

Building Economies of Intelligence in Manufacturing

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Insights

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CIO100

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Agenda

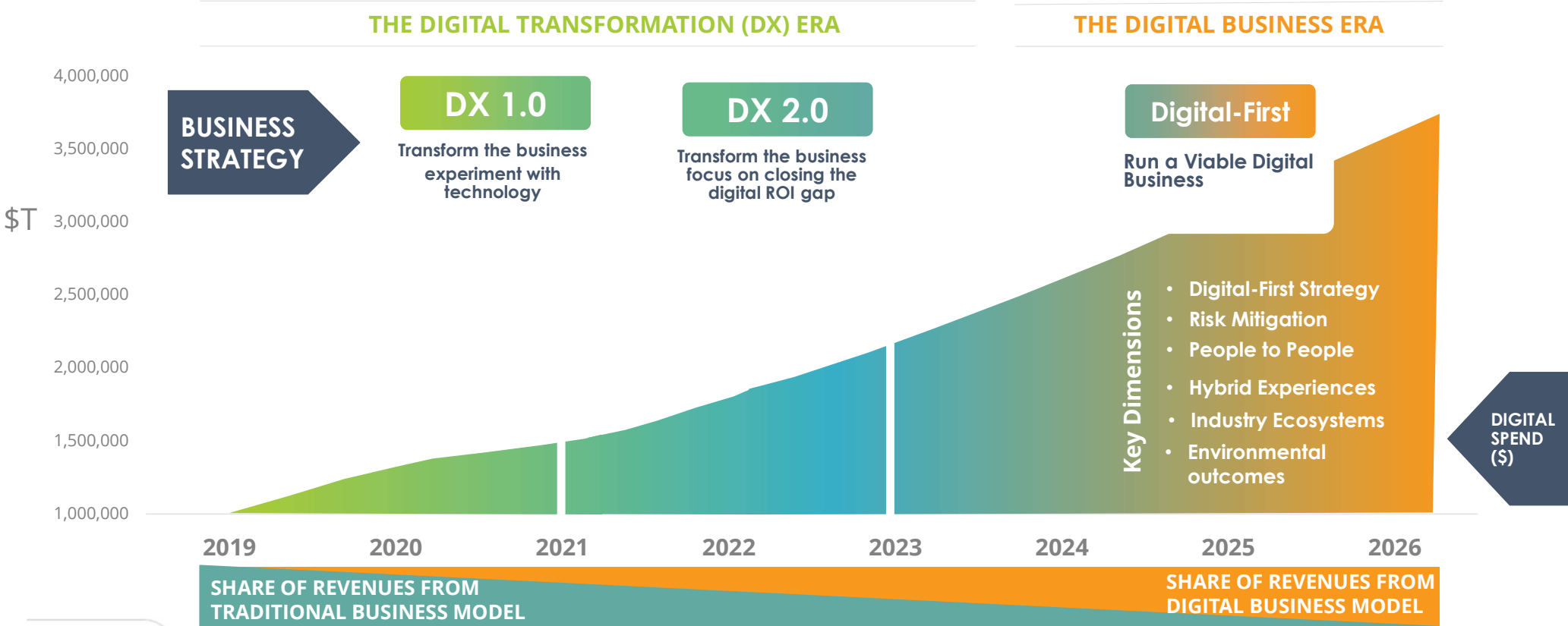
The data challenge & value of digital

AI to automate & augment

Ecosystems to extend & enhance

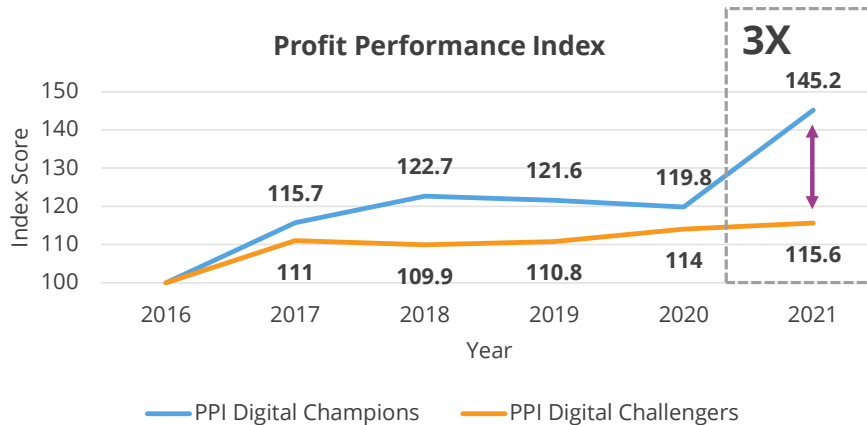
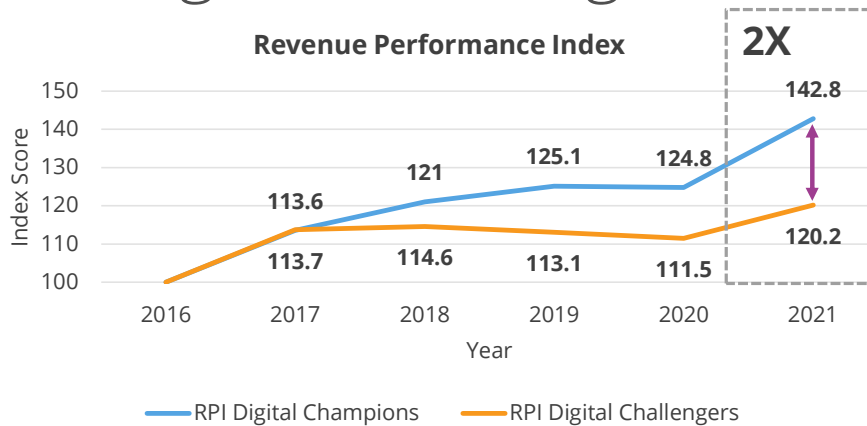
Concluding thoughts

Welcome to the Digital Business Era



Source: IDC Worldwide Digital Transformation Spending Guide, 2023

The Digital Advantage



We don't have a digital strategy for our business. We have a business strategy for a digital world.

- Lidia Fonseca, Chief Digital and Technology Officer



The lines between hardware, software, and services are blurring. The only way you can pull this off is when everyone is . . . focused on a great experience that they are not taking functional views of things.

