Reshaping the manufacturing industry with *platform-based solutions*

Capgemini invent

Platform-powered transformation in manufacturing

Why platform thinking is no longer optional

The manufacturing industry is undergoing a fundamental shift as software increasingly shapes hardware, dissolving boundaries between engineering and digital technology. This convergence forces manufacturers to balance two perspectives: a product-centric focus on quality and innovation, and a customer-centric mindset centered around tailored solutions and user experiences. Platform-based solutions are becoming key enablers in mastering this transformation. They empower manufacturers to expand beyond their core products by launching new digital business models, while also streamlining and scaling transformation across existing operations. By leveraging platforms, manufacturers can unlock productivity gains, achieve cost efficiencies, and drive topline growth through new, recurring revenue streams.

From vision to execution: your platform roadmap

Adopting platform-based solutions is no longer optional—it has become a strategic imperative for manufacturing leaders. To stay competitive, executives must assess both the opportunities and risks these solutions bring to their business models. By embracing this shift, manufacturers can position themselves for long-term success in the digital era. This Point of View outlines how platform-based solutions are reshaping the manufacturing industry and provides a structured roadmap to help manufacturers turn ambition into action and unlock new sources of value.

> *"In our view, a platform solution in manufacturing is a multi-sided digital environment that connects distinct user groups, systems, or applications to interact, transact, and co-create value. By offering shared infrastructure, clear governance, and leveraging network effects, it enables individual offerings to scale and evolve into integrated solutions and vibrant ecosystems."*

Sebastian Wolters
Senior Director

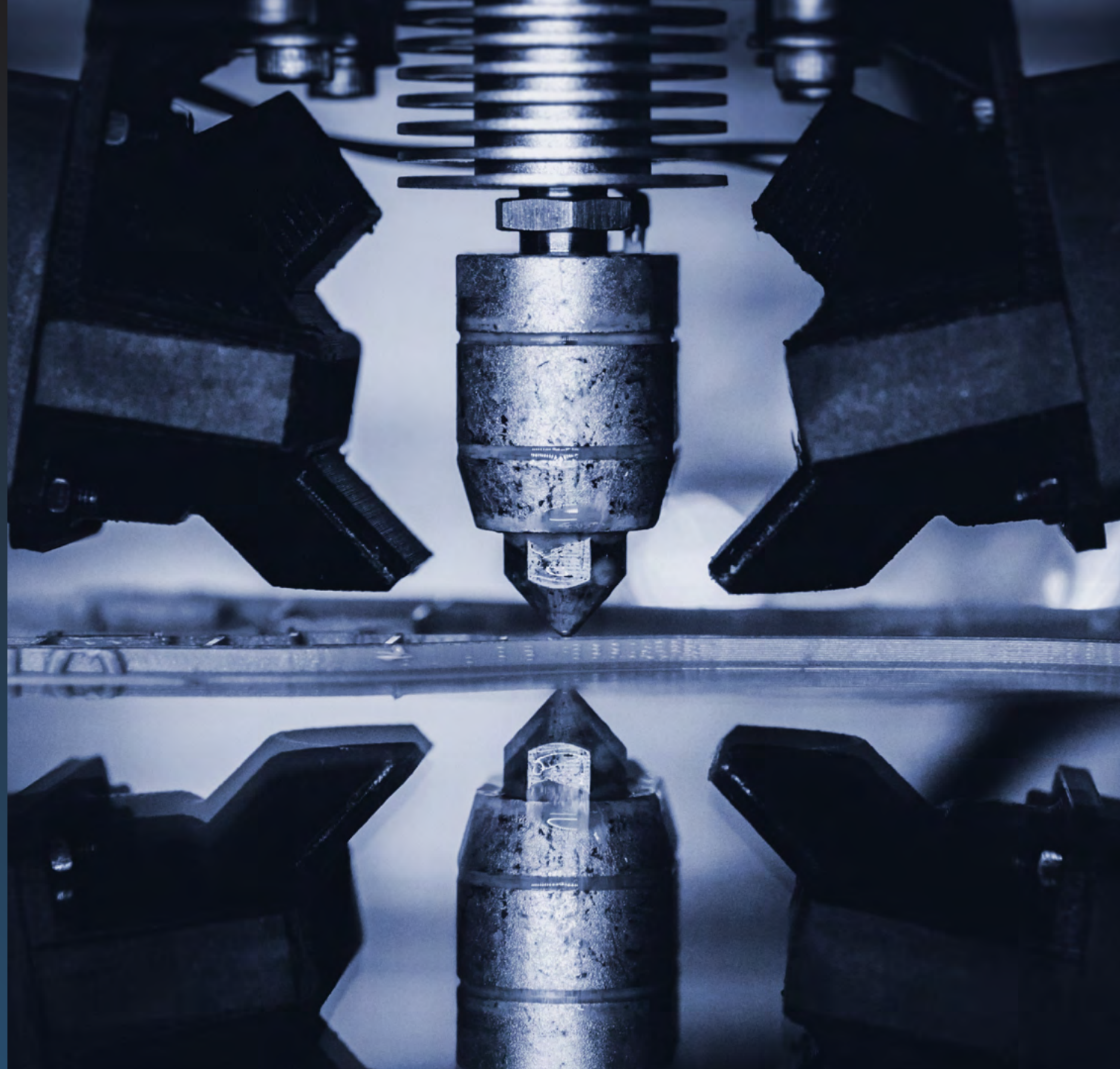
Head of Connected Platform Solutions

Our PoV will navigate the complexities and capitalize on the opportunities offered by platform business models, helping manufacturers to leverage the full potential of their platform ambition

