

Math & Work

Brief history of AI

Artificial Intelligence

Machine Learning

Deep Learning

Generative AI



Artificial Intelligence

The field of computer science that seeks to create intelligent machines that can replicate or exceed human intelligence



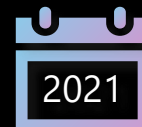
Machine Learning

Subset of AI that enables machines to learn from existing data and improve upon that data to make decisions or predictions



Deep Learning

A machine learning technique in which layers of neural networks are used to process data and make decisions



Generative AI

Create new written, visual, and auditory content given prompts or existing data

What is Generative AI

Generative AI

GPT-3

Prompt:

Write a tagline for an ice cream shop.

Response:

We serve up smiles with every scoop!

Codex

Prompt:

Table customers, columns = [CustomerId, FirstName, LastName, Company, Address, City, State, Country, PostalCode]

Create a SQL query for all customers in Texas named Jane
query =

Response:

```
SELECT *  
FROM customers  
WHERE State = 'TX' AND  
FirstName = 'Jane'
```

DALL·E

Prompt: A white Siamese cat

Response:



ChatGPT/GPT-4

What is the fastest animal on land?

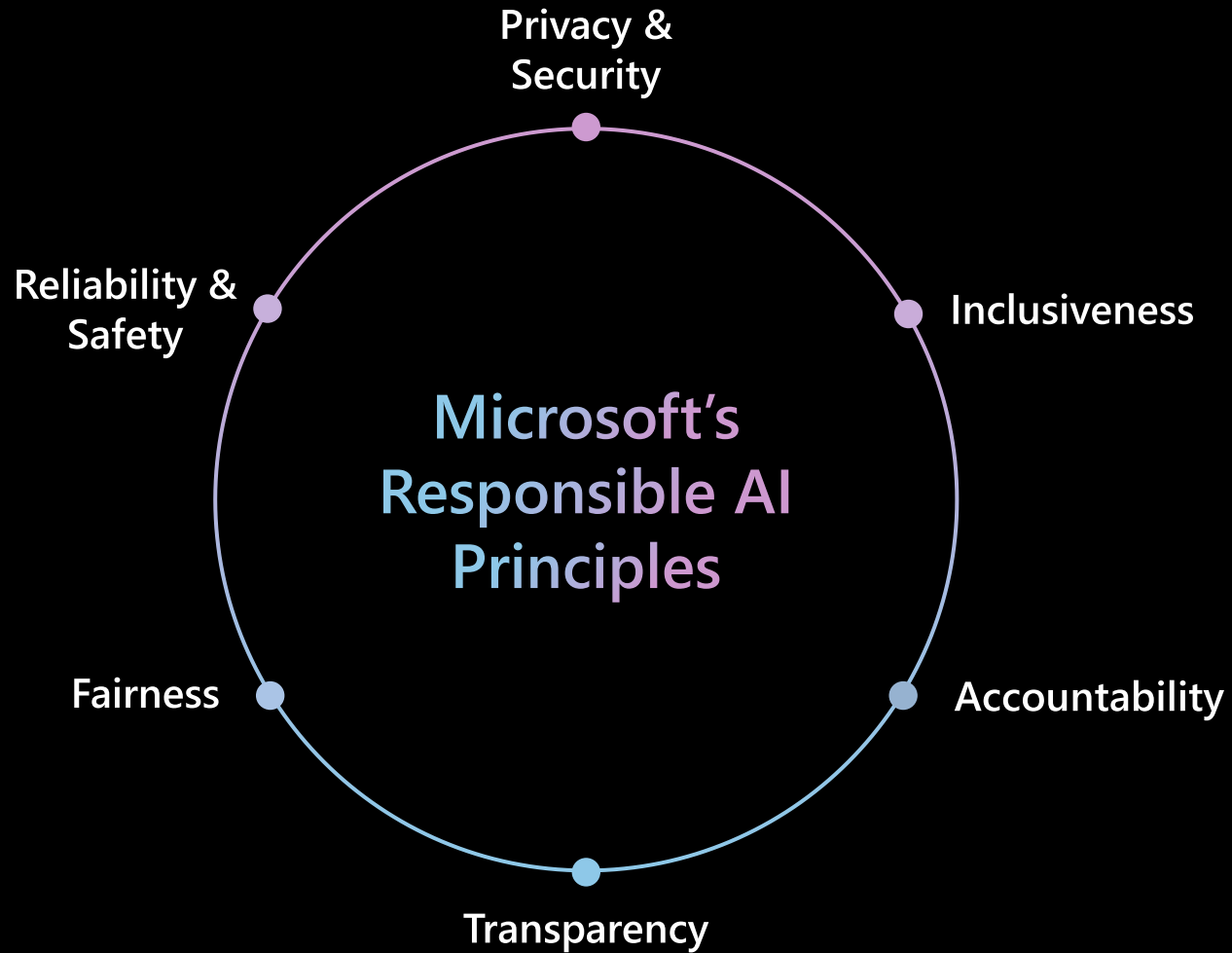
the cheetah (*Acinonyx jubatus*), which can reach speeds of up to 60 miles (97 kilometers) per hour.