- Tim Cook, Chief Executive Officer

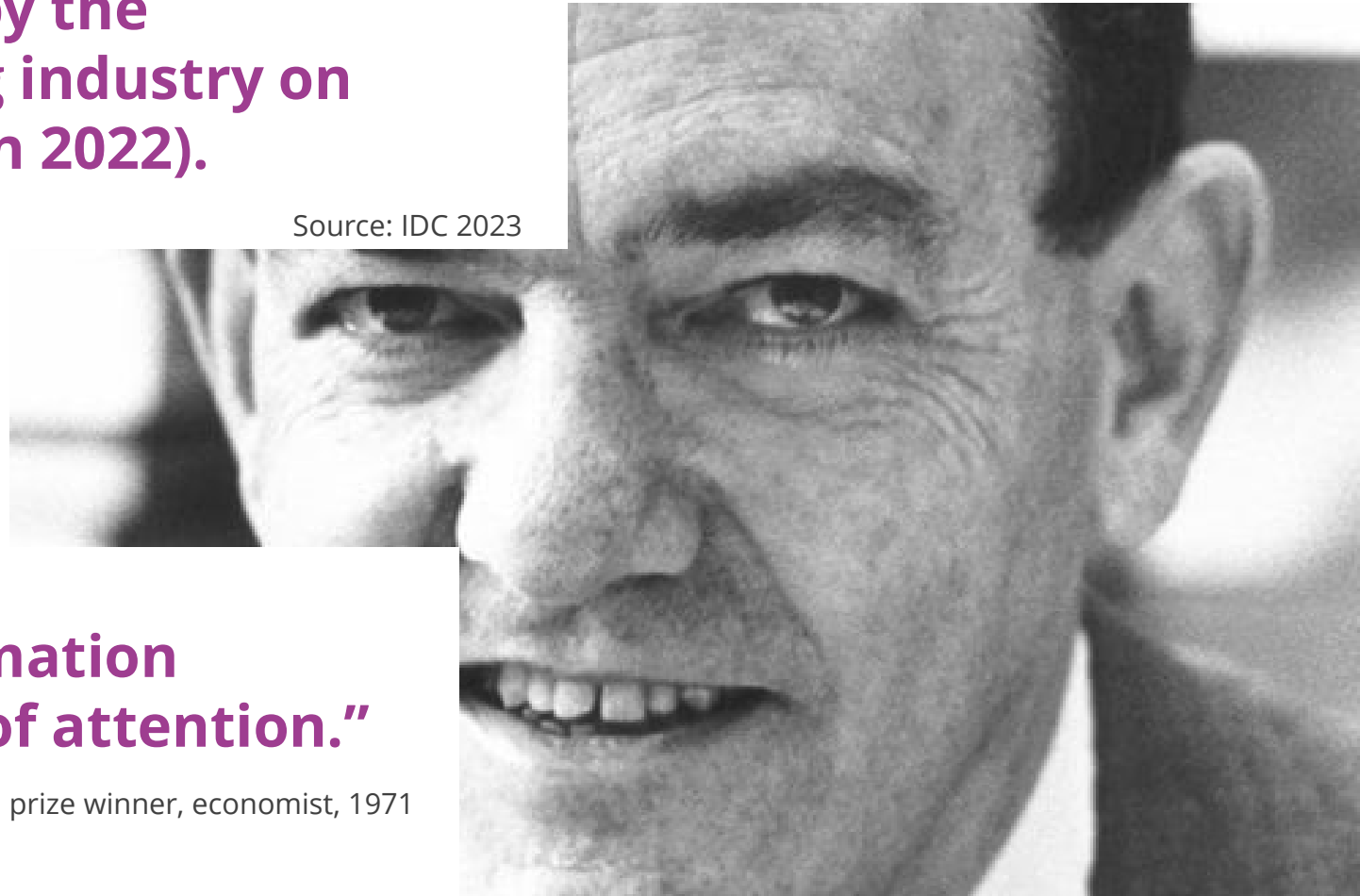


By 2030, 82 Exabytes of data will be generated by the manufacturing industry on average (2 EB in 2022).

Source: IDC 2023

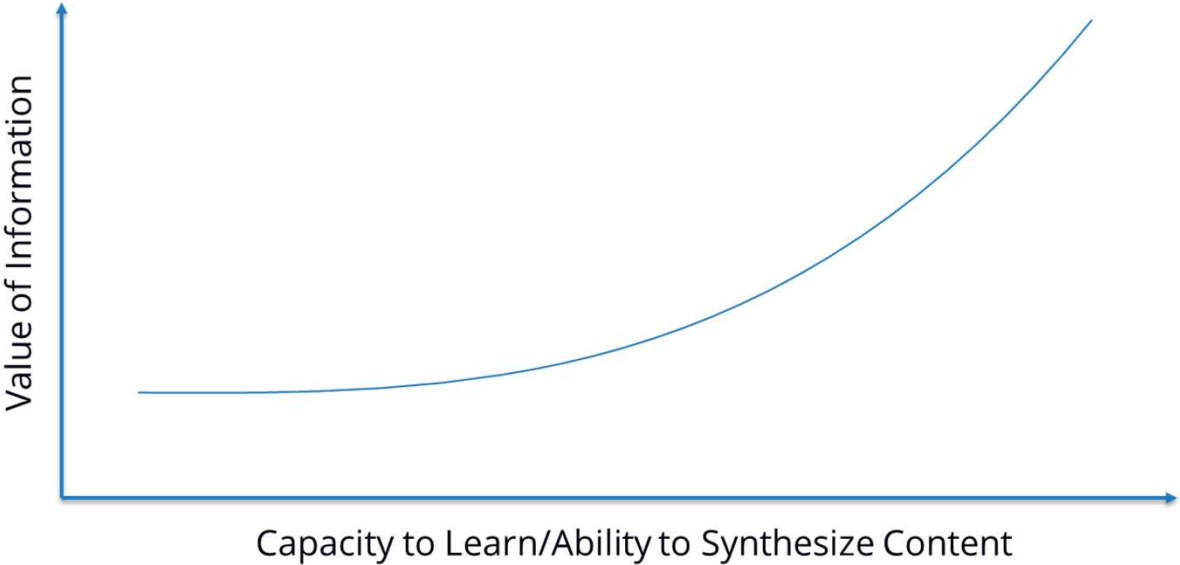
“A wealth of information creates a poverty of attention.”