Content

01

Status quo: how platform-based solutions are transforming manufacturing



Platforms address key challenges in the manufacturing industry

Cost efficiency

Manufacturers face increasing pressure **to reduce operational costs and simultaneously increase value delivery**

Time-to-market

Manufacturing companies must **accelerate product iterations** to respond to market shift and customer configurations.

Innovation & scalability

Traditional **R&D departments are often limited by internal capacity,** siloed thinking and high-cost innovation cycles.

Platform impact

Centralization

Platforms **consolidate, centralize and democratize resources** (e.g., infrastructure, data) and thus reduce redundant efforts across teams and enable asset reuse.

Standardization

Platforms enable **modular architectures and standardized interfaces,** which dramatically reduce time-to-market of new products and features.

Collaboration

Platforms **unlock co-creation** by enabling internal developers and external partners to contribute ideas, **build extensions, and scale innovation.**

Real-world impact: use cases that fuel the future of manufacturing

Platform-based solutions enhance **internal operations and production processes** of manufacturers

Platforms add a software layer to hardware, enabling predictive maintenance, energy optimization, and real-time monitoring. This reduces complexity, drives innovation, and boosts operational efficiency.

Platform-based solutions make **hardware focused machine business** more **software-driven**

Platforms digitize and connect shop floor assets, enabling data collection, real-time decisions, and AI-driven optimization. This improves performance, reduces waste, and increases agility.

Platform-based solutions as enabler for **servitization-based** business models

Platforms allow manufacturers to shift from selling products to offering data-driven services such as pay-per-use or performance-based contracts—opening new revenue streams.

Platforms as marketplaces **to aggregate supply and demand** and ease transactions within the manufacturing industry

Platforms connect buyers and suppliers, streamline transactions, reduce friction, and improve transparency. Network effects create vibrant digital ecosystems within the manufacturing industry.

Platforms as **central enablers of collaboration** and transparency in manufacturing

Platforms centralize data and communication, providing real-time visibility, improving decision-making, and synchronizing operations across suppliers and production units.

02

Our platform journey: 6 steps for a successful platform implementation

Mastering platform implementation in 6 steps

Drawing on extensive project experience, expert insights, and in-depth research, we have distilled a clear 6-step journey for implementing platforms in manufacturing, designed to guide you through this transformative process:

6-step platform journey

1. Discover the ecosystem

Identify opportunities & define your role

What platforms, ecosystems, and partner landscapes already exist? How and where can your company connect to create value?

2. Define the value proposition

Shape a compelling platform strategy

What value do you create for different user groups? How do you position your platform offering for maximum impact?

3. Monetize the platform

Build viable business models

What monetization models ensure long-term revenue? What roles do usage, data, and services play in generating income?

4. Steering the platform ship

Set rules, roles & responsibilities

How do you ensure effective platform governance? What structures and responsibilities are needed for efficient control?

5. Enable with technology

Lay the foundation for scalability

What technology components are critical (e.g., APIs, cloud, security)? How do you ensure the platform is scalable, robust, and interoperable?

6. Scale with network effects

Activate growth and user engagement

How do you reach critical mass and activate network effects? What levers can you use to scale your platform and retain users?

