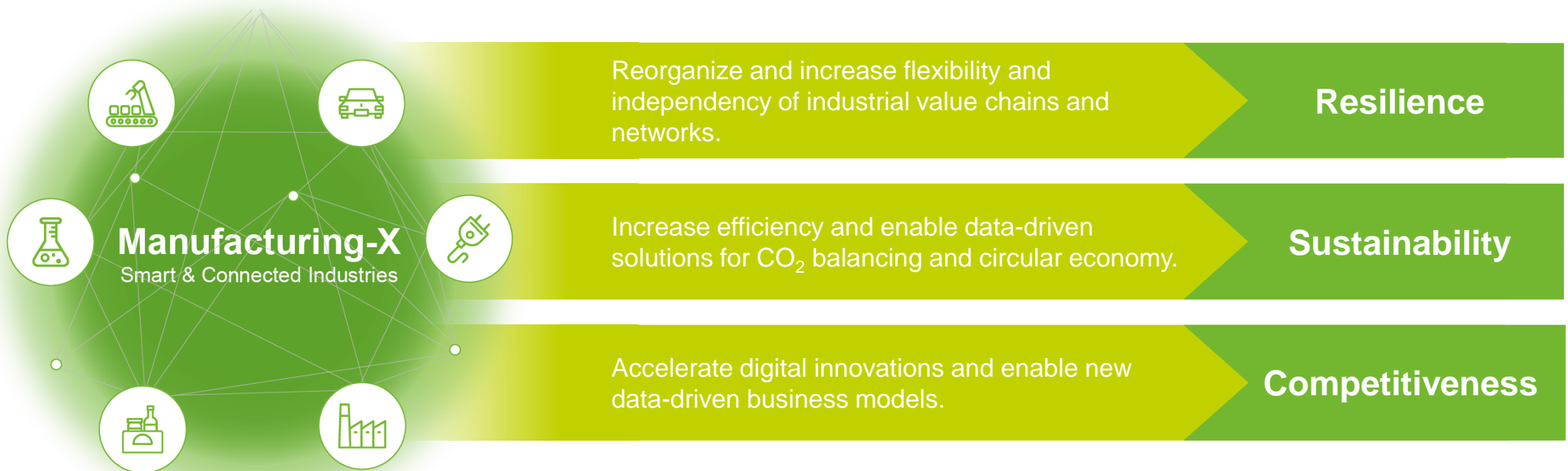
- Value creation
- business model
- IP protection
- partners



and others

Motivation & „Big Picture“ Manufacturing-X. Make Data Work.

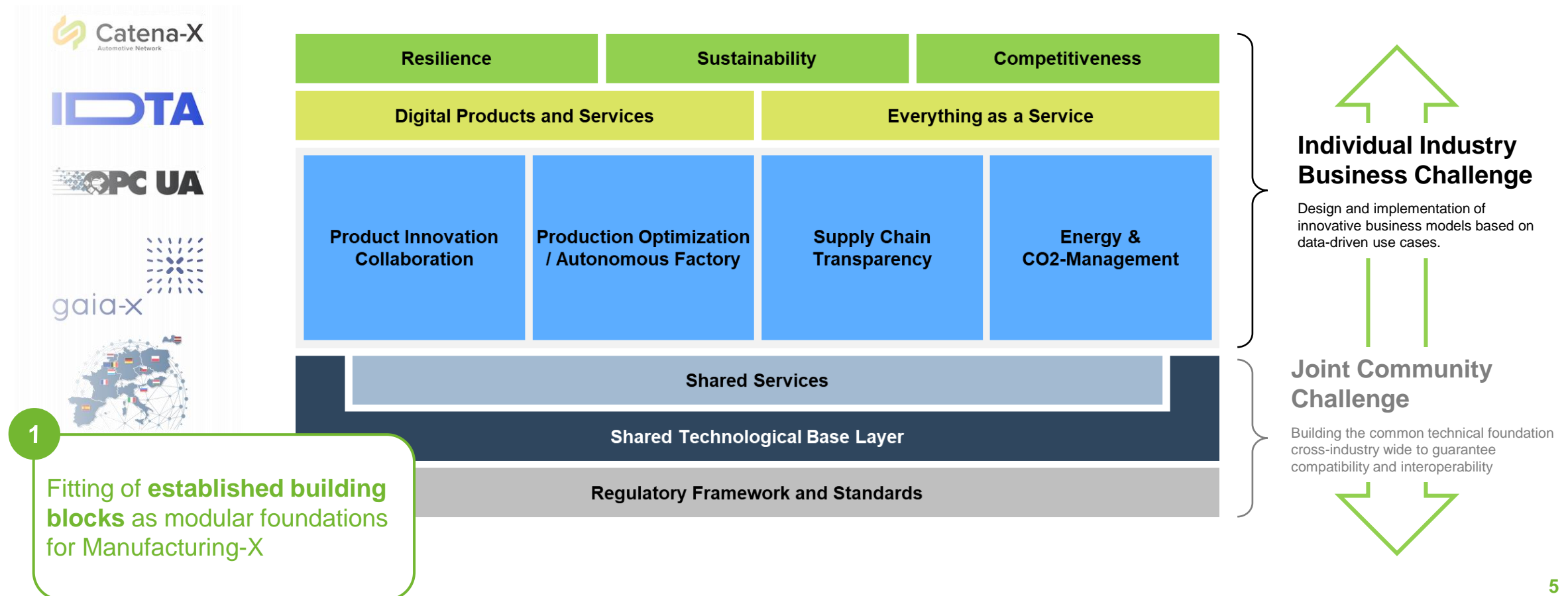
Manufacturing-X will implement the decentral and collaborative Industrial Data Spaces for Industrie 4.0. Open, global and cross-sectoral.