Herbert Simon, Nobel prize winner, economist, 1971

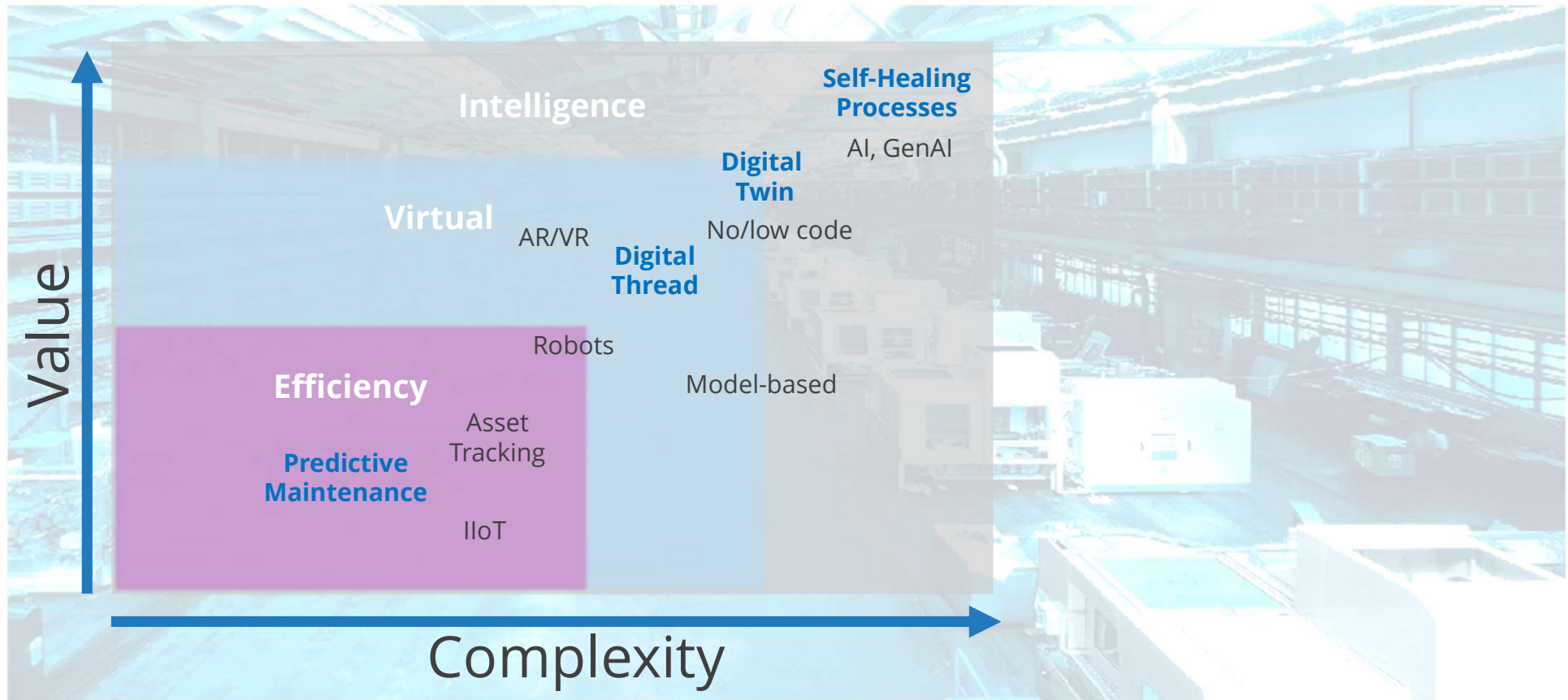


Economies of Intelligence

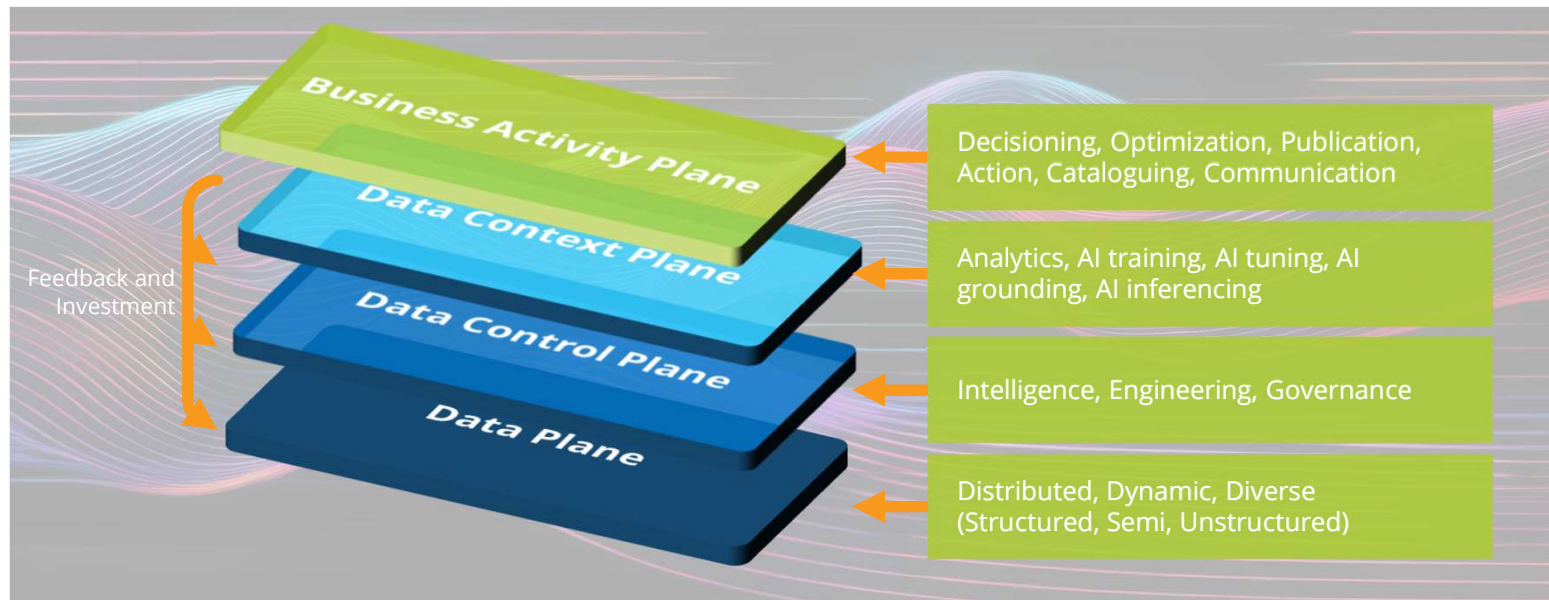
As enterprises **scale** their use of modern technologies for complete instrumentation, integration, and insight, they expand their **scope** by offering a wider variety of experiences that demonstrate increasing profitability as the organization **learns** what is most desirable and efficient.



Data-Driven Manufacturing

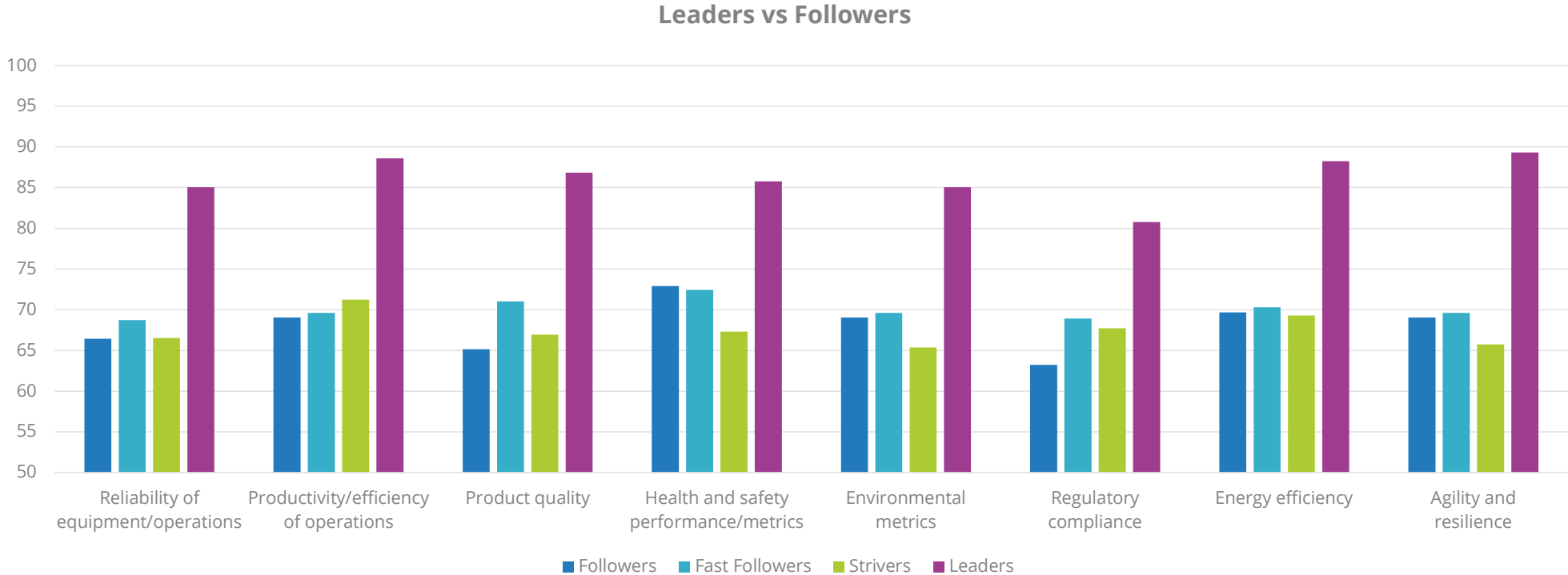


A data centric platform will underpin the organization



The Advantage of Intelligence in Operations

How would you rate the performance of your company's operations today as compared to 2 years ago in terms of the following metrics?



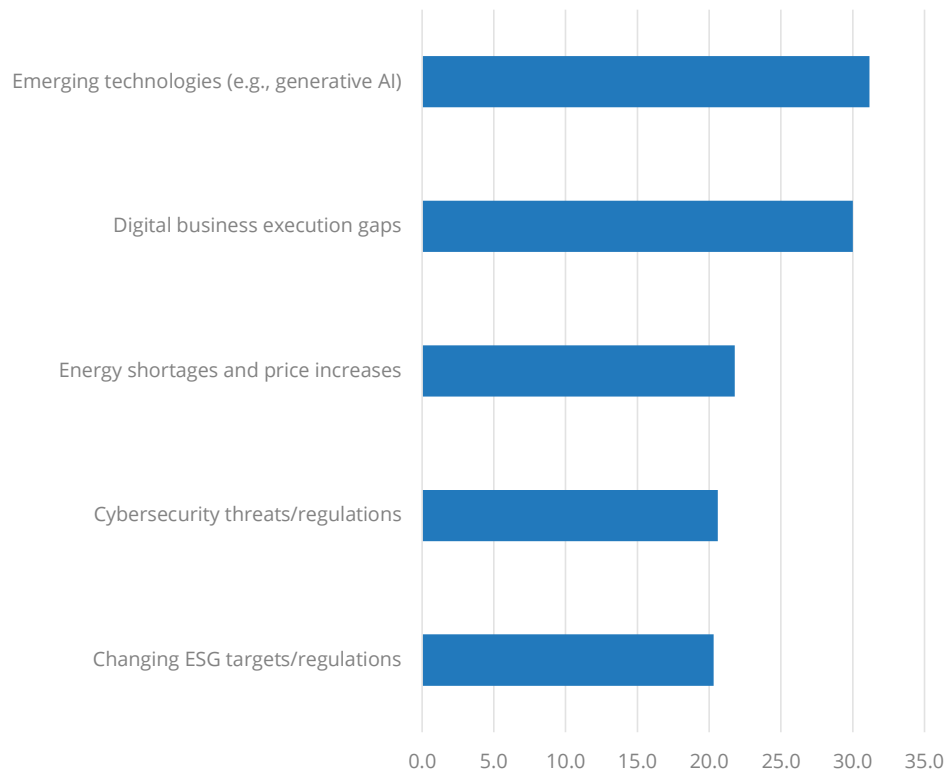
n = 1256
Source: Worldwide Future of Operations Survey, 2023