Step 1

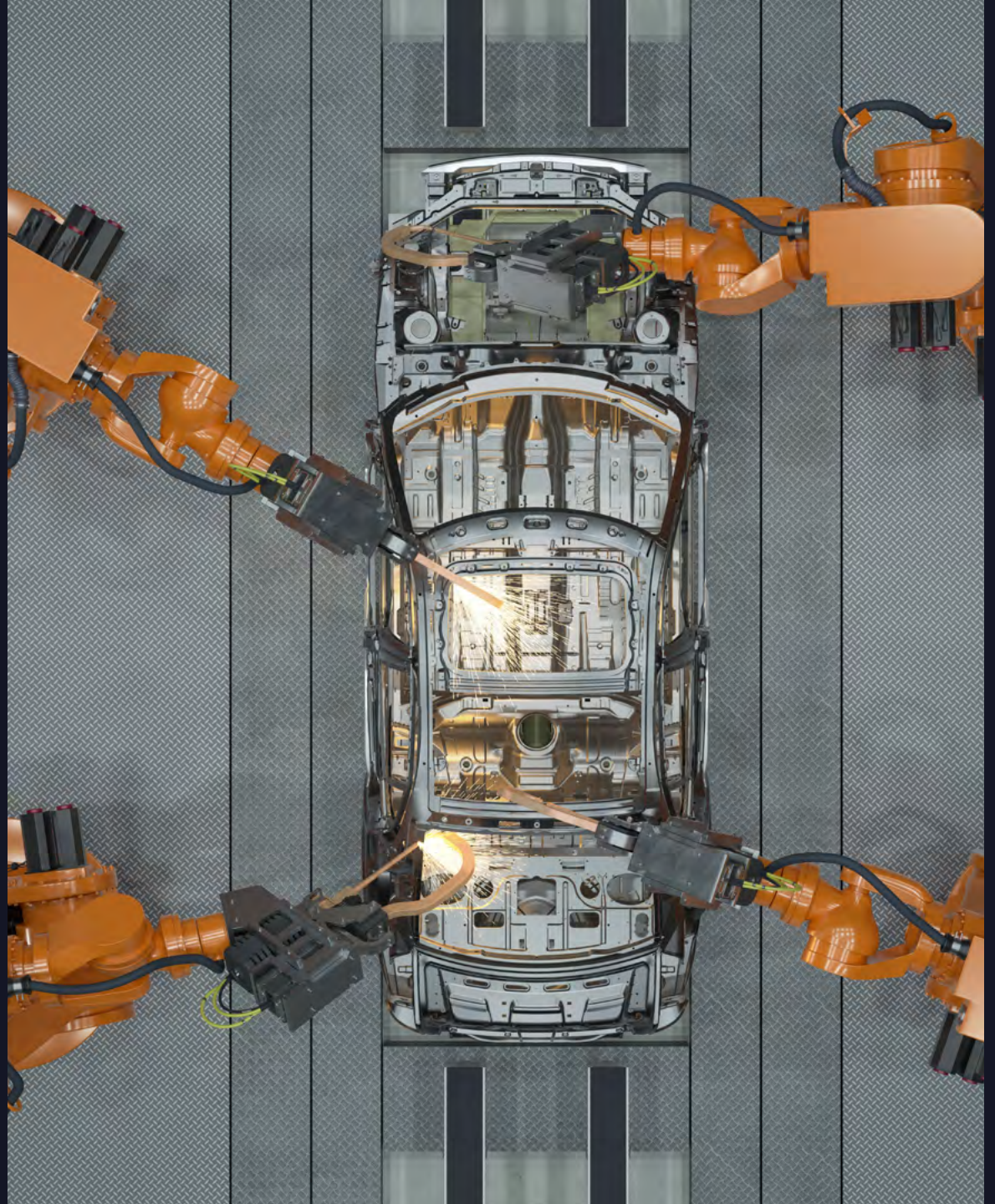
Discover the ecosystem:
identify opportunities &
define your role

Build or join? The strategic platform decision every manufacturer must make

Platforms have become essential to today's industrial landscape. Every manufacturer now faces a key strategic question: **Should we build our own platform or join an existing ecosystem?**

Building a platform means owning and orchestrating an ecosystem—requiring strong value propositions, stakeholder management, and long-term commitment. Joining a platform, on the other hand, demands focus on differentiation and becoming a preferred partner within a broader network.

This choice will define future competitiveness, innovation, and growth. It must be aligned with the company's core strengths, capabilities, and strategic goals. In the platform economy, **how you position yourself matters more than ever.**



Exploring ecosystem opportunities and strategic fit

Goals

Explore the **manufacturing ecosystem**

Understand **challenges and difficulties**

Choose between **platform ownership** and participation

Actions

1. Organizational discovery:

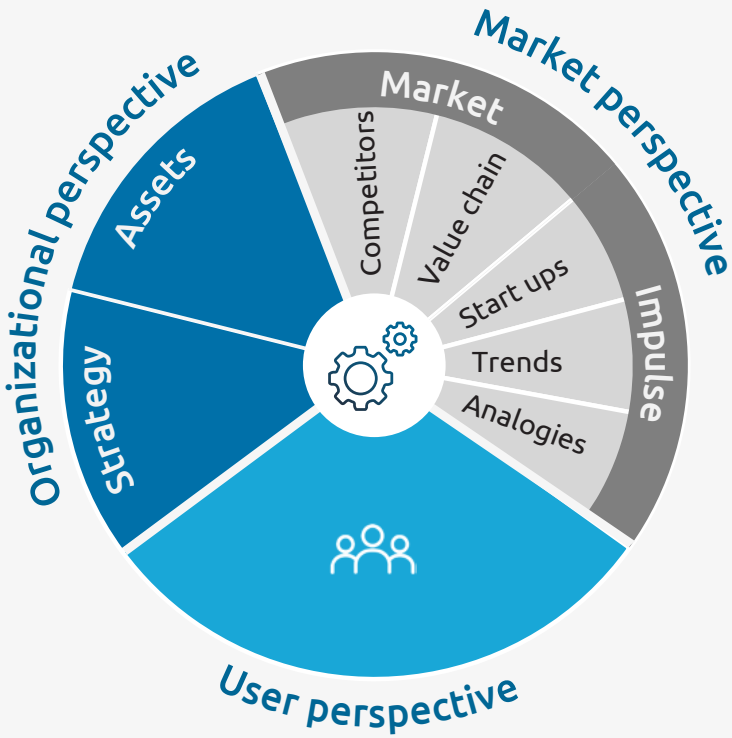
Assess how digital technologies and platform thinking influence your strategy, assets, business models, and data capabilities.

