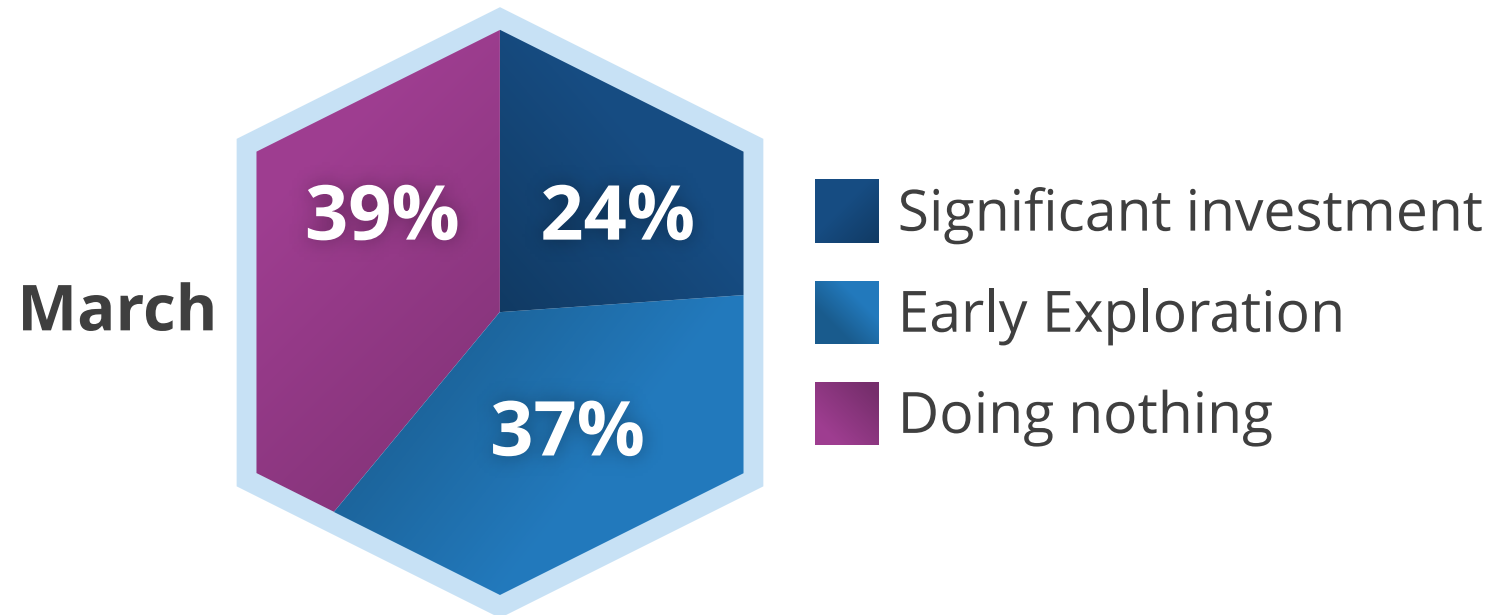# IDC

Generative AI: Preparing for the Long-Term Impact
Practical Applications and Guidance for CIOs/CTOs
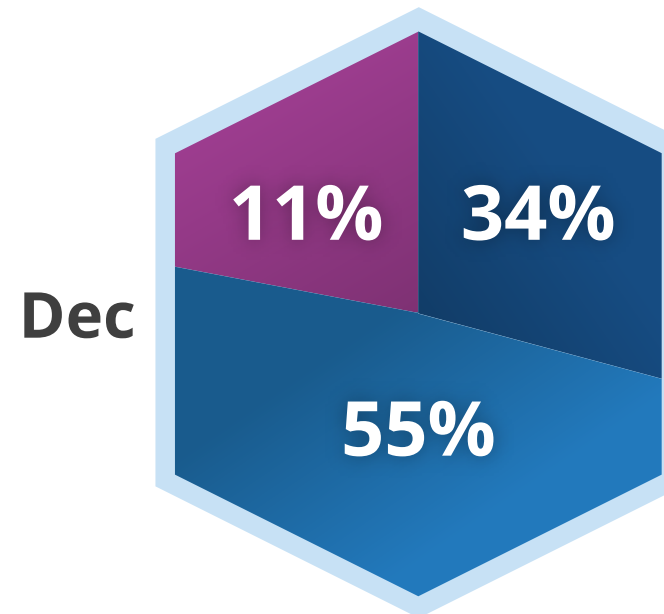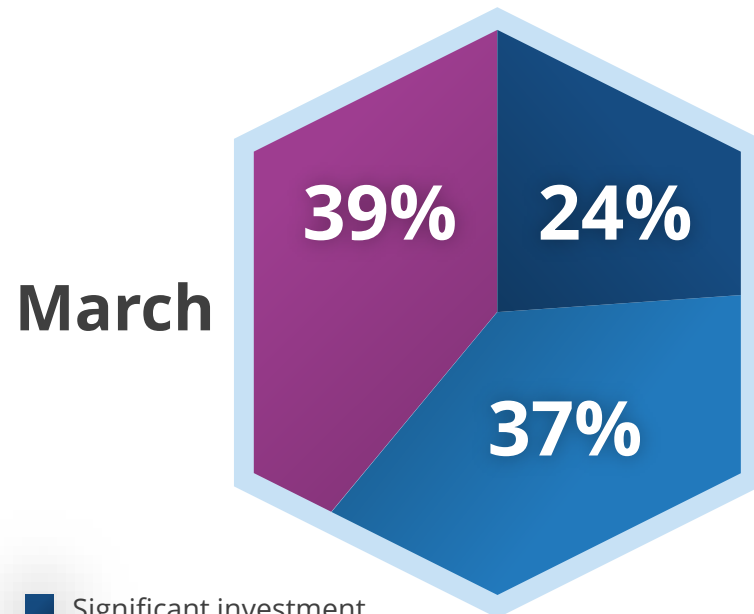
Ritu Jyoti
Group VP, AI, Automation, Data and Analytics
February 6th, 2024

Generative AI is Gaining a Lot of Attention

March

39% **24%**

37%

■ Significant investment

■ Early Exploration

■ Doing nothing

Generative AI is Gaining a Lot of Attention

IDC is projecting that GenAI will add nearly **$10 trillion** to Global GDP over the next ten years

March
- 39%
- 24%
- 37%

Dec
- 11%
- 34%
- 55%

$50M
average planned investment in GenAI by large enterprises (>10,000 employees) over the next year

Legend:
- Significant investment
- Early Exploration
- Doing nothing

Preparing for the Long-Term Impact

