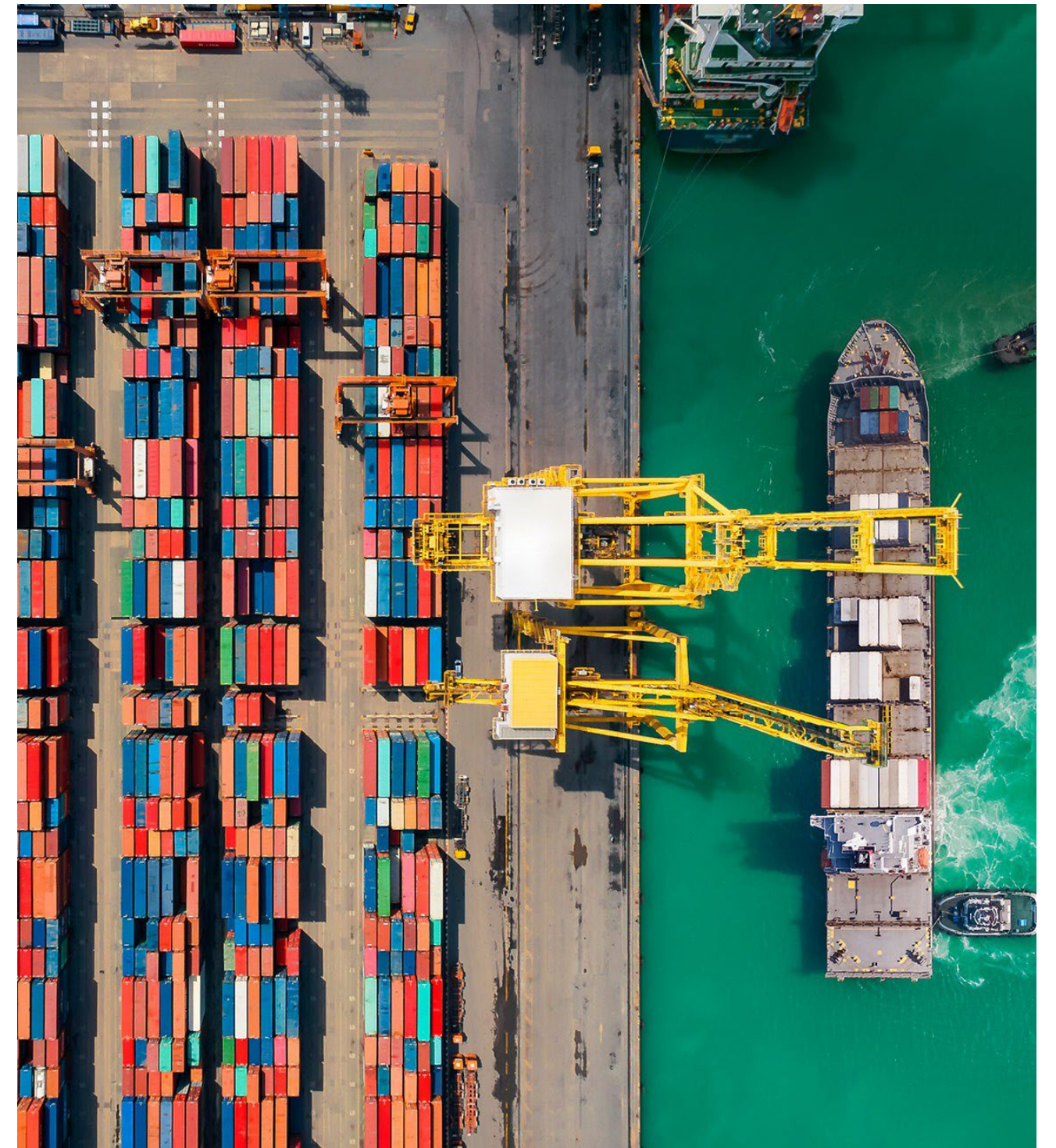


Building data and AI foundation for responsible AI to drive business advantage

Ranjan Sinha
IBM Fellow, VP, and CTO
watsonx, IBM Research AI





This is the era
of **bits**,
neurons,
and
qubits.

6 Nobel Laureates
6 Turing Awards
19 Medals of Technology
20 National Inventors Hall of Fame
5 National Medals of Science
3 Kavli Prizes