What makes them so fast?

Cheetahs are built for speed and have several adaptations that make them the fastest land animal: lean body, long legs, flexible spine, large nostrils and claws that don't retract.



Microsoft's Responsible AI principles



Building blocks to enact principles



Tools and processes



Training and practices



Rules



Governance

LLMs

next element
(e.g., token)

history

$$P_{\theta}(X_{t+1} = x_{t+1} | x_1, \dots, x_t)$$

model parameters

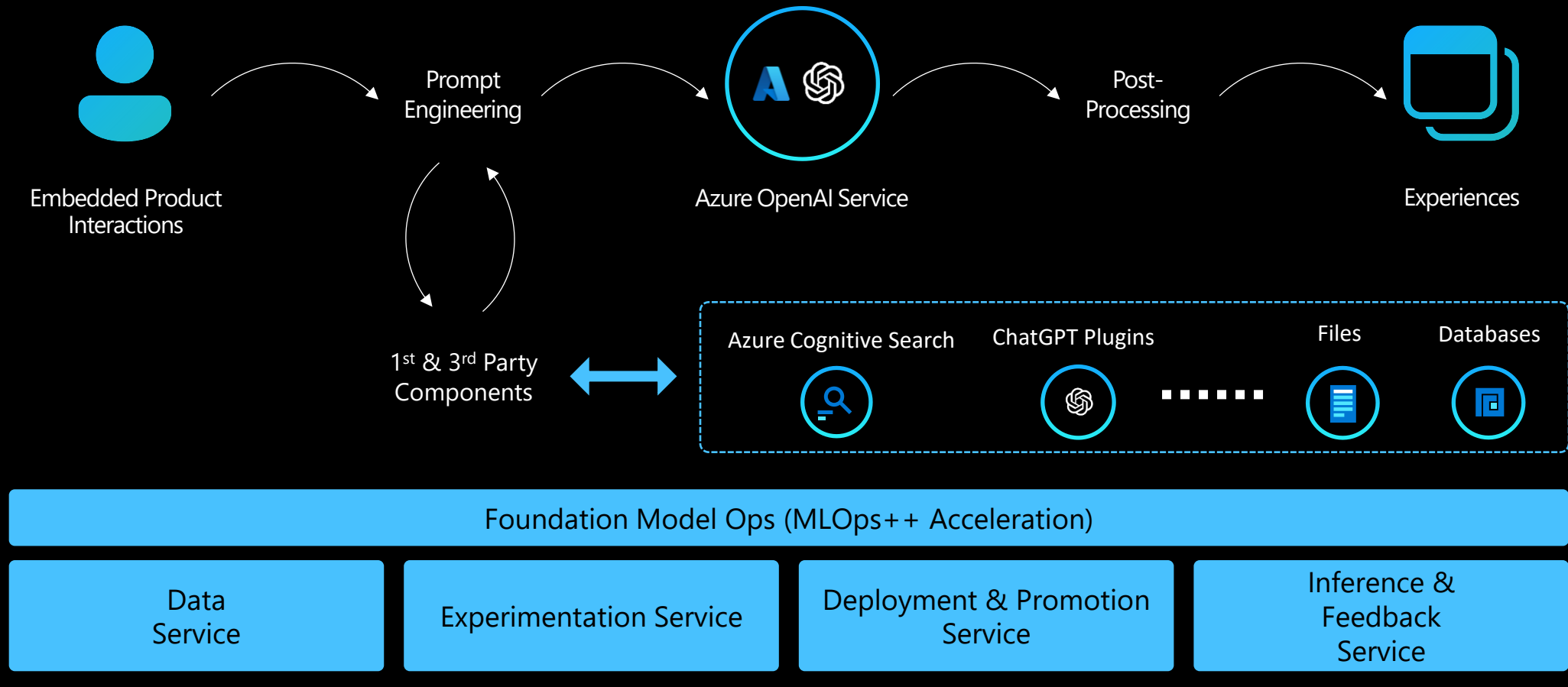
The cat drank _____

Next word	Probability
milk	0.3
water	0.25
...	...
quickly	0.05

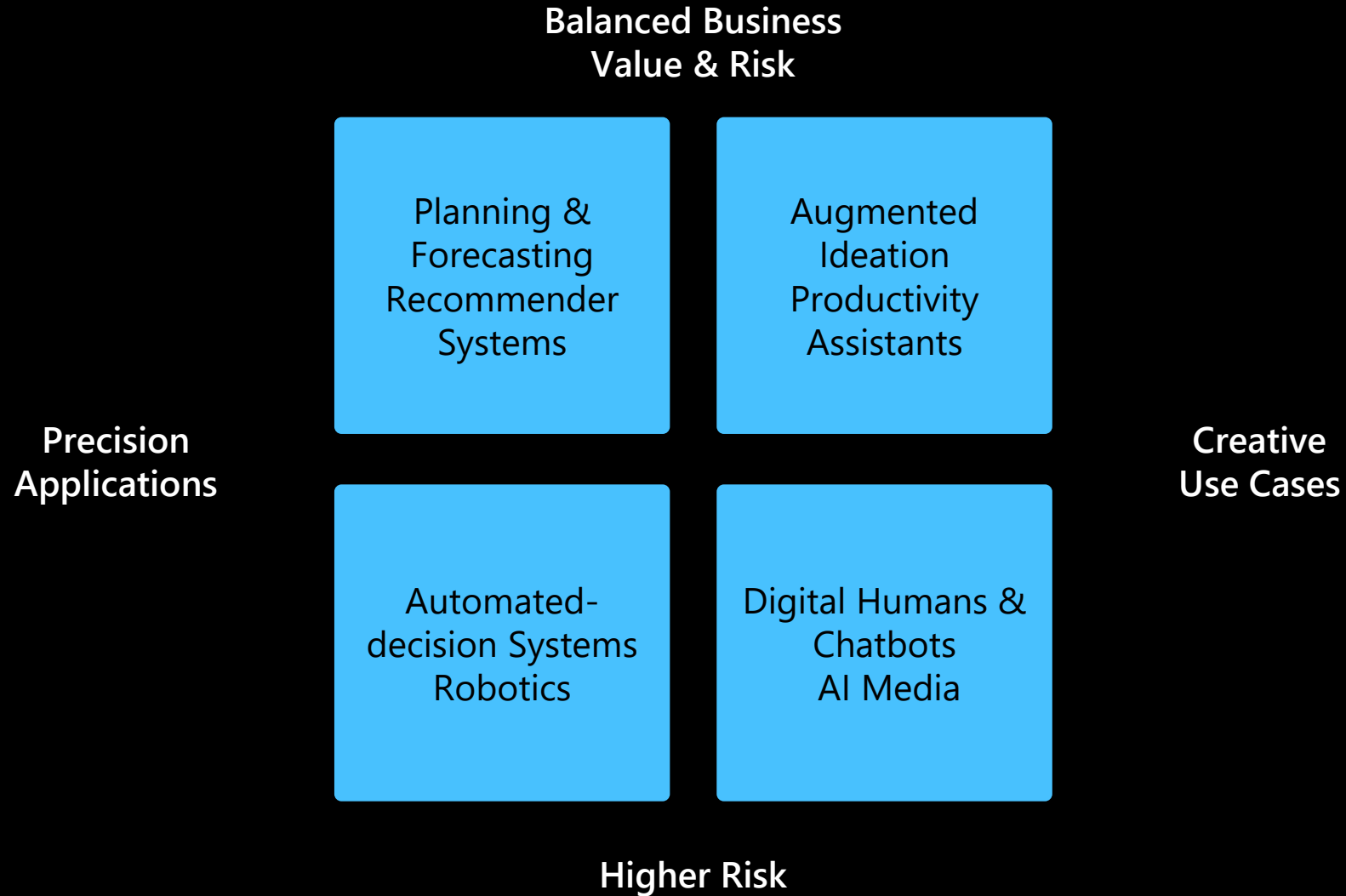
Product Integration of LLMs in Enterprise Deployment