1 Business Transformation
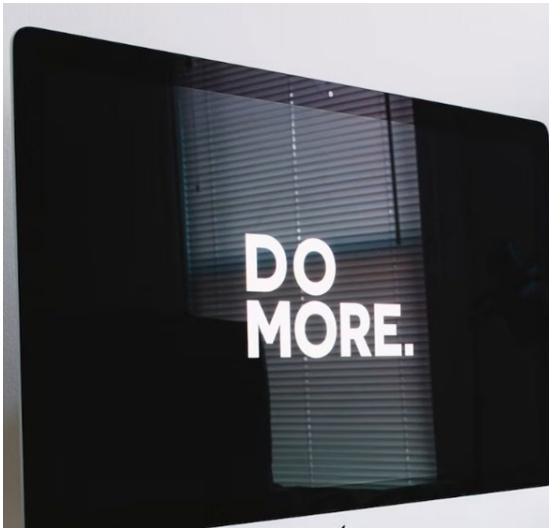
2 Organizational Transformation

3 Technology Architecture Transformation

1 Business Transformation

Generative AI: Top Business Benefits

Expanding Labor Productivity

Generative AI: Top Business Benefits

Personalizing Customer Experience

Generative AI: Top Business Benefits

Accelerating R&D

Personalizing Customer Experience

Generative AI: Top Business Benefits

Emerging New Business Models

Personalizing Customer Experience

Accelerating R&D

Generative AI: Top Business Benefits

Expanding Labor Productivity

Personalizing Customer Experience

Accelerating R&D

Emerging New Business Models

Components of a Business Model

Key partners	Key activities	Value proposition	Customer relationship	Customer segments
	Key Resources		Channels	