AI to Automate & Augment

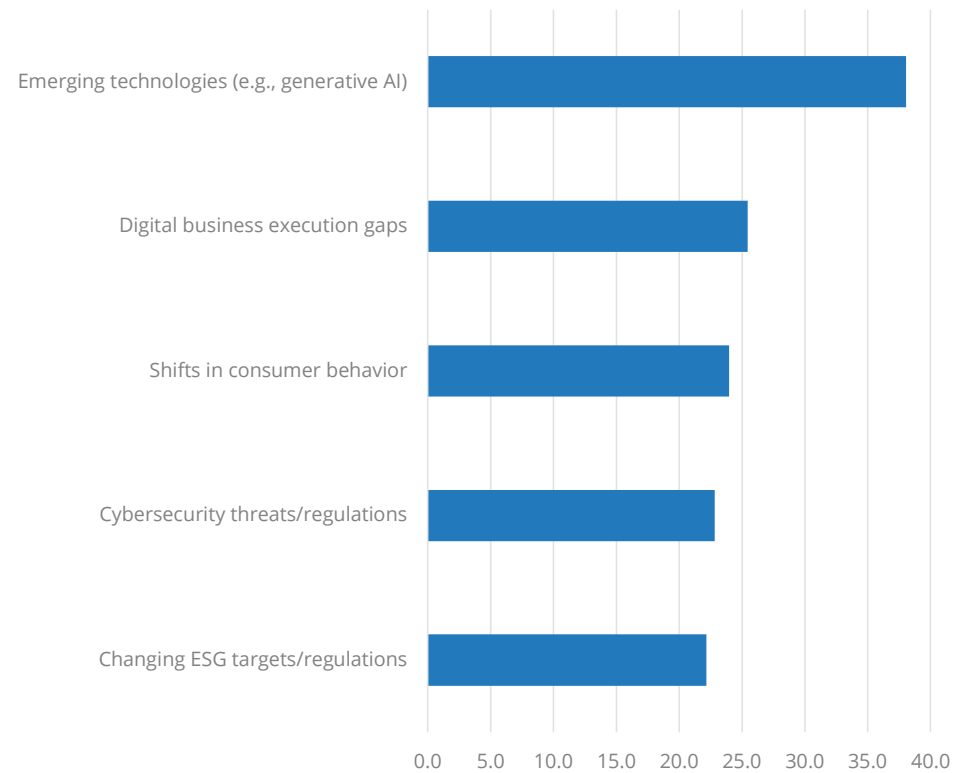
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2024 IDC CIO Survey: Which three factors do you expect will have the greatest impact on your IT organization?

2025, Greatest Impact Overall



2025 Greatest Impact, Manufacturing



Source: CIO Sentiment Survey, IDC, June, 2024, n=395

Source: CIO Sentiment Survey, IDC, June, 2024, n=61 (Mfg)

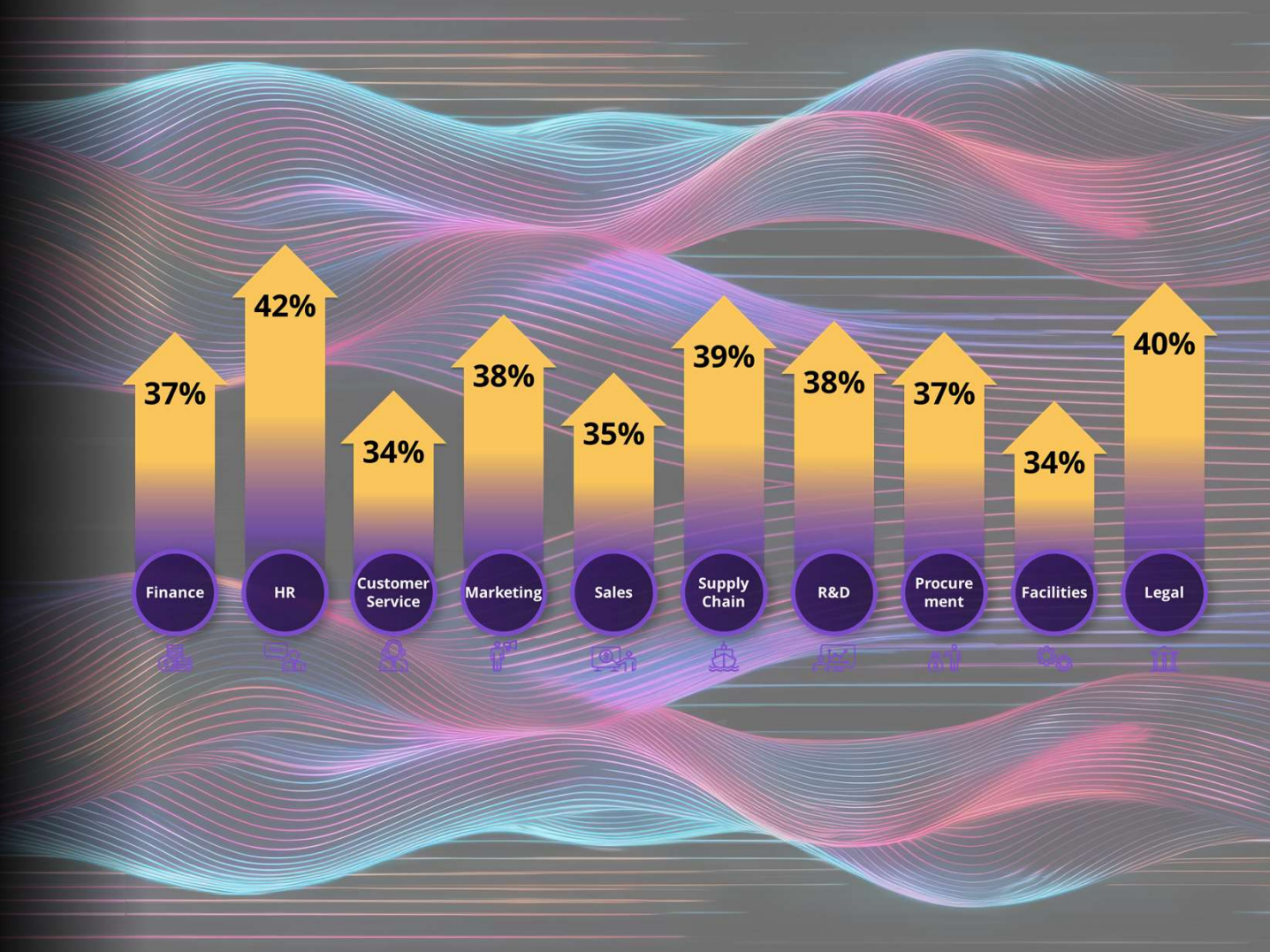
Top GenAI Use Cases for the Business

Source: IDC WW AI Use Case Survey August 2024; n=3130

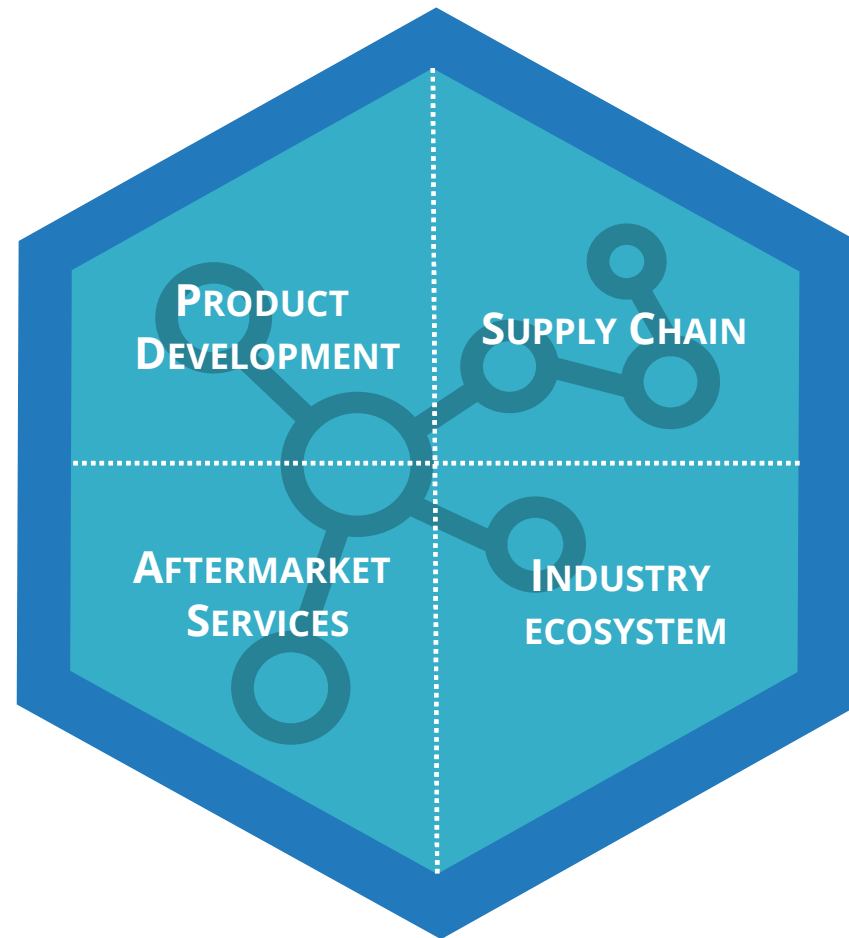


Future GenAI Use Case Investment Areas

Source: IDC WW AI Use Case Survey August 2024; n=3130



Identifying the Manufacturing-Specific, Super Use Cases for GenAI



GenAI Use Cases for Manufacturing: Product Development

Build a linguistic interface on a product development knowledge management system



By 2026, 50% of enterprises will use generative AI to co-develop digital products and services, leading to a 15% increase in their overall revenue.