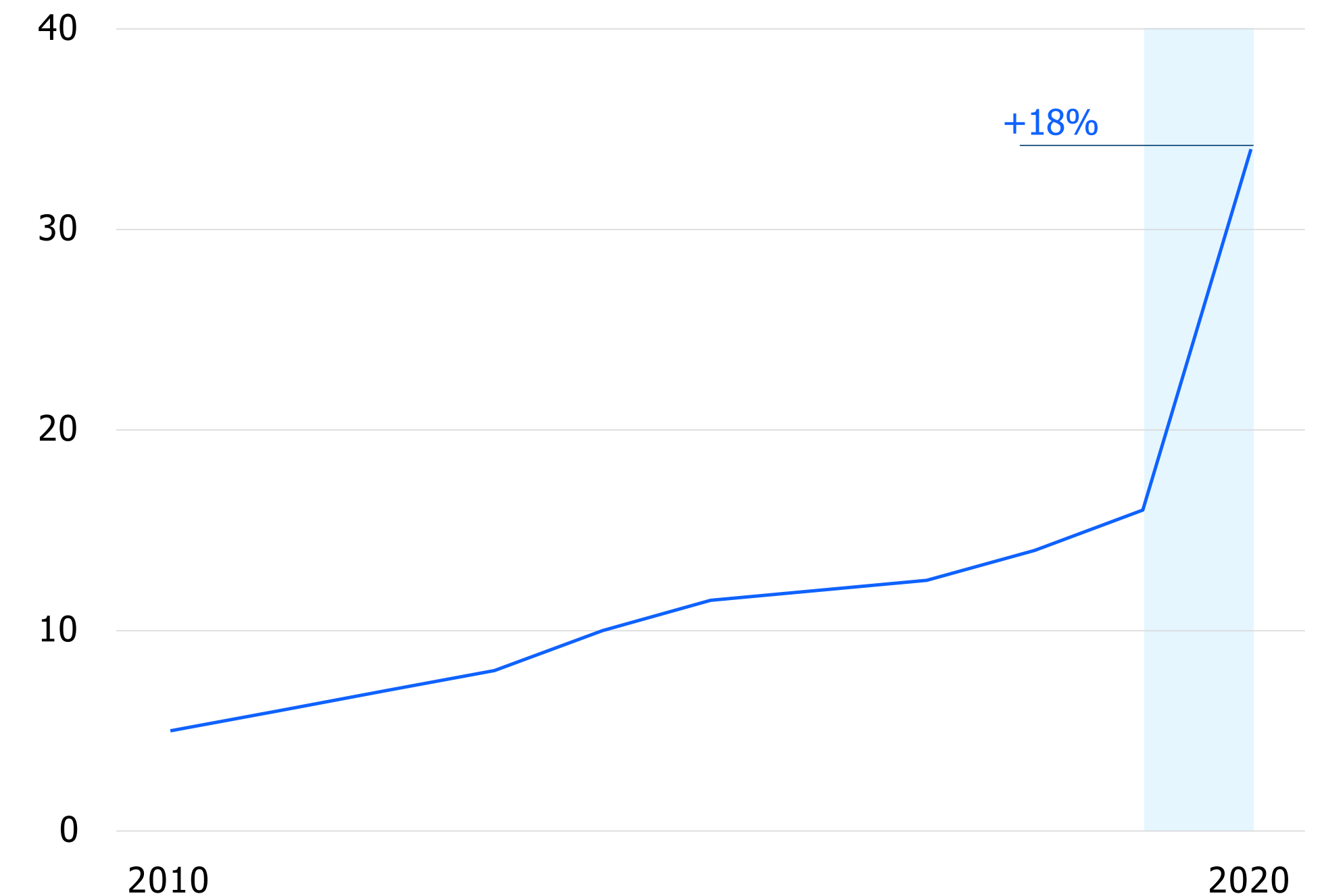
The great digital shift requires enterprises to transform into data-driven organizations

Enterprises that are slow to digitize will be left behind

9 out of 10² have now accelerated business digitization

10 years of digitalization in under 1 year¹

Percentage of business channels replaced by digital over the last decade



Transformation turns to reinvention

There is an urgency to build new **data-driven businesses** that create new advantage

- Technological innovation
- Customer-centricity
- Ecosystem co-creation
- Sustainability

50%

By 2026, half of revenue will come from products, services, and businesses that do not exist today

6 in 10

6 in 10 business leaders rank new business building as a top priority, doubling since the global disruption³

20%

Traditionally, only 20% of businesses sustain revenue greater than \$50M²

- Digital businesses are viewed as more scalable, resilient, and sustainable than traditional businesses.

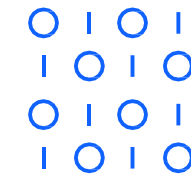
Data, IT architectures & AI use multiply

Digital transformation leads to vast data and heterogenous IT, which is best navigated through hybrid cloud and AI



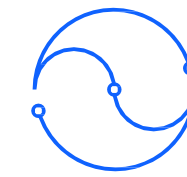
IT architectures become more heterogenous

- 90% of large companies use multi-cloud architectures¹
- 72% of companies run on both private infra and public cloud²
- 75% of enterprise data will be created on the edge by '25³



Data volume, variety, and velocity soar in magnitude

- 181 zettabytes of data will be generated annually by 2025⁴
- 95% of businesses must manage unstructured data⁵
- Data volumes are exploding by 63% per month in organizations⁶