2. User discovery:

Identify user needs and platform use cases via surveys, interviews, and segmentation—laying the foundation for relevant platform services.

3. Market discovery:

Analyze market trends, competitors, startups, and regulatory shifts to uncover strategic opportunities and ecosystem roles.



Step 2

Define the value proposition: shape a compelling platform strategy

Uncovering what's valuable: platform value creation in manufacturing

Platforms create value in different ways—each with its own mechanics, target users, and monetization logic. In the manufacturing sector, this ranges from transaction-based marketplaces like Toolplace to IoT-driven platforms like Schneider's Ecostruxure, linking industrial assets with digital services.

To navigate this diversity, we partnered with **MIT** to analyze value creation across B2B platforms. **The study revealed major differences** in value propositions, use case design, and ecosystem positioning[1].

Understanding these dynamics is essential for defining target groups, identifying how value is created, and shaping a clear value proposition for your platform.

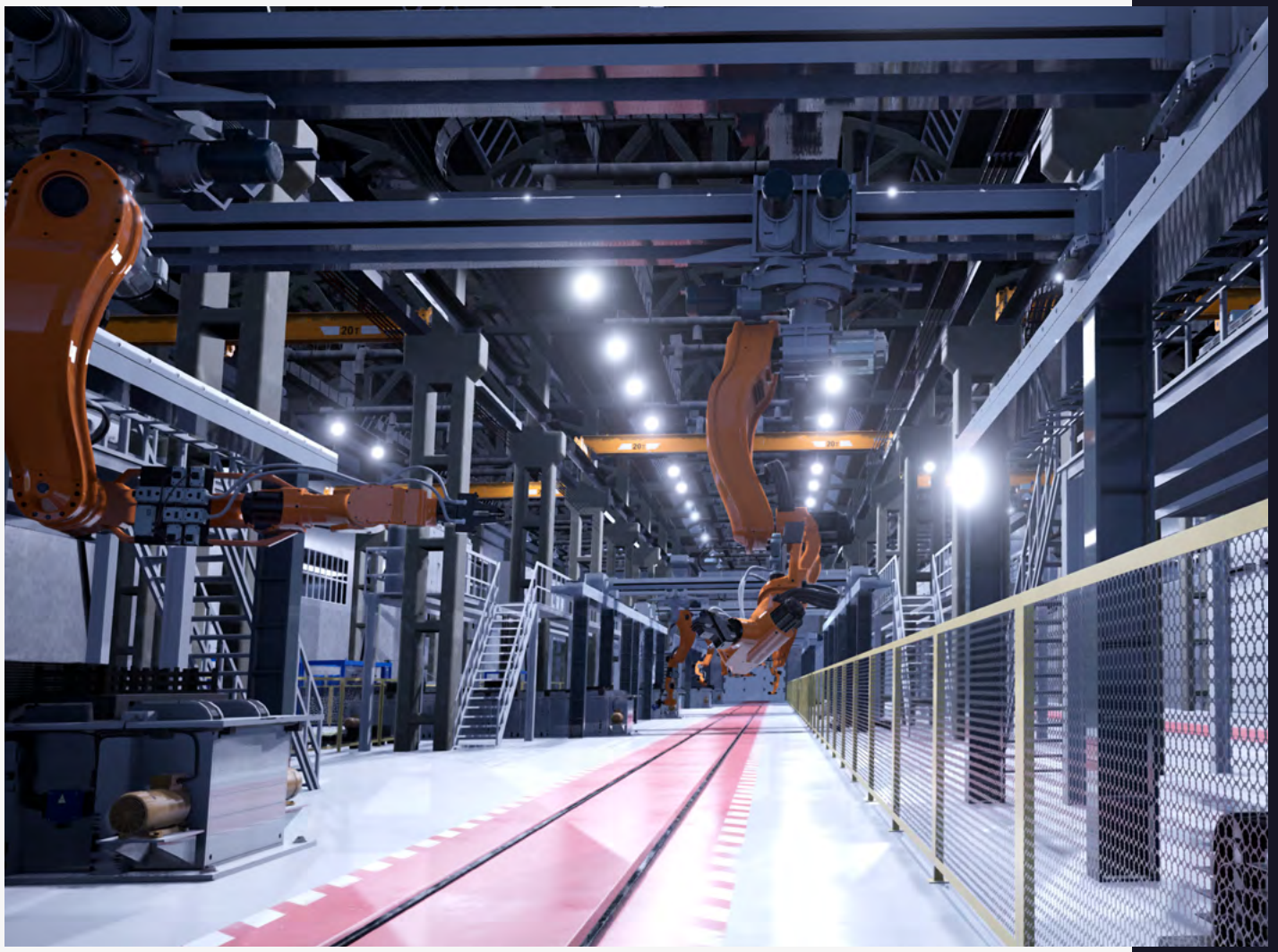
Goals

- Choose platform **target group**
- Understand how **value** is **created**
- Define the **value proposition**