IDC Digital Business FutureScape,
2024

USE
CASE

Assisted Design

KM and PLM tools are deployed to capture and reuse online libraries of product design histories, "how to" documents, and best practices that guide product development. There is also data from other enterprise systems that can complement the design process, but is not easily accessible.

GenAI assists the developer in ensuring that relevant best practices are being used for each development situation, and recommend ways to improve manufacturability, assembly, serviceability, sourcing, sustainability, & quality.

USE
CASE

Innovation Management

GenAI enhances the ideation process, and can help bring customized products to market that address unmet customer needs by simplifying the collection, validation, and delivery of critical product information such as emerging trends, customer sentiments, cross-industry innovation, product requirements, design processes, manufacturing considerations, and sourcing concerns.

GenAI Use Cases for Manufacturing: Supply Chain

Establish a natural engagement platform for supply chain planning



By 2026, half of the G2000 will use generative AI tools to support core supply chain processes, as well as dynamic supply chain design and will leverage AI to reduce operating costs by 5%.

IDC Supply Chain FutureScape, 2024

USE
CASE

Supply Chain Decision Support

Many data and reporting architectures do not yet support natural language querying of the data. GenAI enables humans to interact with supply chain data in natural ways.

- **Support decision making.** Build me a view showing all channel customer shipments in the next three months.
- **Real time information.** When and where are my high priority shipments going to be released from customs?

USE
CASE

Supply Chain Document Automation

Business is conducted using standardized documents (contracts, POS, sales orders, global trade entry). Completing these documents is labor intensive, even with templates. GenAI can learn standard contractual language the point it could create and edit routine documents per both structured and unstructured data.

GenAI Use Cases for Manufacturing: Aftermarket Services

Establish a knowledge management platform for the next generation of field technicians.



By 2025, 65% of G2000 service firms will rely on GenAI to populate data in work order, debriefs, and invoices to help workers focus on value creation.

IDC After-Market Services FutureScape,
2024

USE
CASE

Service Task Augmentation

Administrative tasks which are required to be completed in field service to ensure closure of a work order, payment, reconciliation, and HR requirements are generated autonomously of the service worker based on data from the customer, the asset, the product, the equipment, the service resource, and the employee.

USE
CASE

Remote Agent Next Action

Remote experts may know how to resolve the issue at hand, but often will miss cross-sell or value-add opportunities while on a service call with a customer. Generative AI crafts a message with the next best action for the service technician to recommend to the customer.

GenAI Use Cases for Manufacturing: Industry Ecosystem

Establish a natural engagement platform for ecosystem planning



By 2026, 50% of global 2000 organizations will invest in ecosystem-specific AI LLM tuning to increase operational efficiency by 25%, speed co-innovation by 50%.

IDC Future of Industry Ecosystems
FutureScape, 2024

USE
CASE

Ecosystem Design

Industry ecosystems thrive with a diverse set of people from different backgrounds, expertise, and industries. Decision making, innovation, and efficiency are improved by taking an on demand, as needed approach to working with various resources from your partner ecosystem.

GenAI can simulate and advise which industry ecosystems partners to work with per initiative.

USE
CASE

Ecosystem Design: Sustainability

GenAI can advise which industry ecosystems partners support the manufacturer's sustainability goals by identifying partners based on sustainability criteria.

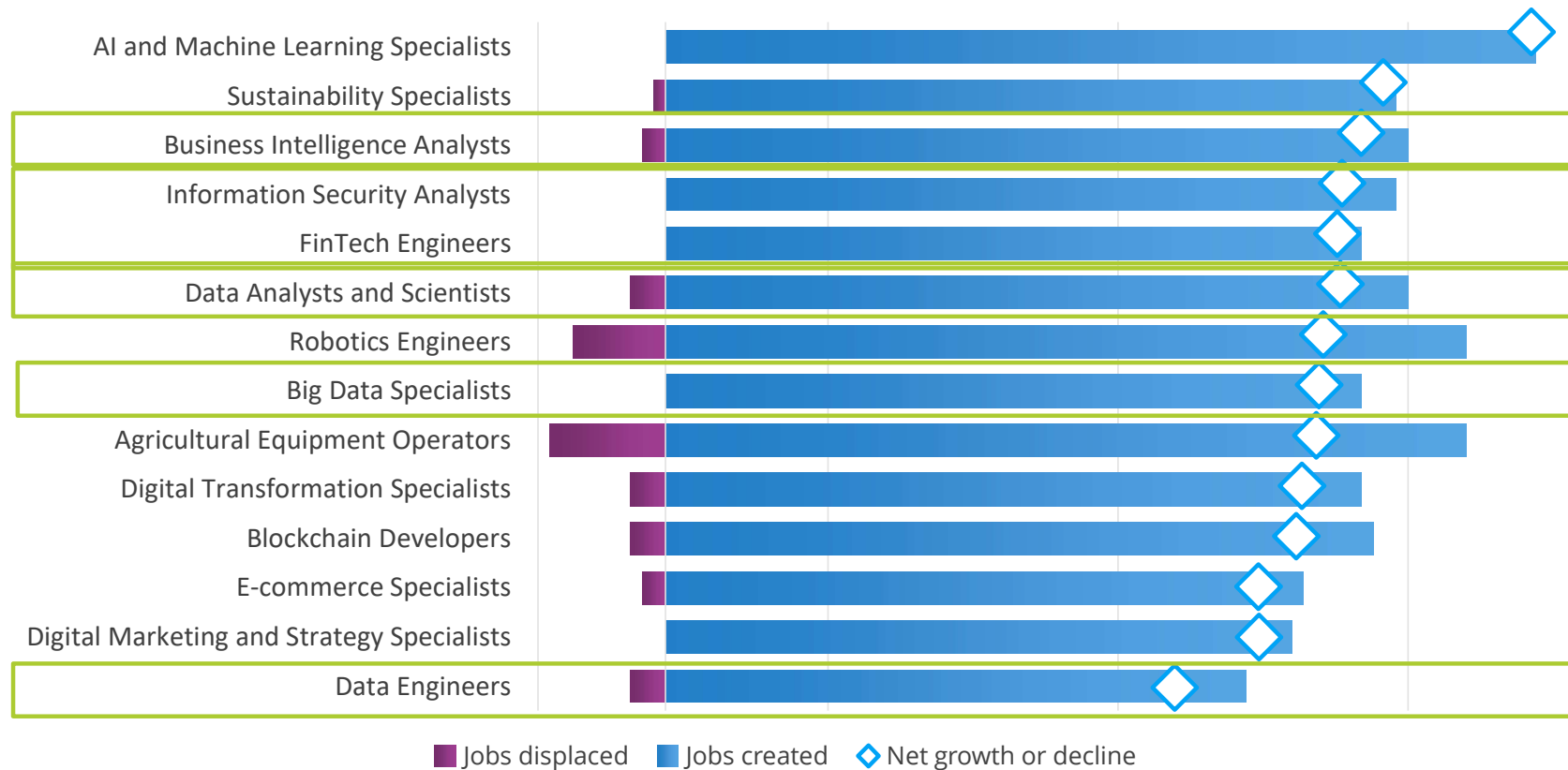
By 2027, 50% of global organizations will invest in predictive analytics, simulation, and generative AI for environmental sustainability, to improve energy efficiency and reduction of CO2 emissions by 25%.