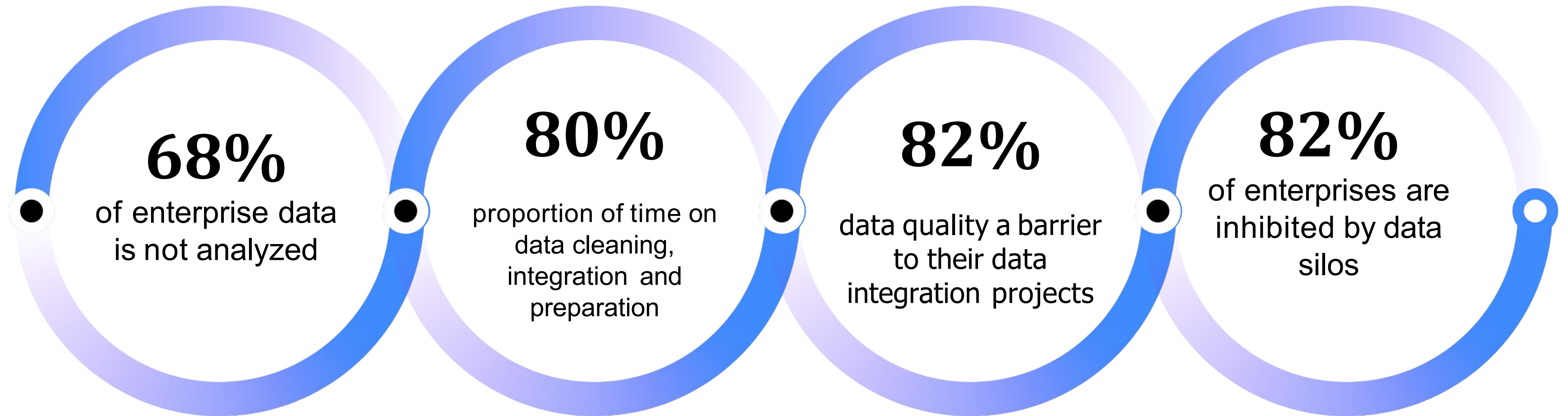


AI transforms business models and operations

- 60-70% of employee time today could be automated using gen AI⁷
- 62% of execs say gen AI will disrupt how their org designs experiences⁸
- 72% of enterprises are seeing value from their AI initiatives within 3 months⁹

Enterprises need modern IT capabilities to manage this complexity and unlock innovation
—and are turning to hybrid cloud and AI as the universal standard

However, data complexity inhibits enterprises from becoming data-driven



And even though data is a critical element for AI, it is one of the top barriers to AI implementation