1) B2B platforms – Paving the way to success – Collaborative Research by Capgemini Invent and MIT's Initiative on the Digital Economy

Selecting the right platform model for value creation

	Intelligent products & services	*Technology enablement platforms*	*Data aggregation & collaboration*	*Marketplace*
Problem solved	Delivery of connected services, thereby enhancing the value and distinctiveness of existing products and services.	Solving complexities related to the interoperability of physical industrial assets and software-based IoT applications.	Consolidates and combines various types of data within a unified collaborative platform, allowing for seamless integration and enhanced accessibility.	Ability to streamline the procurement process, reduce costs, and improve efficiency for businesses.
Functionality	• Connect software layer to specific products to make them “smart”. • Enable intelligent service applications and remote updates of the product. • Capture user and performance data.	• Operating system for applications that leverage collected data. • Provide infrastructure to store, structure and analyze data. • Interfaces to integrate heterogeneous industrial assets.	• Aggregates data from internal sources and external parties. • Provides collaboration tools across companies. • Delivers infrastructure to store, structure and analyze data.	• Centralized hub to aggregate supply and demand. • Match suitable suppliers of (digital) products and services. • Streamline procurement processes.
Value created	Enhancing existing, traditional products, and assets with new services and features.	Platforms and underlying services to enable customers to develop their own solutions and generate insights.	Ability to aggregate and exchange data from various sources. This data aggregation enables the development of new analytical services and creates opportunities for collaboration.	In bringing various sides of a market (e.g., supply and demand) together and facilitating transactions. This is either for goods, services, software, or data (or a mix).
Examples	Claas 365 FarmNet, Endress+Hauser Netilion, Danfoss Alsense	PTC: ThingWorx, Bosch: IoT Suite, Schneider Electric: Ecostruxure	Trumpf DIP, Siemens SiGreen, Sightmachine	Klöckner: XOM materials, Lanxess: CheMondis, Toolplace



Step 3

Monetize the platform: build viable business models

Monetization strategies for platform longevity: designing sustainable revenue models for growth

Like any business, **platform models require a strong monetization strategy** to capture and distribute value across the ecosystem—ensuring long-term sustainability. A critical success factor is defining a feasible revenue model that fits the platform's ambition and market context.

Such models **may generate value through direct or indirect revenue streams**—or a combination of both. Each approach comes with distinct benefits and trade-offs and must align with the platform's target users and positioning.

In the manufacturing industry, **recurring models such as subscriptions or pay-per-use are especially attractive for companies** transitioning from traditional, one-time product sales. These models support consistent value creation and promote financial stability and growth over time.

Monetization at scale by aligning pricing and network effects

Goals

Develop a **suitable pricing strategy** for platform services

Define the platforms **revenue model**

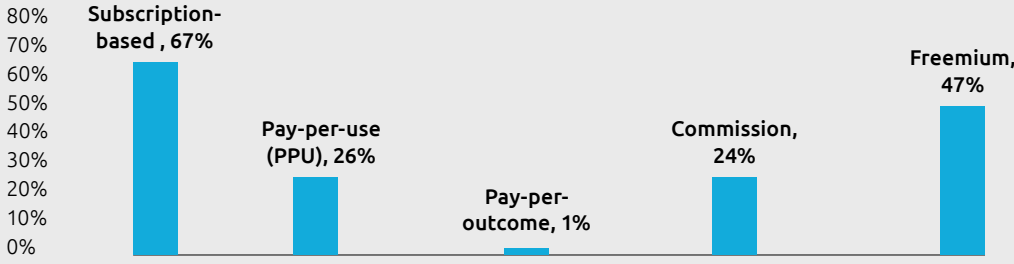
Capitalize on **network effects**

Once a platform reaches critical mass, monetization becomes key. A robust pricing strategy must be defined and continuously refined to **leverage network effects and zero marginal costs.** As user participation grows, so does the platform's value for all parties involved—enabling a shift toward more scalable and sustainable revenue models.

Successful monetization depends on a **user-centric approach** that aligns pricing with perceived value. Whether through **subscriptions, freemium offers, pay-per-use, or commission-based models,** the right strategy ensures long-term growth and customer retention.

Our qualitative research of 200 B2B platforms shows a **clear trend toward recurring and flexible models**—led by subscriptions, freemium, and usage-based pricing[2].

Question: "Which monetization models do you use on your platform?"
Graph: % of platforms (total =200) using each monetization model



We surveyed 200 B2B platforms in course of our research.