Cost structure

Revenue streams
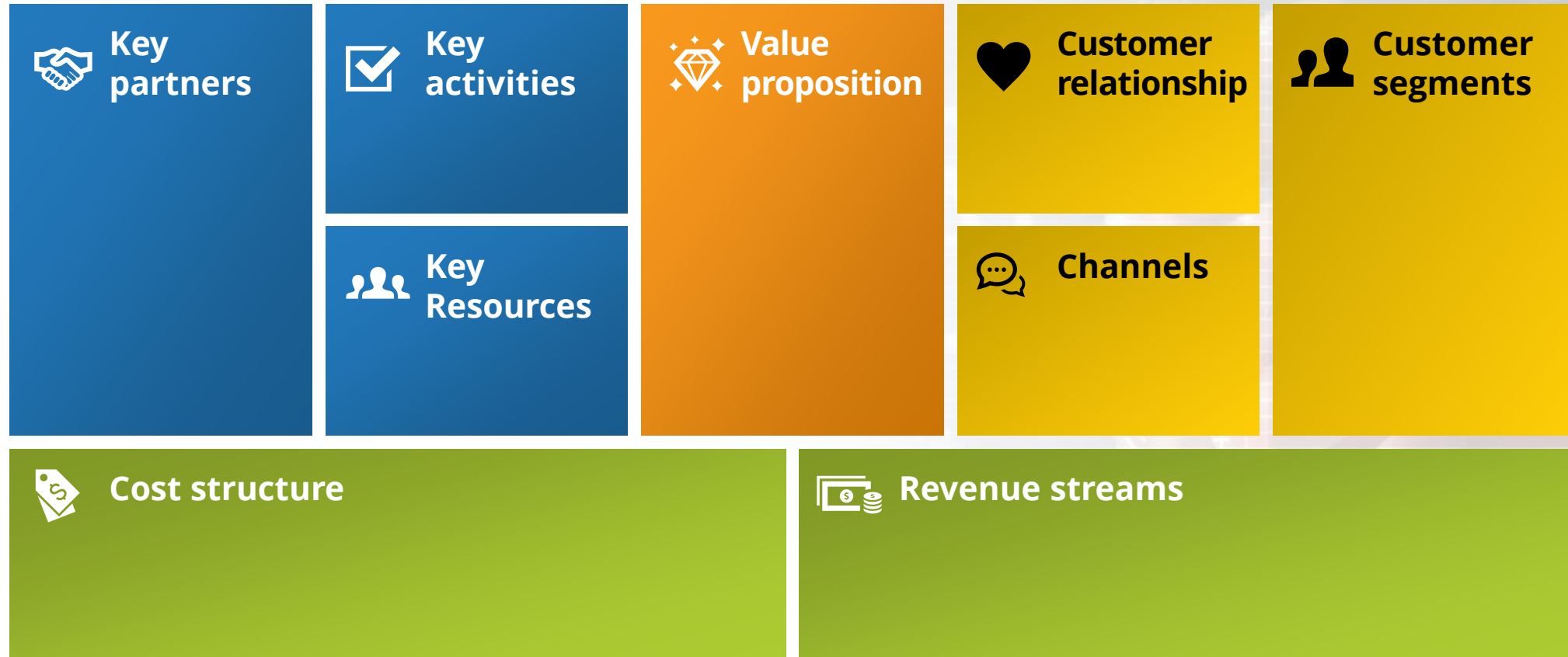
Create Value	Deliver Value	Capture Value

Case Studies

CarMax drives business value with GPT-3.5 to help make buying a used car "effortless."

Case Studies

General Motors uses generative AI technology for product development, dev tool chain optimization and driver experience.