35%

data accessibility challenges

30%

data volume and/or complexity

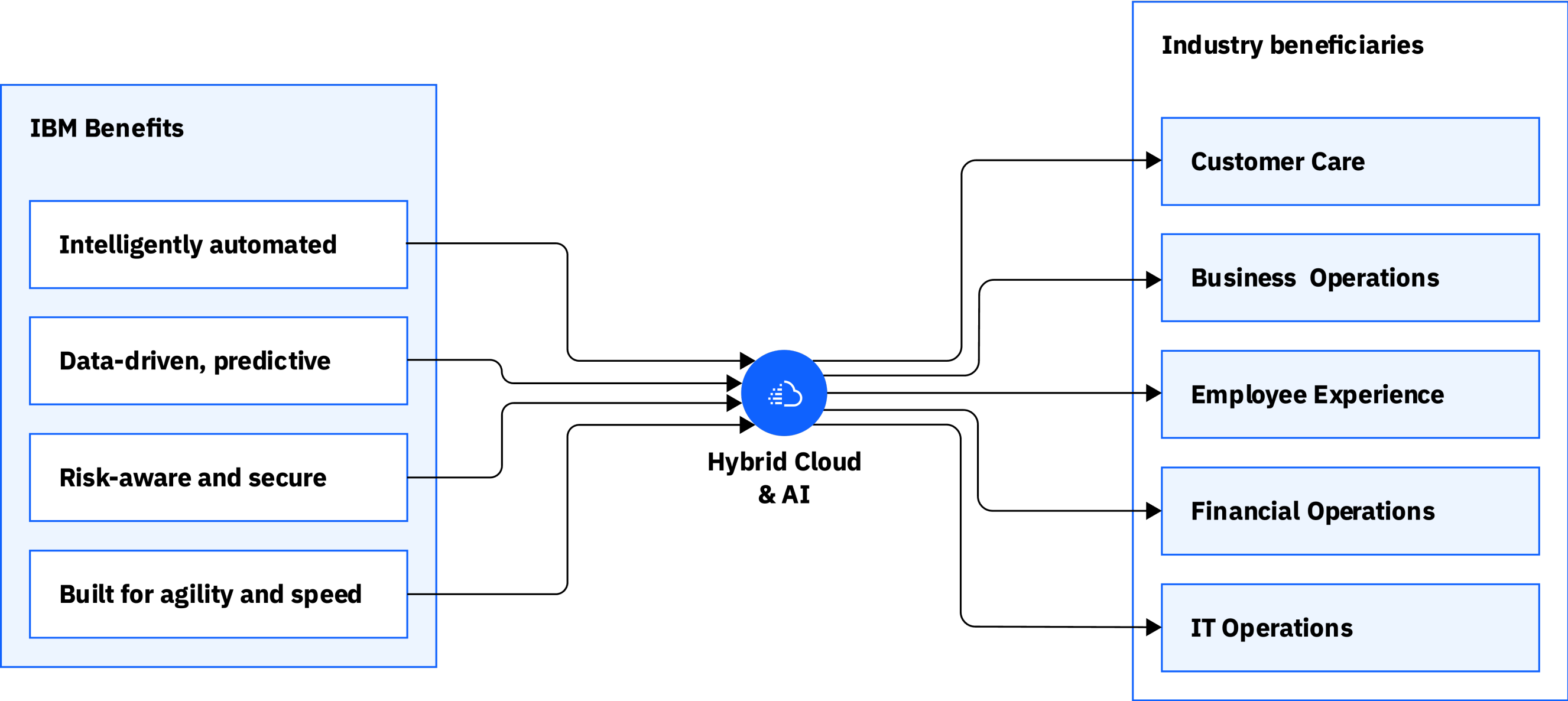
26%

data scope or quality problems

Data-driven
technology
eminence will
define the winners

2.3x¹
Those that fully align digital
technology and business
strategies are 2.3x more likely
to achieve better outcomes

7 in 10
CEOs are driving large-scale
change in value creation,
ways of working and processes¹