1.1 billion jobs radically transformed by tech in the next decade

Source: World Economic Forum, Future of Jobs Survey 2023

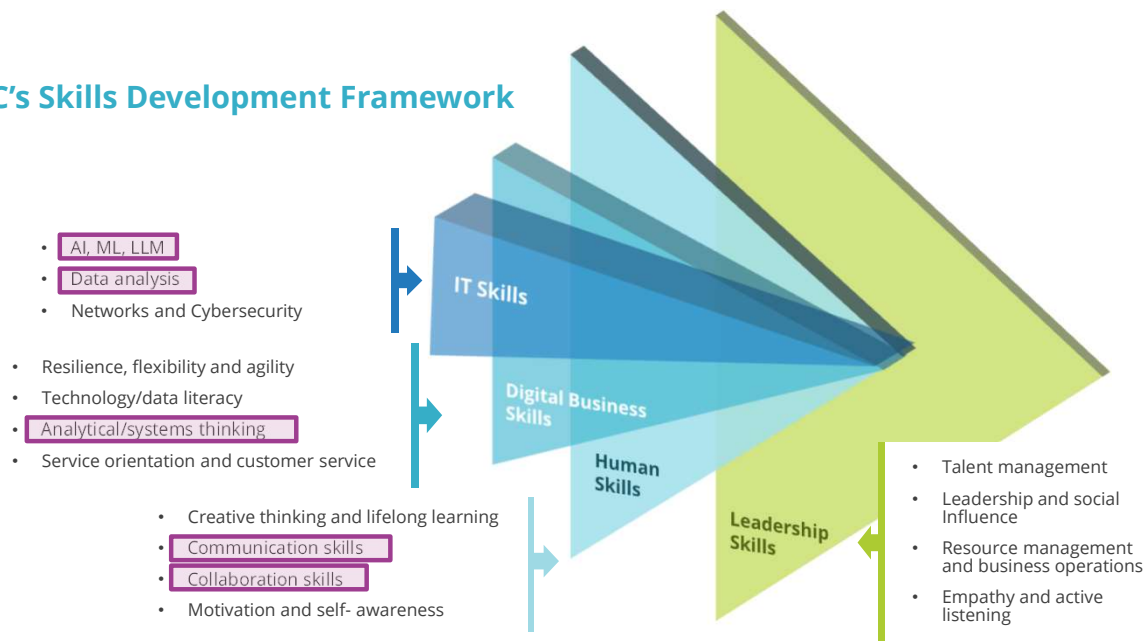
AI, Data, Security, and FinTech Roles Will be in Demand

New Jobs and Lost Jobs, 2023-2027



Don't Overlook the Non-Technical Skills

IDC's Skills Development Framework



AI Prompt Engineer Skills

Specializes in developing, refining and optimizing AI-generated text prompts to ensure they are accurate, engaging and relevant for various applications.

- Strong communication skills
- Collaboration skills
- Analytical thinking
- AI technology knowledge
- Data analysis experience

*How do you currently,
or plan to use GenAI &
AI at your company
today?*

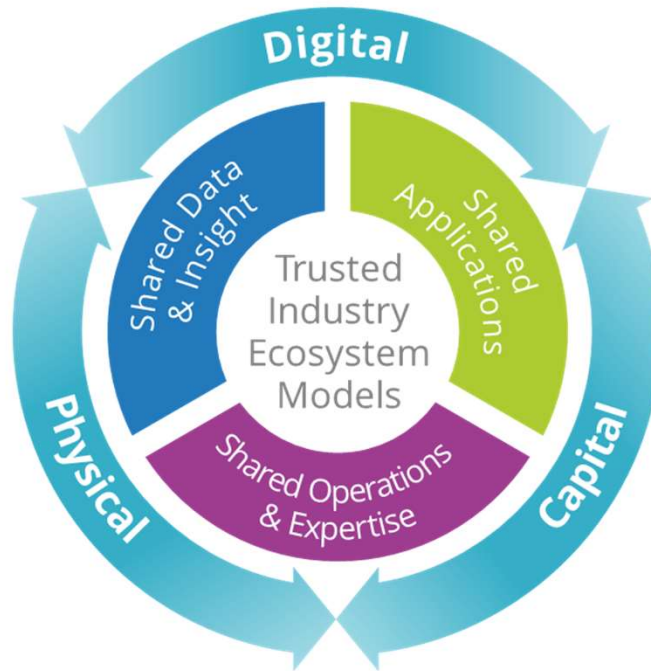


Ecosystems to Extend & Enhance

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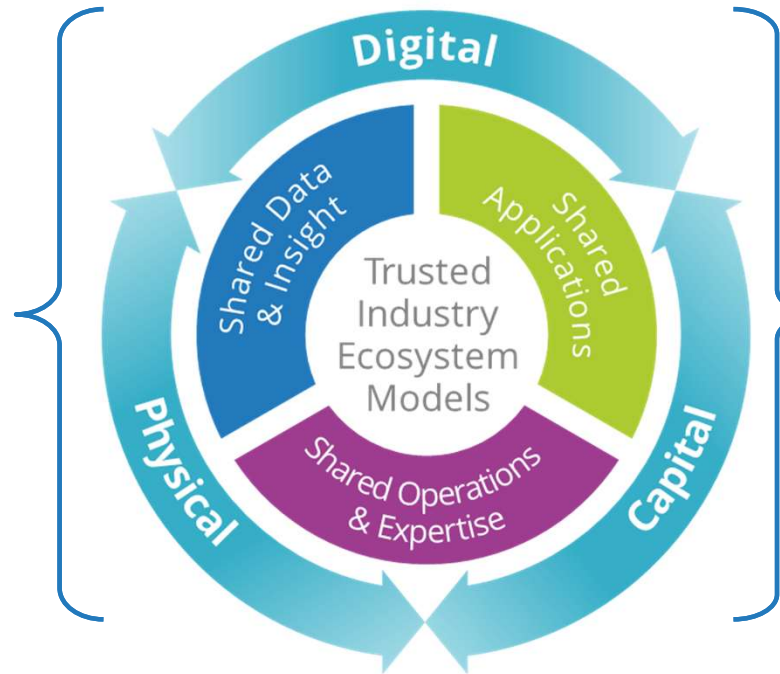
Defining Industry Ecosystems



Key Enabling Elements of Industry Ecosystems

Data & Resources

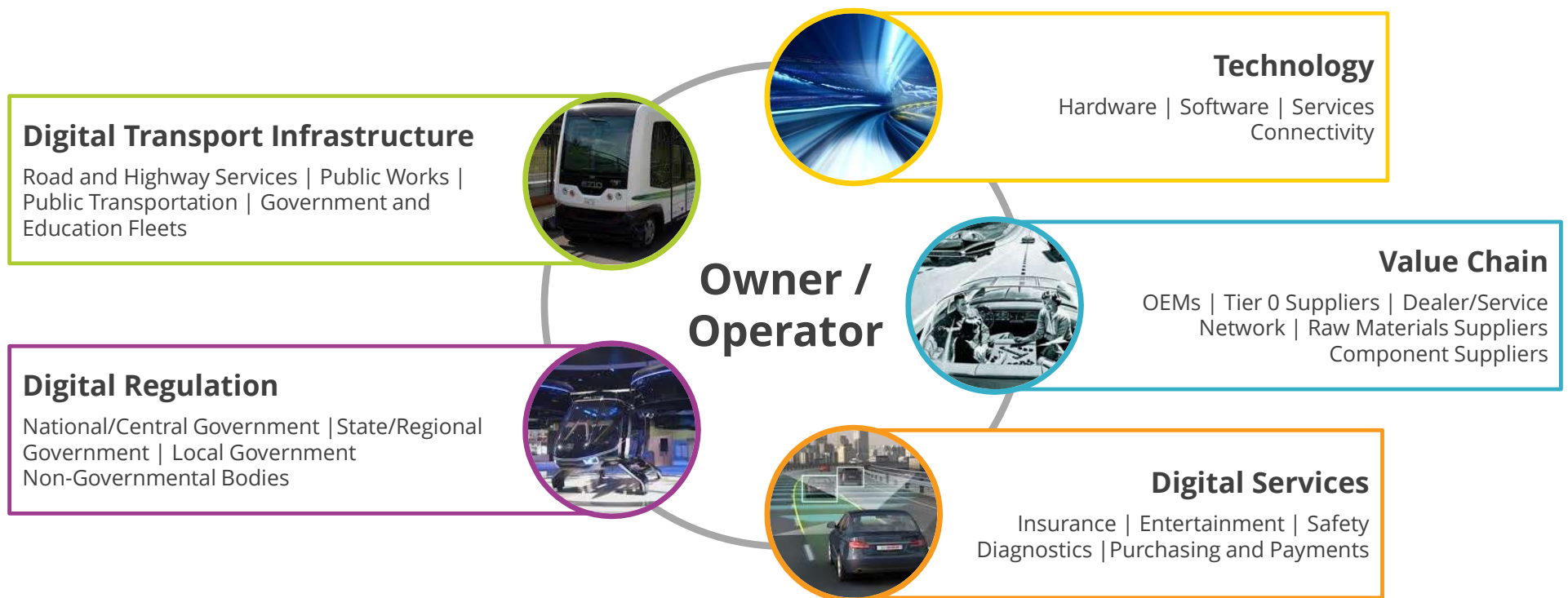
- Industry clouds
- Business networks
- Consortia
- Expert forums
- Industry & gov organizations
- Supply chains
- Foundational cloud services
- Consulting & SIs
- Marketplaces
- Customers & consumers