2) The future of B2B: Harnessing platforms for AI, sustainability, and connected value creation– Collaborative Research by Capgemini Invent and MIT's Initiative on the Digital Economy

Embracing change through industrial platforms

#1 The shift

"We're witnessing a fundamental shift in manufacturing — standalone products are becoming connected smart systems, and traditional value chains are evolving into dynamic ecosystems."

#2 The enabler

"Platform solutions are the enabler of this transformation. They integrate data, processes, and partners — creating the backbone for agile, scalable, and intelligent operations."

#3 The impact

"For us, platforms aren't just a tech topic — they are the strategic foundation for sustainable growth, new revenue models, and long-term competitiveness."

Christoph Stich
Executive Vice President

Head of Manufacturing Industry, High-Tech & Life Sciences Germany

Step 4

Steering the platform ship: set rules, roles & responsibilities

Enabling collaboration in platform ecosystems

Platform ecosystems bring together independent companies that collaborate under loosely defined agreements while pursuing their individual goals. However, differing interests between partners can create friction and hinder value-generating collaboration.

To manage these dynamics, **platform owners must define a clear governance strategy**—one that harmonizes their own business objectives with those of their ecosystem partners. This includes establishing structured onboarding processes, defining which platform resources and data are accessible to which stakeholders, and setting up transparent, fair revenue-sharing mechanisms.

Only when such foundational principles are in place can **ecosystem collaboration scale effectively and deliver long-term value for all participants.**

Orchestrating platform success through structured governance

Goals

Define onboarding process for partners

Structured onboarding is essential to align expectations and assess partner fit. Sharing clear benefits and success stories helps demonstrate growth potential and attract the right ecosystem members.

Design interrelated governance mechanics

Interrelated governance mechanics—including processes, standards, and contracts—enable seamless collaboration. They ensure consistent engagement and streamline partner interactions.

Agree on revenue sharing model

Transparent revenue-sharing models and regular alignment dialogues foster trust and long-term commitment. Ongoing governance reviews help adapt to ecosystem dynamics and ensure platform resilience.

Step 5

Enable with technology: lay the foundation for scalability

Architecting scalable, secure foundations: building the IT backbone for manufacturing platforms

Launching a platform-based business requires a **clear vision of the needed IT architecture.** This includes identifying the essential building blocks, selecting appropriate technology partners, and aligning the infrastructure with long-term strategic goals.

In manufacturing, one of the most complex challenges is the integration of the input layer. Many environments rely on existing brownfield assets, which must be retrofitted to enable data sensing and transmission. In addition, fragmented network protocols and proprietary systems often prevent seamless data collection and interoperability.

The increasing adoption of open and standardized protocols such as OPC UA is helping to resolve these integration issues and accelerate the onboarding of industrial assets into the digital platform world.

At the heart of any platform lies a robust platform backbone—an infrastructure capable of processing, storing, and analyzing data at scale. This backbone includes secure cloud environments, data lakes, and analytical toolsets. In risk-averse manufacturing contexts, the infrastructure must comply with data privacy and security standards, while still supporting scalability and performance.

Moreover, the backbone often acts as the operating system for modular frontend applications, enabling flexible digital service delivery to ecosystem participants.

Designing the technical core for scalable platform architecture

Goals

Identify **essential building** blocks of IT architecture

Check need for **technology partners**

Build robust and **technically well-designed** architecture

The platform backbone plays a critical role in enabling data-driven operations. It provides the infrastructure needed for processing, storing, and analyzing data across the platform landscape. This includes environments ranging from secure cloud storage and data lakes to advanced analytics capabilities. In manufacturing, this infrastructure must meet stringent data privacy and security standards while supporting scalability and performance. Additionally, it must accommodate modular applications delivered at the frontend, often requiring a dedicated operating system layer. The architecture typically includes three integrated layers:

Platform frontend layer:

Delivers modular service applications that provide value to users and define the user experience.

Platform infrastructure layer:

Delivers modular service applications that provide value to users and define the user experience.

Platform input layer:

Enables data collection from diverse sources such as sensors and machines and ensures interoperability across systems.

Step 6

Scale with network effects: activate growth and user engagement

Unlocking platform growth: solving the chicken-and-egg dilemma in manufacturing

Manufacturing platforms face a familiar challenge known from B2C models: the chicken-and-egg dilemma. Reaching critical mass on both the supply and demand side is essential for platform traction. Without enough suppliers, customers hesitate to join—yet suppliers won't commit without a sufficient customer base.

Once critical mass is reached, network effects begin to unfold. These effects trigger a virtuous cycle that accelerates growth, aggregates data and users, and drives continuous value creation. In manufacturing, cross-side network effects are especially powerful, connecting suppliers and customers in data-driven workflows.