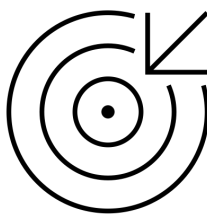


Design your data strategy

Six steps to create a data-driven organization, from ideation to execution

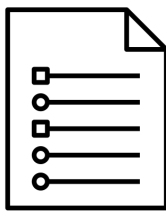
01

Understand your business objectives



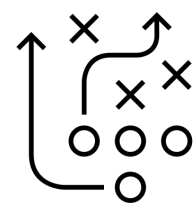
02

Assess your current state



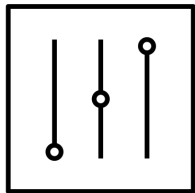
03

Map out your data strategy framework



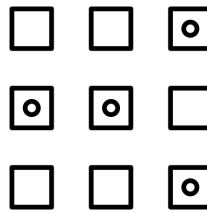
04

Establish controls



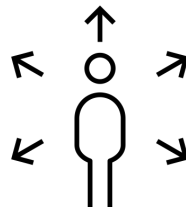
05

Create integrated solutions



06

Scale your team and processes



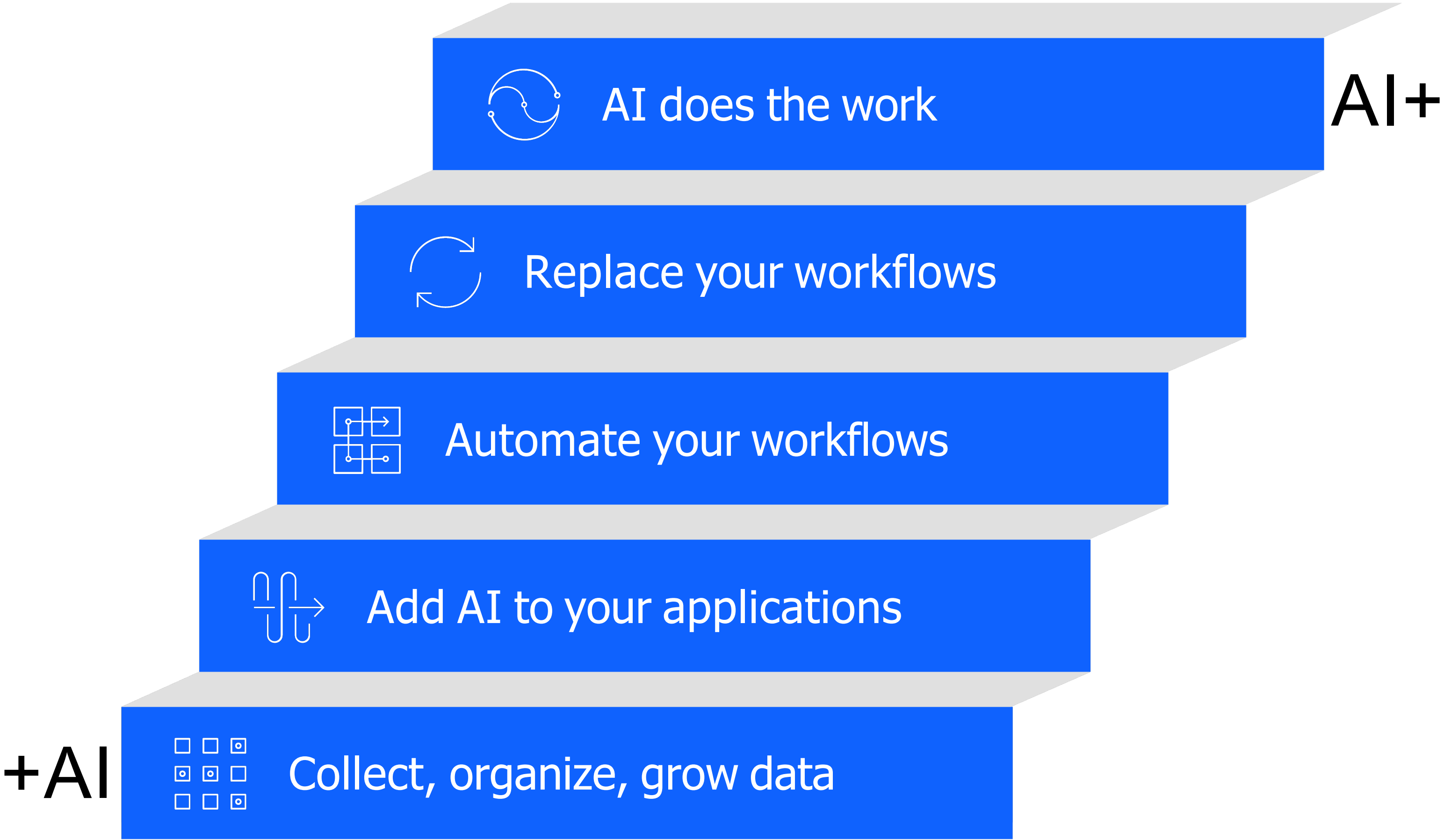
Four steps of the AI Ladder

By climbing the ladder to AI, enterprises can build a **governed, efficient, agile, and future-proof** approach to AI.



The modern-day AI ladder

Reinventing how work gets done across business domains and industries



Everyone needs access to consumable data for useful insights

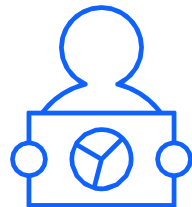
Sales
Rapidly respond to
changing client needs to
win 6.6x⁴ opportunities



HR
Attract and retain top
talent by engaging
600+ applicants a month⁵



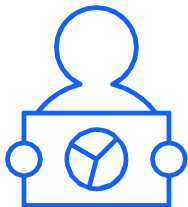
Marketing
Discover fast-changing
customer behavior for a
17%⁶ increase in
purchase consideration



IT
Innovate and modernize
apps and infrastructure for
25%⁷ more time to focus
on strategic projects



Finance
Set reliable forecasts in
volatile conditions for
90%+⁸ improvement
in time-to-decision



Operations
Continuously improve
automated processes for
8x⁹ faster speed-to-insight



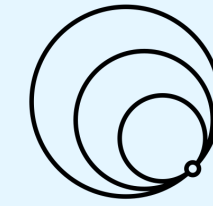
75%

of CEOs say their competitive
advantage rests on generative AI ¹²

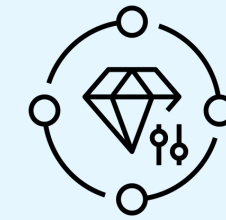
*“Generative AI models
surprise, impress, and
scare us, all at the
same time.”*

Gonzalo Gortázar
CEO, CaixaBank

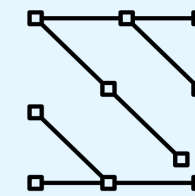
However, the following barriers prevent organizations from benefiting from AI



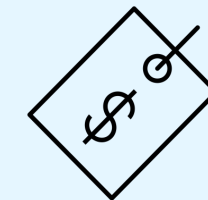
Integration and scaling challenges



AI governance



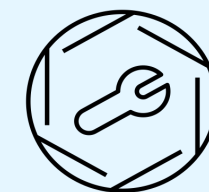
Data complexity



High price



Limited skill and expertise



Lack of AI model development tools

IBM is transforming its own business with generative AI



20 use cases in production and over 80K users, driven by IBM's CIO office

Talent and HR
Simplify, standardize, and automate HR promotions and task processing with the "AskHR" tool, built on top of Workday, solving 94% cases through a virtual agent.

Marketing
Generate IBM-branded content through a creative agent built on top of an Adobe marketing stack that leverages a deep IBM brand library of assets, images, and files.*

Product documentation
Developed a search-and-answer feature for AI builders leveraging watsonx to build generative AI use cases.

CIO office
Improve SRE productivity by extending self-service capabilities of CIO hybrid cloud with Ansible to deliver enterprise services.