Motivation & „Big Picture“ The Foundational Framework for Manufacturing-X

Iterative interplay between individual implementation of use cases & joint development of basic infrastructure

The Foundational Framework as common guideline for Manufacturing-X activities & international stakeholders.



Products have features, platforms have communities

Definition

A platform is an **open architecture**, with **rules of governance**, designed to **facilitate interactions**



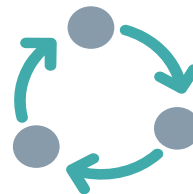
Open architecture

Allows 3rd parties to participate, add value, and innovate in standardized way



Governance

Gives power to exclude bad actors, steer community behavior, and monetize



Interactions

Means by which value is created, finer grain than "exchange"

The goal of a platform is to consummate the match, interactions create value

Successful platforms



More than 75% of all ecosystems fail ^{1,2,3)}



Most successful ecosystems garnered **> 50% market share** in **first five years** ¹⁾



Winning ecosystems delayed profitability. They required **~3 yrs** and gained **>30% market share** to turn **profitable**. In first few years **av. profit margin - 60%** ¹⁾

Source: Siemens Leadership Excellence, Marshall van Alstyne, 15.07.2020

1) Sloan Review MIT - How Business Ecosystems rise and often fall
2) The Business of Platforms' written by Gawer, Cusumano and Yoffie
3) Accenture Strategy: Your role in the ecosystem