To kickstart growth, platform owners must clearly position their value proposition, understand market dynamics, and engage both sides of the ecosystem with targeted outreach. This coordinated approach lays the foundation for a **sustainable and mutually beneficial platform model.**

Unlocking platform value through data and user centricity

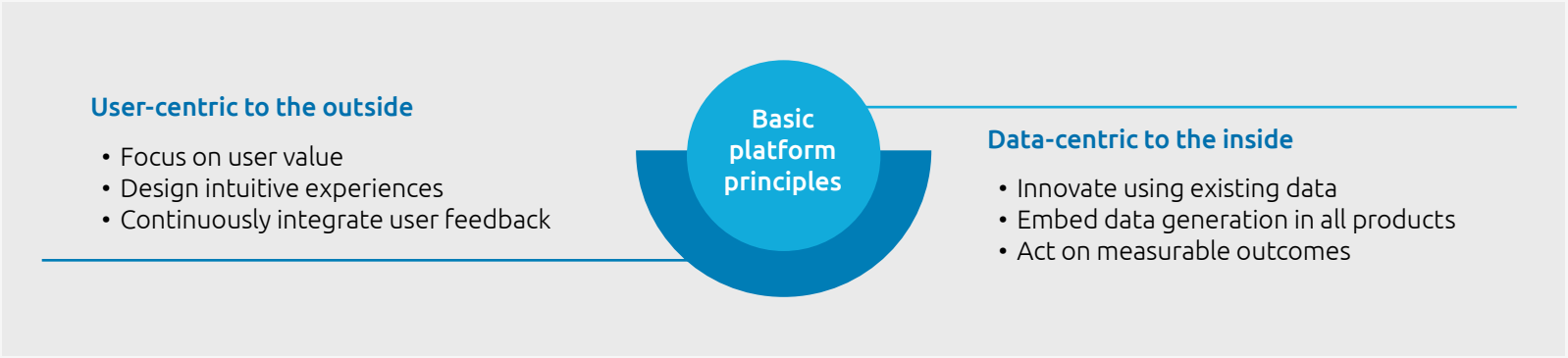
Goals

Analyze platform-relevant **market dynamics**

Define compelling **value propositions**

Activate all sides of the **ecosystem**

Successful platform journeys rely on data-driven and user-centric design principles. They provide the foundation for scalable offerings, sustainable growth, and strategic differentiation. It begins with analyzing market dynamics to identify user needs and data opportunities. Based on this, clear value propositions are defined and both sides of the ecosystem are activated to create platform traction. A strategic roadmap ensures long-term development, while a diverse offering portfolio drives revenue and builds customer loyalty. Internally, platforms must generate and use data effectively. Externally, they must deliver seamless experiences and evolve through user feedback.