Case Studies

Answering Financial Advisor Questions with the "push" approach of Next Best Action might pair well with the "pull" approach of GPT-based answers to prompts.

Morgan Stanley

Case Studies

Example of Generative and Predictive AI: Request for Proposals Answer Generator

General Motors uses generative AI technology for product development, dev tool chain optimization and driver experience.

Answering Financial Advisor Questions with the "push" approach of Next Best Action might pair well with the "pull" approach of GPT-based answers to prompts.

Morgan Stanley

Case Studies

CarMax drives business value with GPT-3.5 to help make buying a used car "effortless."

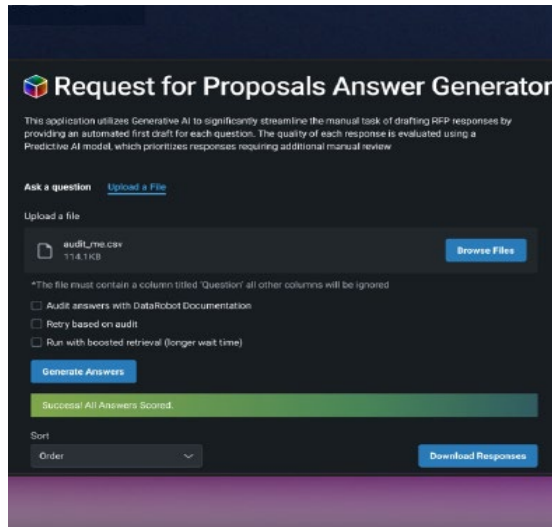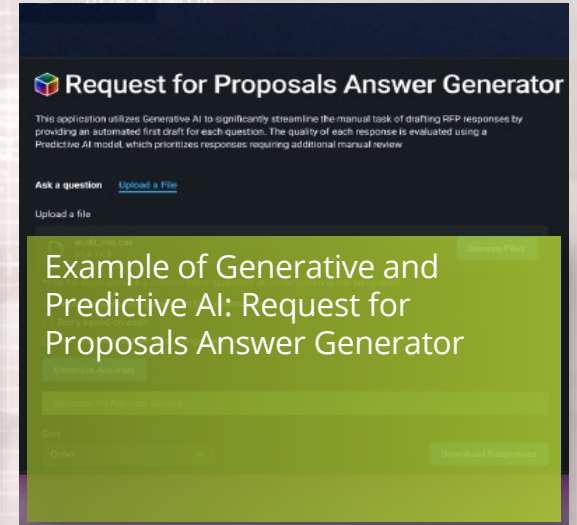General Motors uses generative AI technology for product development, dev tool chain optimization and driver experience.

Answering Financial Advisor Questions with the "push" approach of Next Best Action might pair well with the "pull" approach of GPT-based answers to prompts.

Morgan Stanley

Example of Generative and Predictive AI: Request for Proposals Answer Generator

Process for Defining, Prioritization and Execution of AI Use Cases

Iterative approach

1. Ideation	2. Assessment	3. Prioritization	Execution
Preparation	Identify use cases aligned with AI vision	Assess use cases by value, complexity and risk	Cluster use cases and prioritize	Take use cases into production stage - industrialize