Example: Optimization of Consumables

Illustration Value Streams

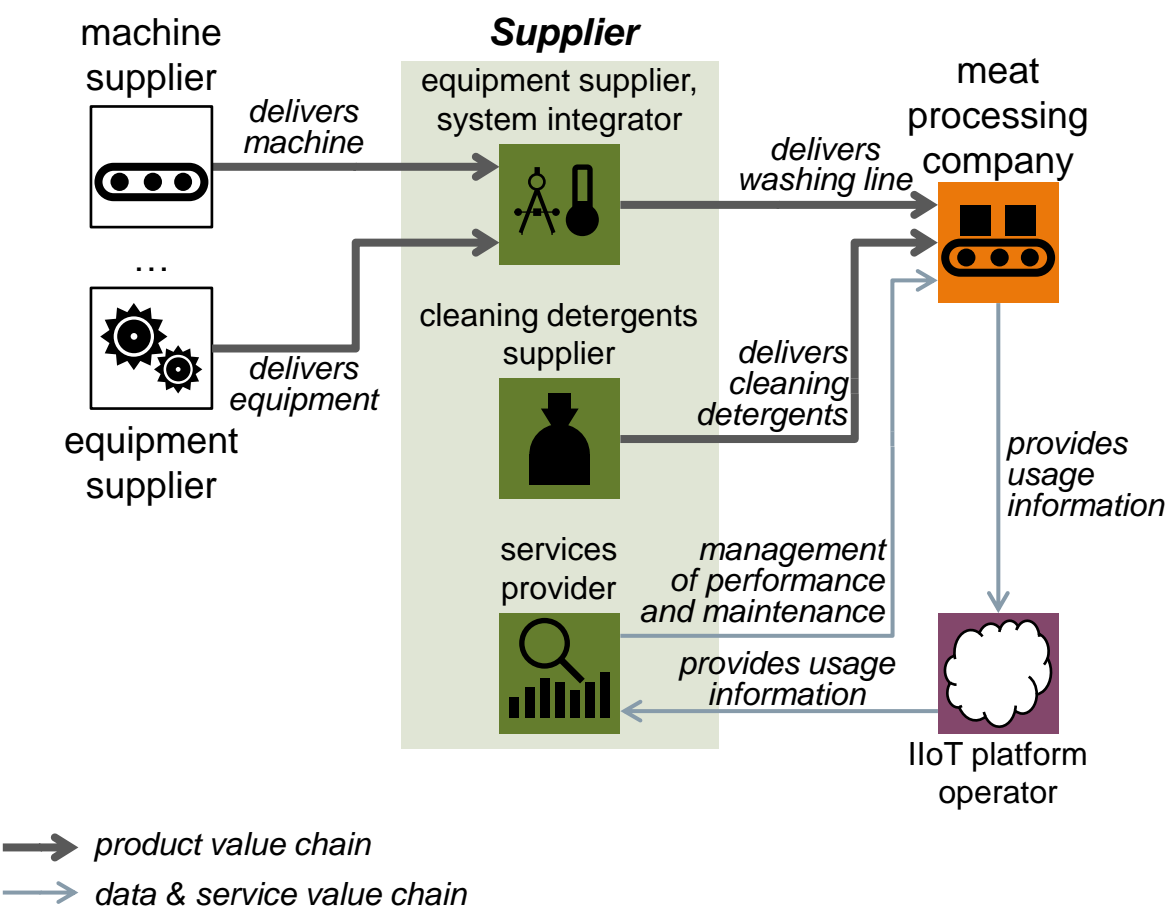
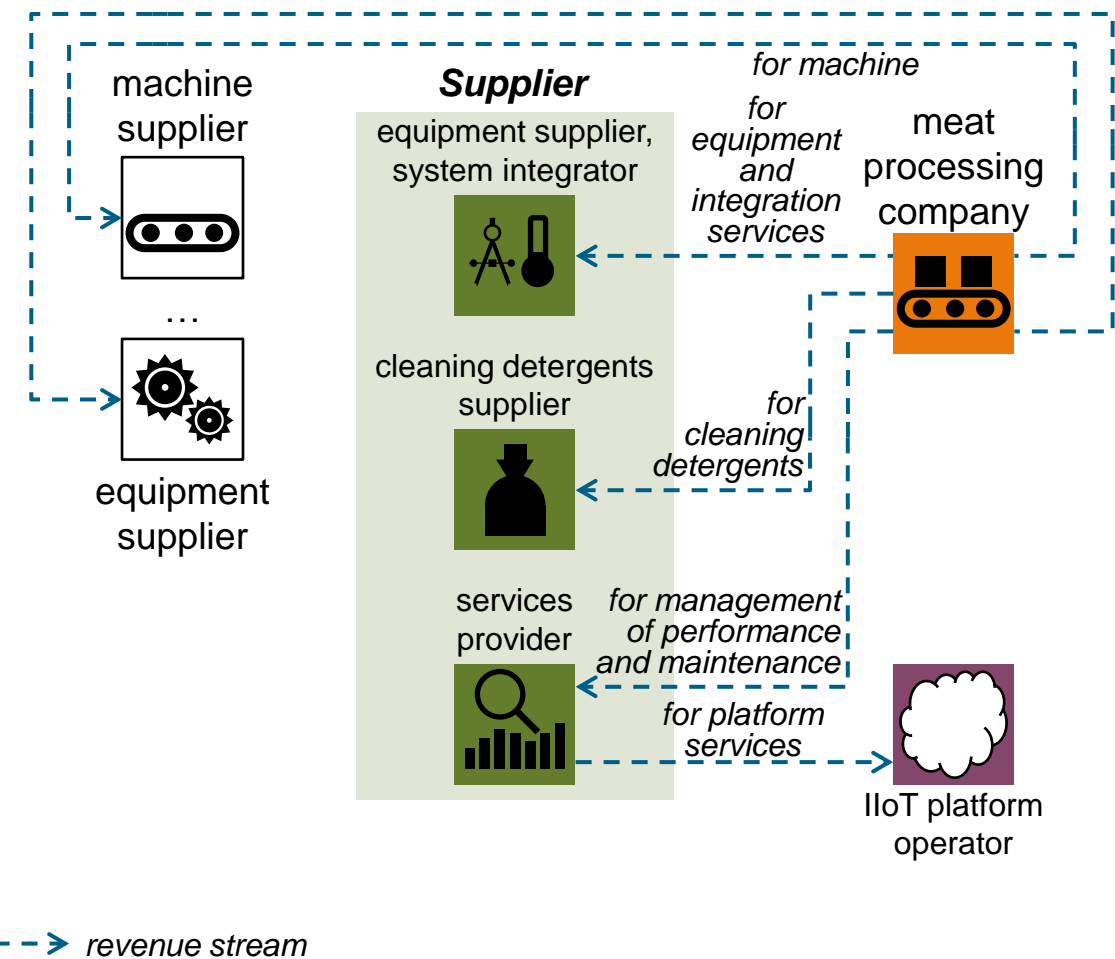


Illustration Revenue Streams



Some thoughts

- **How can Gaia-X support to implement these use cases?**
- **How can Gaia-X incl. regional hubs help for scaling up the ecosystem (esp. SMEs and new business opportunities)?**
- **How can Gaia-X initiate and develop new use cases?**
- **...**

I Thank you for your attention!

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