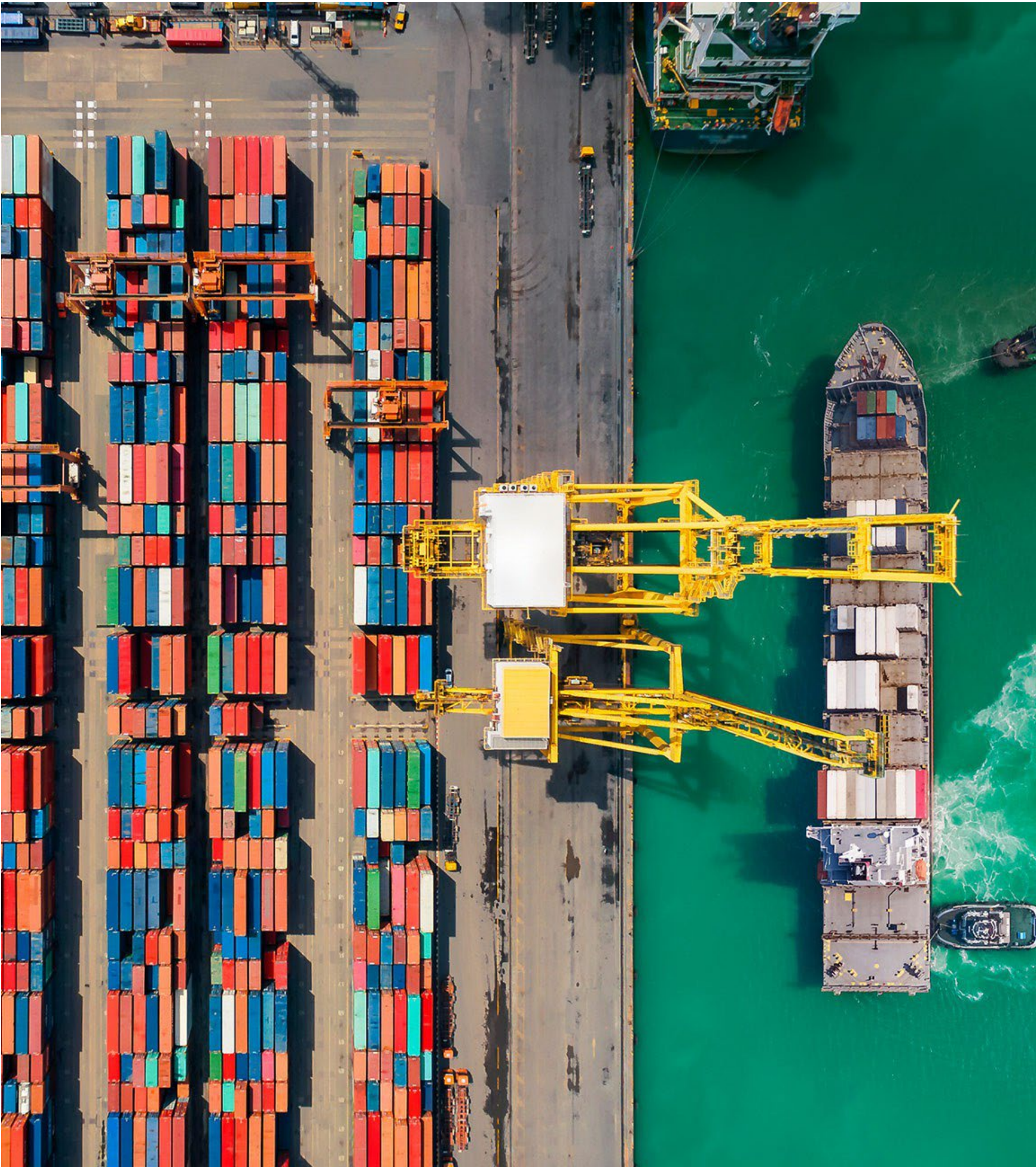
Software development
Leverage watsonx Code Assistant across Data and AI, Automation, Security, and Sustainability portfolios to code more effectively.*

Sales enablement
Help IBM sellers and business partners find the right materials for their clients with the "AskSales" tool built on top of Seismic.

The impact of generative AI |
The opportunity

Generative AI is being used to help accelerate Supply Chain innovation

	1	2	3
What CEOs need to know	Real-time data is finally for real.	Seamless collaboration sparks productivity gains.	Generative AI is a mirror that lets you see around corners.
What CEOs need to do	Stop fighting fires and start rethinking your supply chain.	Feed generative AI data that supports supply chain productivity.	Supercharge supply chain operating models with generative AI platforms.



The platform for AI and data

watsonx

watsonx.ai

Train, validate, tune,
and deploy AI models

A next generation [enterprise studio for AI builders](#) to train, validate, tune, and deploy both traditional machine learning and new generative AI capabilities powered by foundation models. It enables you to build AI applications in a fraction of the time with a fraction of the data.

watsonx.data

Scale AI workloads, for
all your data, anywhere

Fit-for-purpose [data store, built on an open lakehouse](#) architecture, supported by querying, governance and open data formats to access and share data.

watsonx.governance

Accelerate responsible,
transparent, and explainable
AI workflows

[End-to-end toolkit for AI governance](#) across the entire model lifecycle to enable responsible, transparent, and explainable AI workflows.

Components of a generative AI stack

AI assistants 	Empower individuals to achieve higher levels of performance by using generative AI to simplify access to information and automation across the business.
SDKs & APIs 	Embed watsonx platform in third party assistants and applications using programmatic interfaces.
AI & data platform 	Leverage generative AI and machine learning —tuned with your data — with responsibility, transparency and explainability.
Data services 	Define, organize, manage, and deliver trusted data to train and tune AI models with data fabric services.
Hybrid cloud AI tools 	Build on a consistent, scalable foundation based on open-source technology.

Consulting
Generative AI strategy,
experience, technology,
operations

Ecosystem
System Integrators,
Software and SaaS
partners, Public
Cloud providers

AI assistants

watsonx

watsonx Orchestrate

Harness the power of AI and automation to free up individuals from tedious tasks

Enable employees to quickly offload time-consuming work to tackle more of the work only they can do. Business users can delegate common and complex tasks such as creating a job description, pulling a report in Salesforce or SAP SuccessFactors, sourcing candidates, and more using natural language.

40%

improvement in process productivity¹

watsonx Assistant

Build better virtual agents, to deliver consistent and intelligent customer care

Understand customers in the right context, and provide fast, consistent, and accurate answers, and self-service support across any application, device, or channel. The intuitive build experience empowers everyone in the organization to build and deploy AI-powered virtual agents without writing a line of code.