Complex customer use cases

Code generation | Enterprise Q&A with proprietary data and writing assistance | Natural Language Interfaces



The AI Opportunity Compass

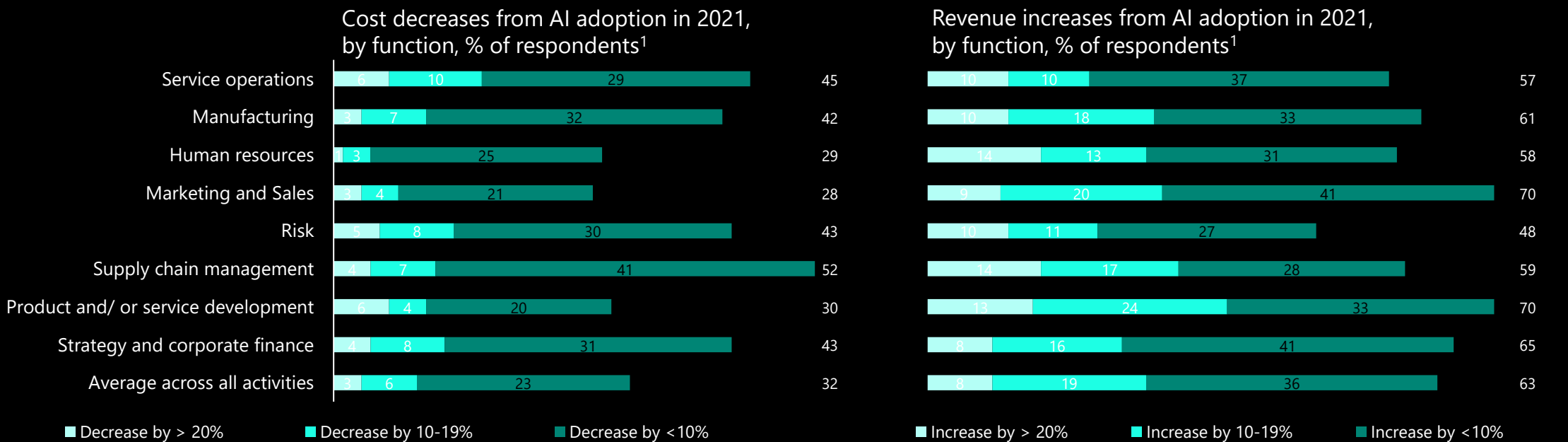


..and AI is increasingly embedded in business process & products



Driving increased revenue, reduced cost, and increased profits

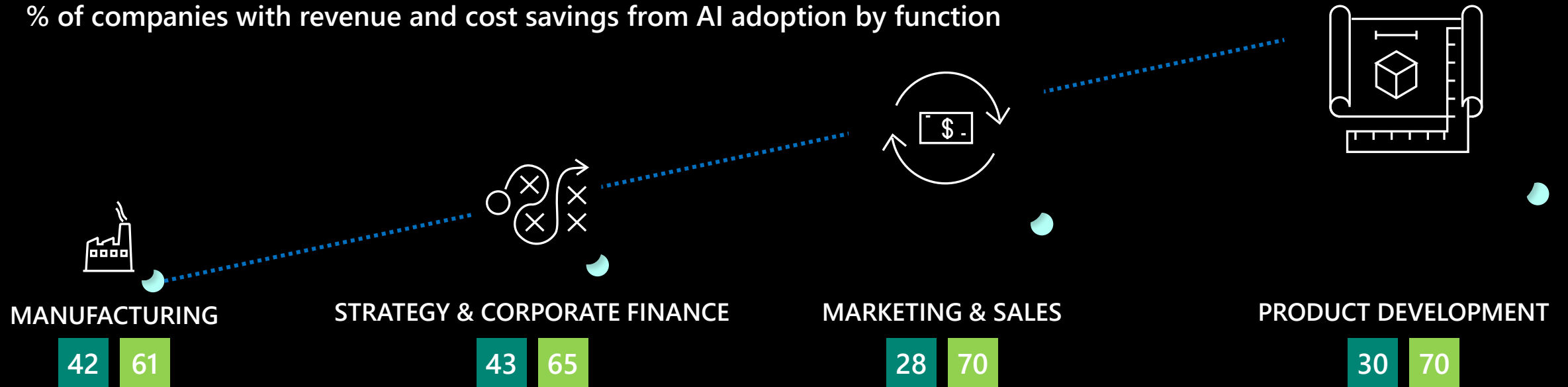
AI-related cost decreases are most often reported in supply chain management and revenue increases in product development and marketing / sales.