Technology

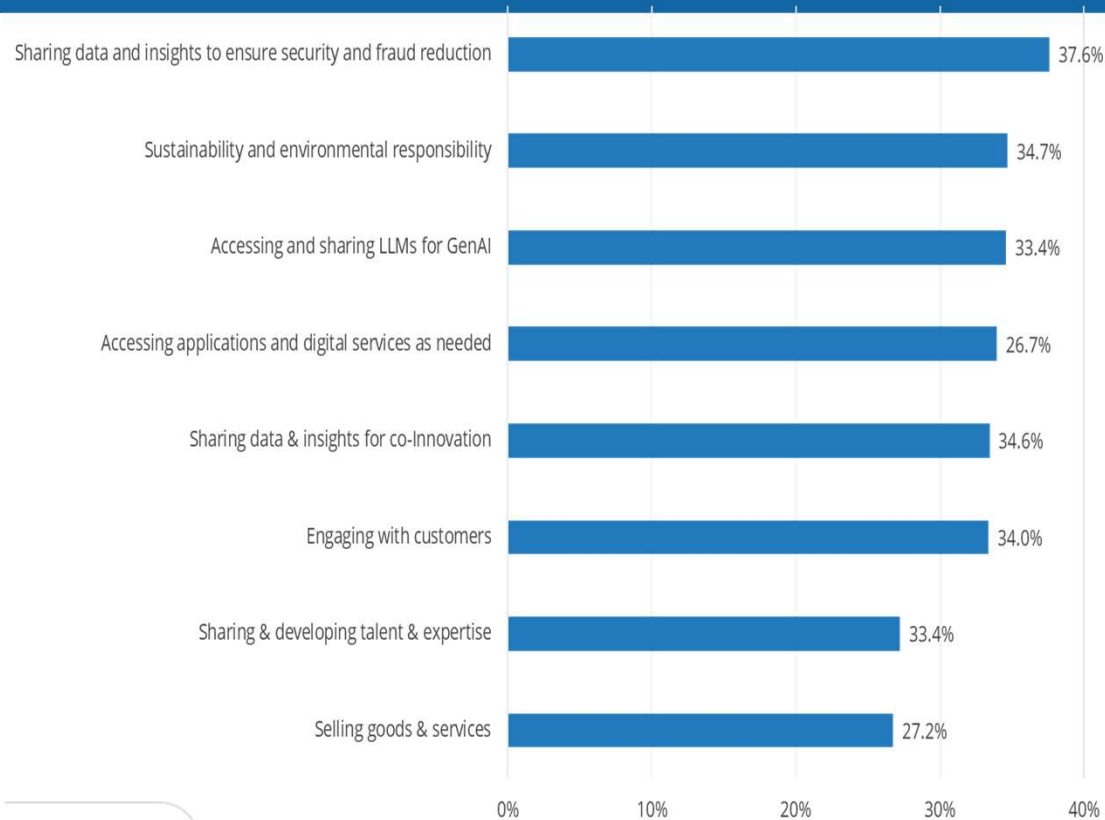
- Business process orchestration, collaboration
- Customer data platform
- Data integration
- No code/low code
- Cyber security
- Blockchain
- AI, ML
- Digital twin
- Simulation, analytics

Example: The Automotive Industry Ecosystem

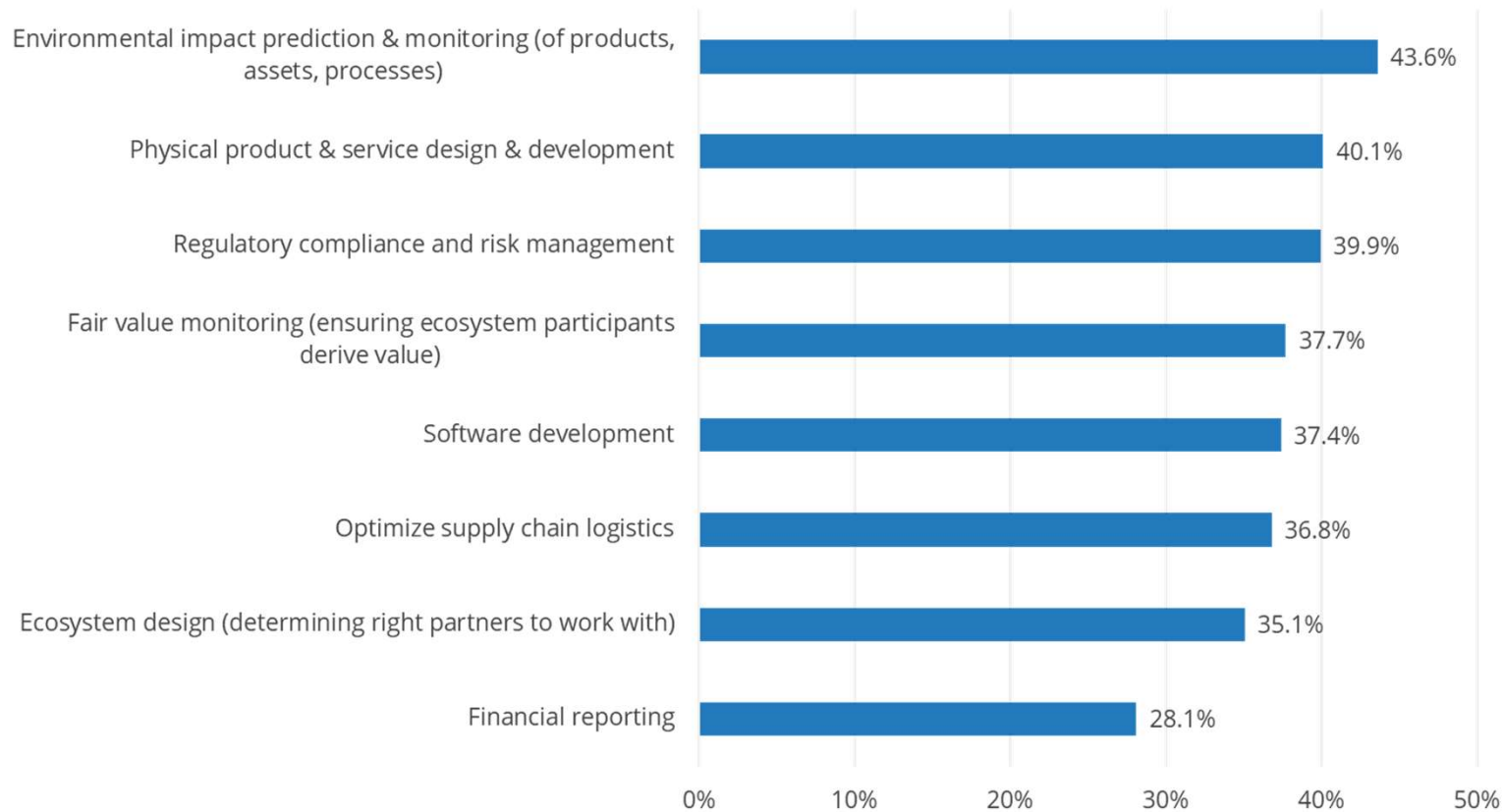


Expected Industry Ecosystem Benefits

What are the top two initiatives for your industry ecosystem(s)?



What are the top three use cases across your industry ecosystem do you most often use or planning to use GenAI for?



For which industry ecosystem initiatives does your organization currently or plan to leverage AI/ML/NLP?