Assessment of Use Case Ideas	Prioritization of Use Case Ideas
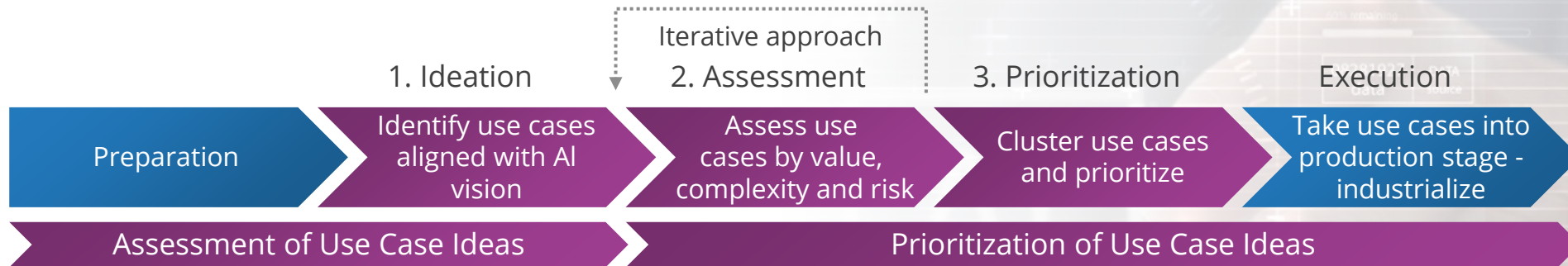
Dimension	Specification
Value	Economic value
	Strategic alignment
Complexity	Data
	Algorithm
	Process systems
	Require know-how
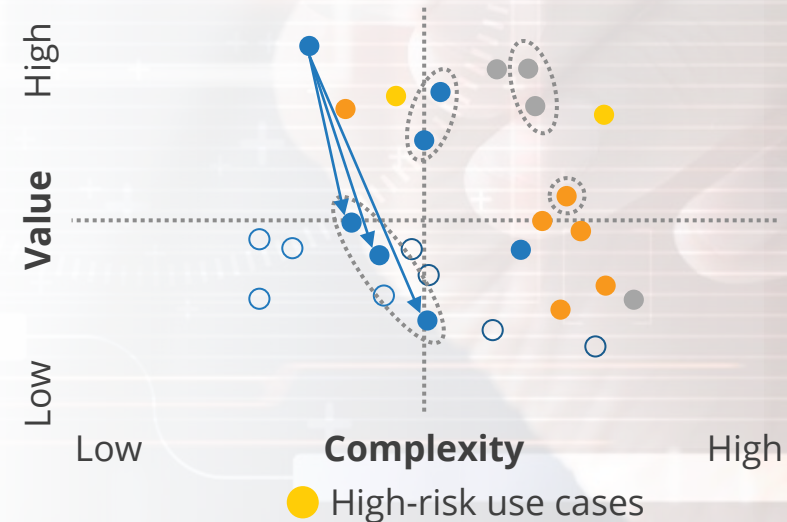
High

Value

Low

Low   **Complexity**   High

● High-risk use cases

Assemble a Generative AI Steering Committee for well-rounded business decisions.

2

Organizational Transformation

Proactive Change Management

01 Centralized cross-functional (LOB and IT) generative AI platform team

- Develop and maintain a **platform service** where approved generative **AI models are provisioned on demand**
- Define **protocols** for generative AI models **integration** and implement standardized approaches to **manage risk**

02 Roles – staff with the right skills

- **Senior technical leader as GM**
- **Technical Team**: Software engineers, Data engineers, Data scientists/ML engineers, Prompt engineers, MLOps engineers
- **Business Team:** AI ethicists, AI risk experts, LoB personas, AI champions

03 Hiring/upskilling for culture of Innovation

- **Adapt academy models** to provide **personalized upskilling**
- Provide **training and corresponding certifications** to technical and non-technical talent
- Ensure every knowledge worker has **AI basic skills**

Responsible AI Governance Committee

The C-suite has critical roles and responsibilities.

Chief Financial Officer

AI cost and financial risk

Chief Marketing Officer

AI for customer and brand charters

Chief Data Officer

The evolution of AI governance charter and data governance

Chief Legal and Compliance/ Risk Officer

AI legal and risk factors for the organization

Chief Executive Officer

The AI governance charter and organizational accountability

Chief Human Resources Officer

The creation of AI employee policy and charter

Chief Information Officer/Chief Technology Officer

The evolution of adversarial robustness

Poor AI governance increases the risk of unintended negative consequences but is complicated by endlessly changing regulations.

CIO/CTO Leadership Priorities

Overarching leadership to manage business reputation.

Partners

To mitigate risk to intellectual property, insist that **providers of foundation models maintain transparency.**

Internal Policies and Risk Management

- Proactive mitigation of risks for the **end-to-end software development process.**
- Establish proven **risk-mitigation actions for hallucinations.**
- Set up **data access controls and policy management layer.**
- Establish **rigor for evaluation metrics.**

Create a conducive environment for employees to thrive in an AI era.