>97%

customer inquiries handled by AI assistant²

watsonx Code Assistant

Accelerate development, application modernization, and assist with IT Operations

Increase developer productivity, reduce coding complexity, and accelerate developer onboarding. Purpose-built for targeted use cases, watsonx Code Assistant uses AI to support application modernization and IT automation.

60%

software development content automatically generated by AI³

AI assistants
address **key**
challenges across
business domains



Customer service
and innovation

91% of customers that are
unsatisfied with brand support
will leave¹

51% of agents without AI say
they spend most of their time
on mundane tasks²



Industry and
mission-critical
operations

55% of employees report
complexity in work processes is
a significant drain on productivity⁵

88% of businesses lack at
least one area of digital skills
on their staff⁶



Financial
management
and planning

57% of employees believe
difficulty finding information is one
of the biggest lags on productivity⁹

30% of employee time is spent
looking for the information
required for their work¹⁰



Risk and
compliance

Employees switch between **13**
apps, 30x per day³

37% of knowledge workers report
lack of access to the information
they need to be successful⁴



Talent lifecycle

54% of companies say IT
skills shortages prevent them
from keeping up with the pace
of change⁷

80% of the product
development life cycle will be
augmented with generative AI
code generation⁸



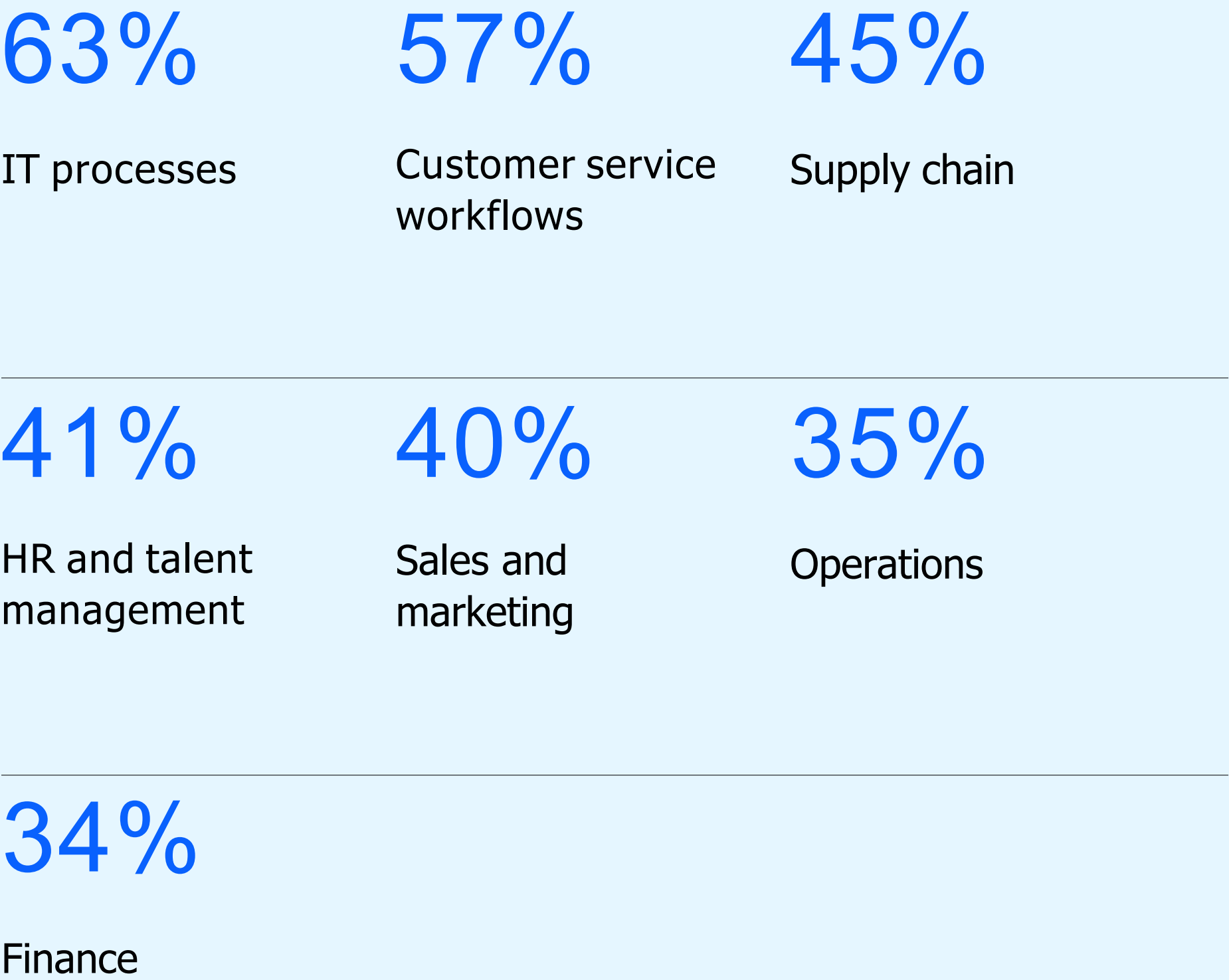
Development and
IT operations

85M - estimated number of jobs
that could go unfilled by 2030 due
to a lack of skilled workers¹¹

Employee productivity is expected to be the primary driver of economic value

- There is widespread interest in applying AI across business functions.
- Customer service and IT processes consistently emerge as top priorities across research studies.