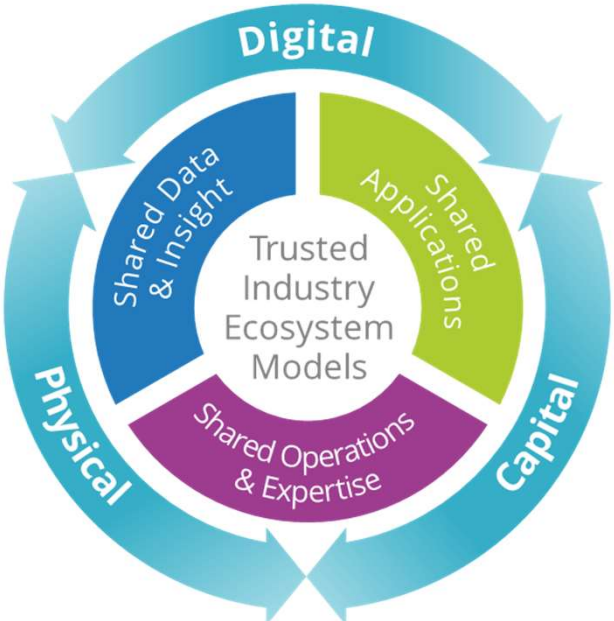
As you think about the future of your supply chain, what current gaps are likely to be the most problematic if not addressed within the next year? In three years?



Complement Organizational Knowledge, Capability, & Capacity Through Ecosystems

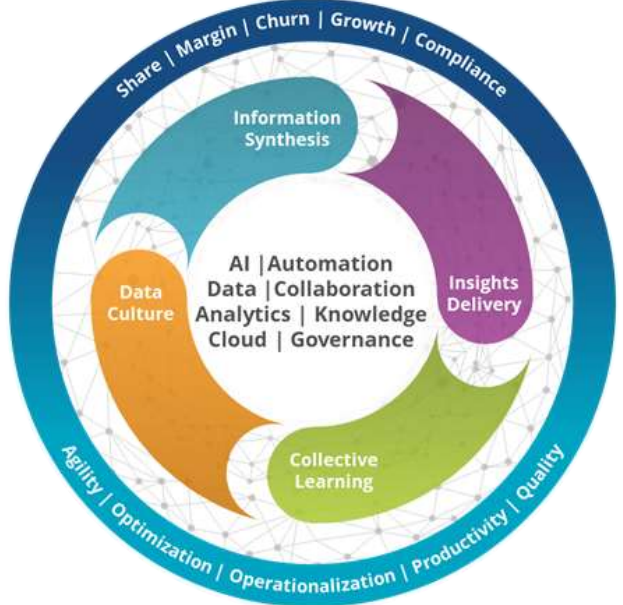
Manufacturing Ecosystem

Manufacturing Enterprise



- Enterprise Intelligence**
- Established data culture
 - Collective learning systems
 - Tacit knowledge
 - Info synthesis & insights

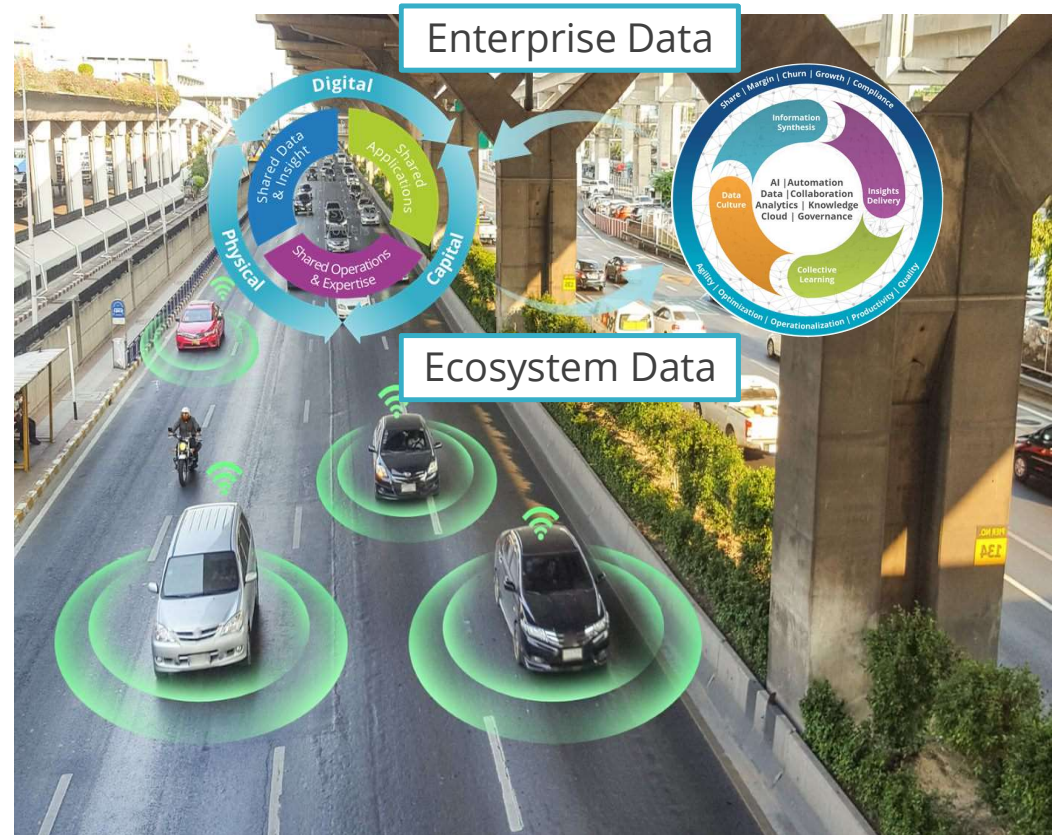
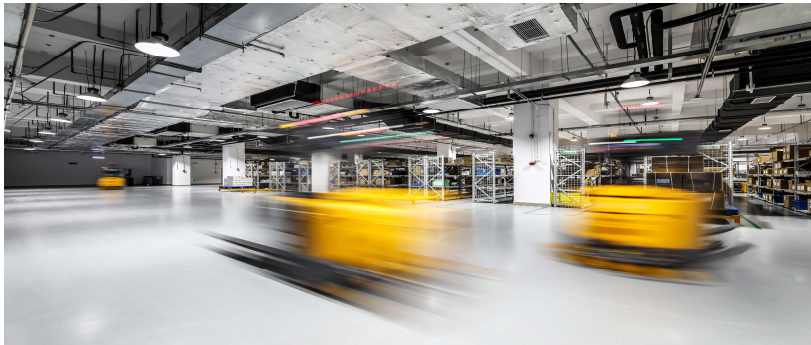
- Industry Ecosystem Intelligence**
- Shared data & insights
 - Shared & co-developed applications
 - Shared operations & expertise
 - Best practice & performance knowledge



The Goal: Enhancing Economies of Intelligence

Economies of Intelligence = Systems of interaction and exchange to:

- Improve visibility
- Expedite decision support
- Facilitate & accelerate innovation
- Ensure quality & safety
- Build skills, knowledge, & fill resource gaps
- Scale, Scope, Learn



An Executive Initiative in 2024 & Beyond

***“Ecosystems are critical
to optimize connectivity and energy flow.”***

- Heath Monesmith, President & COO, Electrical Sector, Eaton

“We will win by engaging our ecosystem.”

- Pat Gelsinger, CEO of Intel



By 2025, **40%** of global organizations will have a digital platform in place for ecosystem operation, driving a 10% higher data capitalization rate than those that do not take this approach.


Source: IDC 2024 Future of Industry Ecosystems FutureScape

*How do you currently,
or plan to leverage
partner ecosystems at
your company today?*

Final Thoughts & Guidance

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5 Conversations to Have Next Week



AI-Driven Economies Of Intelligence



Strategy and Roadmap

C-Suite

Updated AI roadmap with new use cases.
Program to educate all employees



Intelligence Architecture

Data, LOB

Investments across the four planes of the intelligence architecture: data, control, context, business activity



Digital Thread/Twins

CDO, Engineering, Production

Establish a digital thread, applied across products, assets, and processes
Move toward the model-based enterprise



Augmented Skills

HR/Skills

Plan for attracting high demand roles
Skills assessment with existing staff, augment with new tech



Trusted Ecosystems

Supply chain, Partnerships, Service

Identification of new strategic partners
Broader, cross-industry evaluation criteria for partner selection

Thank you!



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