¹Question was asked only of respondents who said their organizations have adopted AI in a given function. Respondents who said "no change," "cost increase," "not applicable," or "don't know" are not shown.

...driving high-value outcomes

% of companies with revenue and cost savings from AI adoption by function



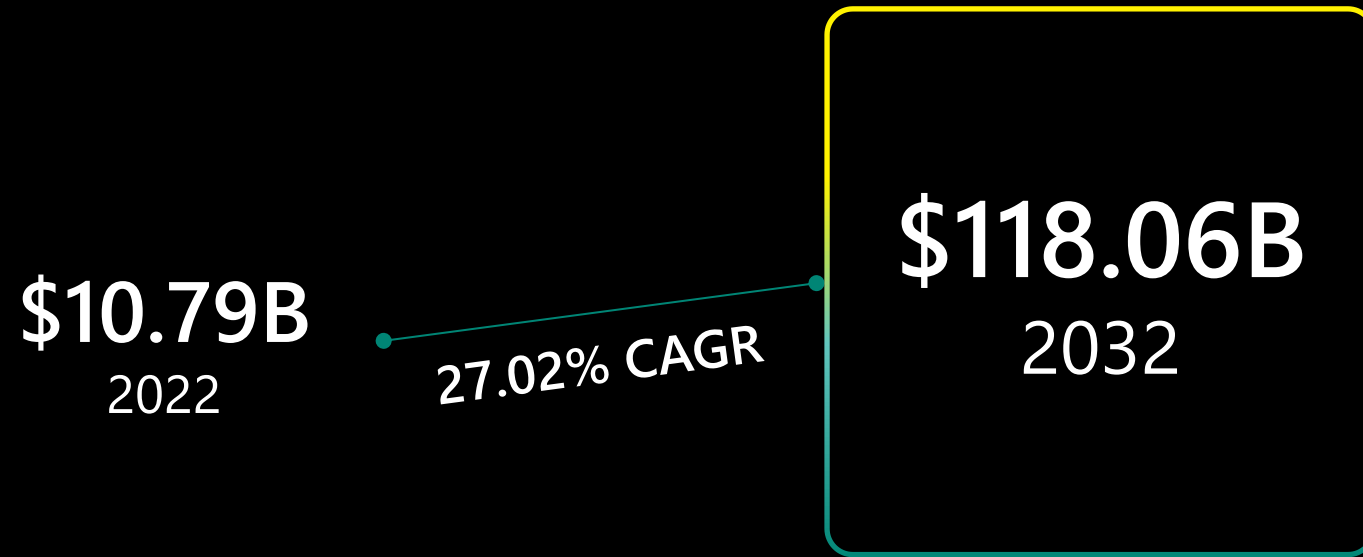
Cost Savings **10% - 20% +**

Revenue Growth **5% - 10% +**

The Era of the AI Copilot

The potential value from *generative* AI is vast

Generative AI Market



The dream is that generative AI brings the marginal cost of creation and knowledge work down towards zero,

Generative AI can make these workers at least 10% more efficient and/or creative..

Generative AI has the potential to generate trillions of dollars of economic value.¹

Functional transformation

Outcomes Driven by AI: Key Business Cases



Make Operations More Resilient

Industrial
Finance
Marketing
Contact Center



Improve Customer Experience

Know
Engage
Transform product
Support



Deepen Employee Engagement

Culture
Recruit
On-Board
Retain



Manage Risk

Transaction
Privacy
Compliance
Cyber Security



There is no Digital Innovation without a Cultural Transformation

Accelerating value by driving Digital Culture and Leadership Change to increase customer innovation, agility and digital capability