3

Technology Architecture Transformation

Build or Buy – Train or Tune Foundation Models Decision for a Use Case

Availability of in-house talent, data and budget (vertical axis, Low to High)

Examine open-source model
Assess cloud vs. on-premises

Fine-tune an existing model

Buy from a provider
Focus on service agreement

Examine designing a proprietary model
Build/train the model in-house

Train your own model

Examine a partnership
Partner with a model provider that supports training a new proprietary model

Strategic competitive advantage (horizontal axis, Low to High)

Generative AI: Placing Bets on Competing, Overlapping Providers

Software 📈

Hardware 🖥️

Professional Services ⬡

- **Developer training and assistance**
- Pre-built industry and use case models and APIs
- Robust **data security**
- Pre-built data connectors data management capabilities
- **Customization**/ development tools
- Availability of **per user/credits consumption-based pricing**

Generative AI: Placing Bets on Competing, Overlapping Providers

Software

- **Developer training and assistance**
- Pre-built industry and use case model and APIs
- Robust **data security**
- Pre-built data connectors data management capabilities
- **Customization**/ development tools
- Availability of **per user/credits consumption-based pricing**

Hardware

Professional Services

- AI workload **performance optimized** infrastructure
- Ability to support **hybrid cloud infrastructure**
- **Full AI stack** included (libraries, SDKs, orchestration, AI tools)
- Tight integration with **cloud cost/FinOps** systems
- Availability of **flexible consumption-based pricing** options

Generative AI: Placing Bets on Competing, Overlapping Providers

Software

- **Developer training and assistance**
- Pre-built industry and use case models and APIs
- Robust **data security**
- Pre-built data connectors data management capabilities
- **Customization**/ development tools
- Availability of **per user/credits consumption-based pricing**

Hardware

- AI workload **performance optimized** infrastructure
- Ability to support **hybrid cloud infrastructure**
- **Full AI stack** included (libraries, SDKs, orchestration, AI tools)
- Tight integration with **cloud cost/FinOps** systems
- Availability of **flexible consumption-based pricing** options

Professional Services

- **ROI models/cost-benefit analysis** to support business case
- Showcase/**Co-develop relevant use cases** for AI
- **Industry insights** and competency
- **Knowledge transfer/training** for our internal team
- Existing **relationship / understanding** of your business

Generative AI: Placing Bets on Competing, Overlapping Providers

Software

- **Developer training and assistance**
- Pre-built industry and use case models and APIs
- Robust **data security**
- Pre-built data connectors data management capabilities
- **Customization**/ development tools
- Availability of **per user/credits consumption-based pricing**

Hardware

- AI workload **performance optimized** infrastructure
- Ability to support **hybrid cloud infrastructure**
- **Full AI stack** included (libraries, SDKs, orchestration, AI tools)
- Tight integration with **cloud cost/FinOps** systems
- Availability of **flexible consumption-based pricing** options

Professional Services

- **ROI models/cost-benefit analysis** to support business case
- Showcase/**Co-develop relevant use cases** for AI
- **Industry insights** and competency
- **Knowledge transfer/training** for our internal team
- Existing **relationship / understanding** of your business