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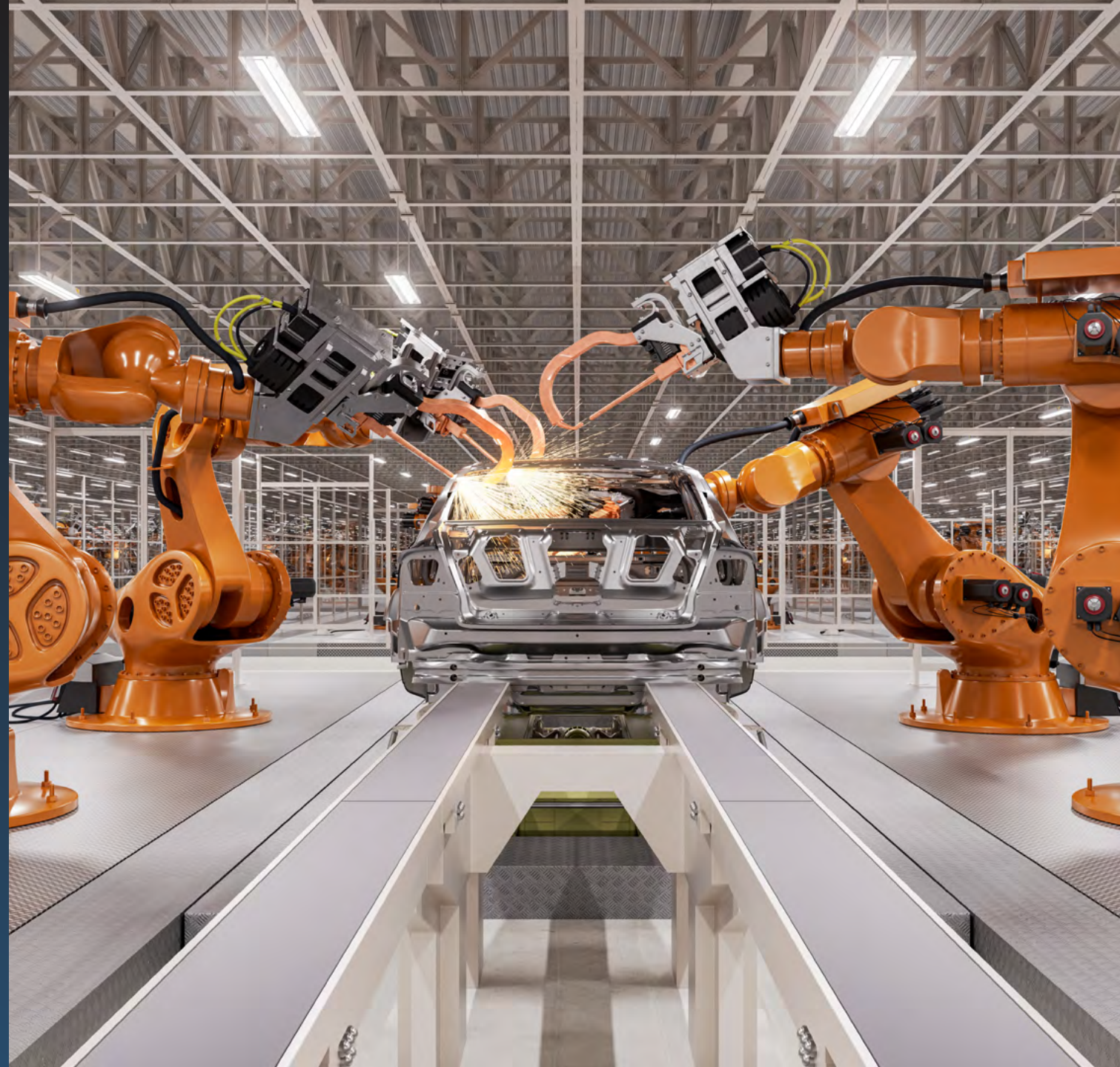
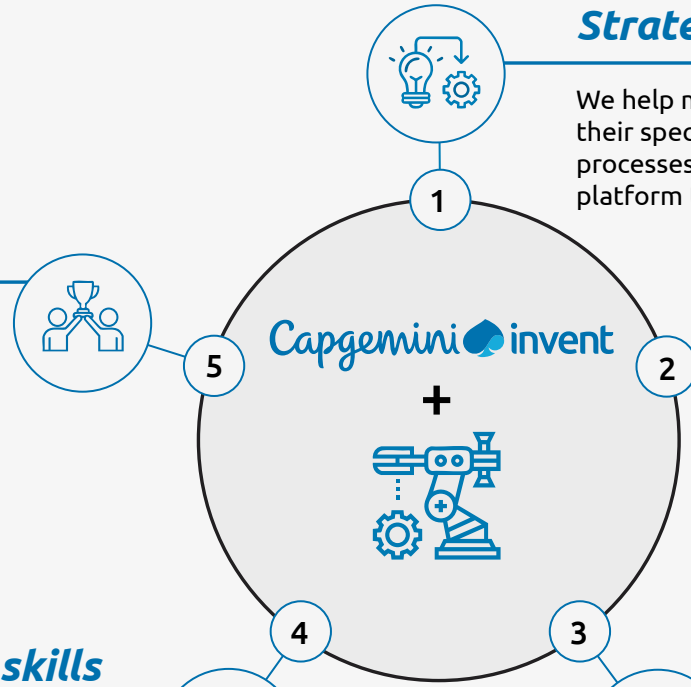
Act now: implement your manufacturing platform



Capgemini Invent as your experienced partner for the manufacturing industry



Strategy & implementation

We help manufacturing companies identify the right digital platform that meets their specific needs and objectives. Through a comprehensive analysis of existing processes and challenges, we develop customized strategies to select the right platform that promotes efficiency and innovation.

Expertise & network

Our extensive network and experience from international platform projects create valuable expertise for the development and implementation of platform solutions. We offer practical solutions that can be applied along the entire manufacturing value chain.

Manufacturing expertise

Our team has extensive project experience in manufacturing and platform solutions, including a deep understanding of operational processes. We analyze the requirements of platforms and their integration with existing structures and processes to develop customized solutions.

Holistic skills

Through close collaboration between Capgemini Invent and Capgemini Engineering, we combine strategic thinking, technological excellence and operational expertise. This enables us to offer comprehensive solutions that meet the demands of the modern manufacturing industry.

Partnerships & cooperations

Our long-standing scientific partnerships continuously enrich our consulting work with new perspectives and deep insights that help us better understand the evolving dynamics of platform-based business models and guide organizations in navigating their transformation.

Connected platform solutions at Capgemini

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"In today's manufacturing landscape, platform solutions aren't optional — they determine whether you lead the value chain or get locked into someone else's."

Christian Michalak
Head of Practices

Capgemini Engineering Germany

About Capgemini Invent

As the digital innovation, design and transformation brand of the Capgemini Group, Capgemini Invent enables CxOs to envision and shape the future of their businesses. Located in over 30 studios and more than 60 offices around the world, it comprises a 12,500+ strong team of strategists, data scientists, product and experience designers, brand experts and technologists who develop new digital services, products, experiences and business models for sustainable growth.

Capgemini Invent is an integral part of Capgemini, a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 350,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, generative AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2024 global revenues of €22.1 billion.

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Team Name_Date_Designer