Executives are embracing generative AI and large language models to optimize and automate¹



Three proven, high
impact use cases
as starting points
with IBM

Client results

Human resources

40%

improvement in
process productivity¹

- Talent acquisition
- Performance management
- Employee data management
- Employee communications
- Learning and event management

Customer service

>97%

customer inquiries
handled by AI assistant²

- Customer self-service
- Case deflection
- Agent intent efficacy
- Agent assist
- Mobile FAQ with answers

App modernization

60%

software development
content automatically
generated by AI³

- Automated code generation
- Application discovery and analysis
- Code refactoring
- Code conversion
- Code attribution

Promise of
generative AI

Sources: ¹[IBM HR use case](#), ²[Generali Poland cases study](#), ³[IBM CIO pilot](#)

Content generation,
classification

*Train and tune relevant
foundation models using
company-specific HR data
spanning hybrid environments*

Retrieval-augmented
generation, summarization,
classification

*Train and tune relevant
foundation models using
customer specific datasets to
improve customer satisfaction*

Summarization,
content generation

*Automate code generation and
reduce cycle time for modernizing
applications, based on
requirements and business rules*

Reinventing how work gets done |
+AI to AI+

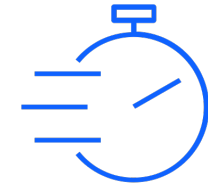
IBM is actively
engaging with
enterprise clients
across a broad
set of business
domains

Client results and
analyst studies

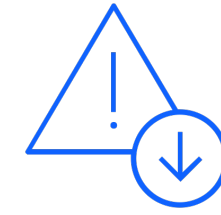
Sources for footnotes: See speaker notes

Customer-facing functions and experiences	HR, Finance, and Supply chain functions	IT development and operations	Core business operations
Customer service Empower customers to find solutions with easy, compelling experiences 90% customer inquiries handled by an AI assistant¹	HR automation Reduce manual work and automate recruiting, sourcing and nurturing job candidates 40% improvement in process productivity²	App modernization, migration Generate code, tune code generation response in real time 60% software development content auto generated by AI³	Threat management Reduce incident response times from hours to minutes or seconds Contain potential threats 8x faster⁴
Marketing Increase personalization, improve efficiency across the content supply chain Reduce derivative content creation spend⁵	Supply chain Automate source to pay processes, reduce resource needs and improve cycle times Reduce product origin traceability from days to seconds⁶	IT automation Reduce automation development, identify deployment issues, avoiding incidents, optimize application demand to supply Reduce mean time to repair (MTTR) by 50%+⁷	Asset management Optimize critical asset performance and operations while delivering sustainable outcomes Reduce unplanned downtime by 43%⁸
Content creation Ex. Enhance digital sports viewing with auto-generated spoken AI commentary Scale live viewing experiences cost effectively⁹	Planning and analysis Make smarter decisions, focus on higher value tasks with automated workflows and AI Process planning data up to 80% faster¹⁰	AIOps Assure continuous, cost-effective performance and connectivity across applications Reduce application support tickets by 70%¹¹	Product development Ex. Expedite drug discovery by inferring structure with AI from simple molecular representations Faster and less expensive drug discovery¹²
Knowledge worker Enable higher value work, improve decision making, and increase productivity Reduce 90% of text reading and analysis work¹³	Regulatory compliance Support compliance based on requirements / risks, proactively respond to regulatory changes Reduce time spent responding to issues¹⁴	Data platform engineering Redesign the approach for data integration using generative AI Reduce data integration time by 30%+¹⁵	Environmental intelligence Provide intelligence to proactively plan and manage impact of severe weather and climate Increase manufacturing output by 25%¹⁶

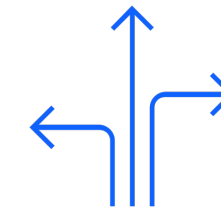
Key benefit of
becoming a **data-
driven** enterprise



Productivity gains
and cost reduction



Reduced risks



Speed and flexibility
for revenue growth

Thank you.

Ranjan Sinha
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watsonx, IBM Research AI

<https://www.linkedin.com/in/sinharanjan/>

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1. 2021 Global Report: The State of New-Business Building, McKinsey & Company, 2021
2. How COVID-19 has pushed companies over the technology tipping point—and transformed business forever, McKinsey & Company, 2020
3. McKinsey Quarterly, McKinsey & Company
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7. ZX Ventures Case Study:
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<https://www.ibm.com/case-studies/> GameStop-2
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10. CEO's guide to generative AI, IBM Institute for Business Value (IBV):
<https://www.ibm.com/thought-leadership/institute-business-value/en-us/report/ceo-generative-ai>
11. "Building trust in AI," IBM Chief Privacy Office case study, IBM, January 2024:
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