Generative AI:
Reimagine Technology Function

Software Development

35-45%
Faster development of code

Refactor code, Code documentation, Code translation, Testing
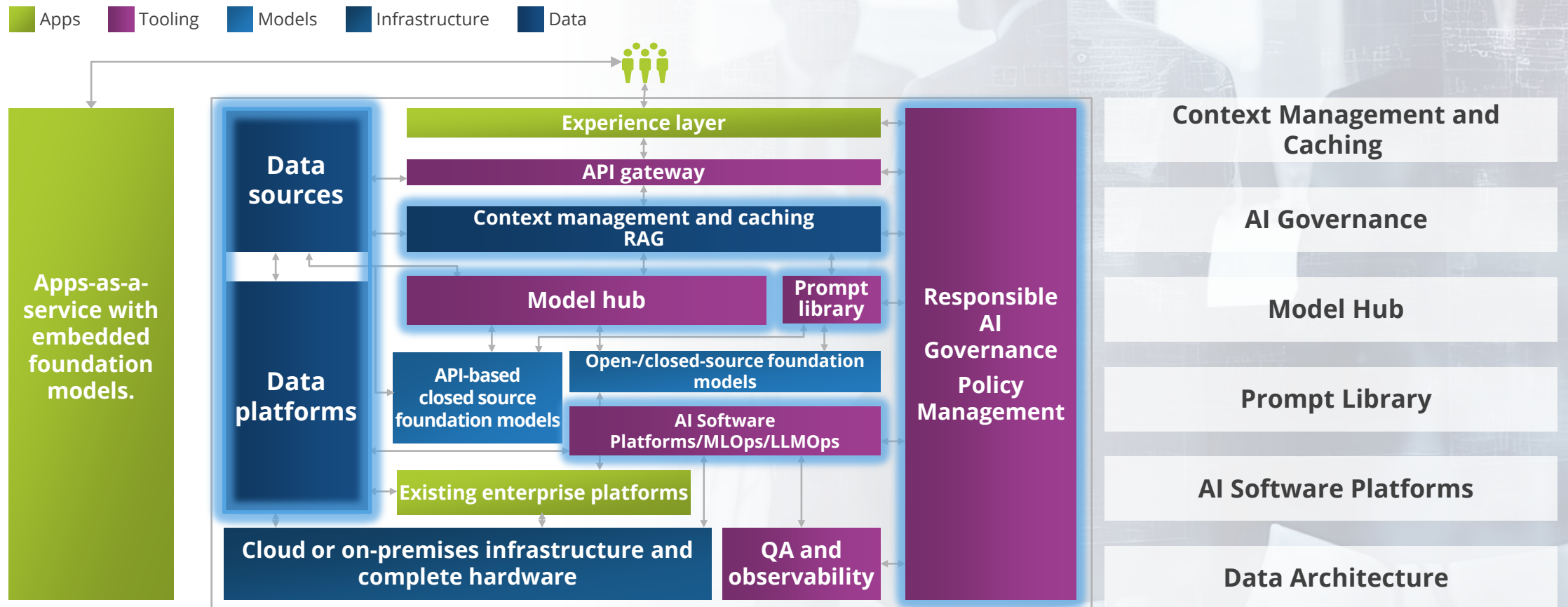
Technical Debt

20-40%
of budget

Determine how generative AI capabilities accelerate reduction of debt

IT Operations

25-35%
More productive

Improve observability and resolutions

Source: IDC Customer Interviews/Inquiries

Generative AI: Upgrade Technology Architecture

Legend: Apps · Tooling · Models · Infrastructure · Data

Left panel:
Apps-as-a-service with embedded foundation models.

Center (boxed architecture):

Data sources

Data platforms

- Experience layer
- API gateway
- Context management and caching RAG
- Model hub
- Prompt library
- API-based closed source foundation models
- Open-/closed-source foundation models
- AI Software Platforms/MLOps/LLMOps
- Existing enterprise platforms
- Cloud or on-premises infrastructure and complete hardware
- QA and observability

Right column (Responsible AI Governance Policy Management):

Responsible AI Governance Policy Management

Far right list:
- Context Management and Caching
- AI Governance
- Model Hub
- Prompt Library
- AI Software Platforms
- Data Architecture

Reimagine technology functions and establish composable architecture.

Preparing for the Long-Term Impact of Generative AI

1

Business Transformation
Assemble a **Generative AI Steering Committee** for well-rounded business decisions.

2

Organizational Transformation
Create a **conducive environment for employees** to thrive in an AI era.

3

Technology Architecture Transformation
Reimagine technology **functions** and establish composable architecture.

Start harnessing the power of Generative AI at scale — responsibly and effectively — now.