

The background features a stylized globe with a grid of latitude and longitude lines. Overlaid on the globe is a complex network of glowing yellow and orange nodes connected by thin lines, suggesting a global data or communication network. The overall color palette is dark teal and blue, with the network elements providing a warm, high-tech contrast.

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AI-Led Mainframe Modernization for Faster, Lower-Risk Transformation

Combining AI, hybrid cloud, and expert-led execution to modernize mission-critical applications with speed, scale, and confidence

Modernizing mainframe applications presents some common challenges



Agility

Business demands for innovation, multiple options and increased speed-to-market for every project, including digital transformation.



Cost

Increasing competition for budget driving a need for laser focus on costs and obtaining full value for every investment or expense.



Skills

Finding and retaining enough skilled mainframe experts to address technical debt and emerging business requirements.

Success or failure to meet these challenges has a major impact on the business



Behind these challenges; technology debt is on the rise bringing added complexity

70%

organizations missed their goals / targets with mainframe application modernization projects*

Organizations are under increasing pressure to reduce complexity, accelerate innovation, and maximize the value of modernization investments.

Despite
30%

of IT budgets being spent on modernization efforts.

30%

of IT operating costs are wasted on managing unnecessary complexity

70%

of CIOs say complexity is the biggest barrier to speed and agility

80%

of business leaders believe IT simplification is essential to greater value and innovation

The combination of AI, automation, and cloud platforms is creating new opportunities to reduce complexity and accelerate modernization.

Why modernization programs struggle to deliver value



Big-bang transformations created unacceptable risk

- Large-scale rewrites introduce stability
- Mission-critical systems exposed to disruption
- Long timelines delay value



Siloed, domain-led efforts increased fragmentation

- Applications modernized in isolation
- Inconsistent approaches across the estate
- Knowledge trapped within teams



Lift-and-shift moves tech debt, doesn't remove it

- Lift-and-shift without real transformation
- Legacy complexity persists in new environments
- Costs and inefficiencies remain

The Result:

Modernization programs that are expensive, lengthy, and high-risk

The three pillars of successful mainframe modernization on Azure

1



Speed and agility that match business expectations

- Faster analysis and transformation
- Faster analysis and transformation powered by Azure AI & Azure Open AI
- Parallel modernization across applications
- Delivery aligned to business demand

2



Quality that holds as estates change

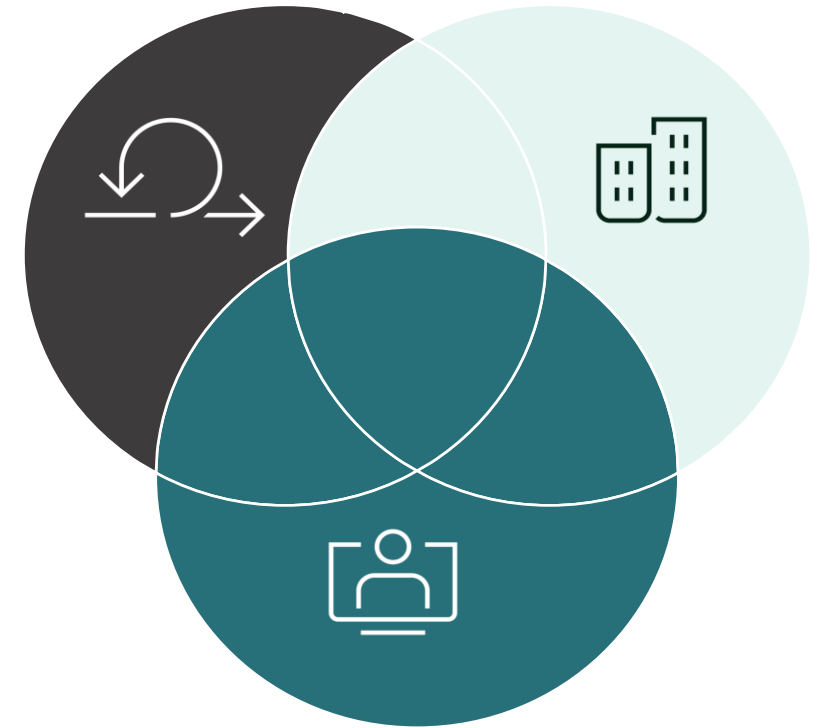
- Zero disruption to mission-critical applications
- Business logic preserved and validated using AI-assisted testing on Azure
- Consistent outcomes driven by standardized Azure application and data services

3



Delivering enterprise security and governance at scale

- Built-in traceability and control with Microsoft Purview and Azure governance services
- Governance embedded in delivery using Azure Policy and DevSecOps Practices
- Enterprise-grade security with Microsoft Entra and Microsoft Defender



Kyndryl's approach to continuous agentic modernization

Harnessing the power of Agentic AI
as a Workforce Multiplier

codifying our deep technical expertise

re-imagining mainframe systems ground up
to deliver an Agentic Architecture vs
just “lifting and shifting”

to deliver step change in:



Agility

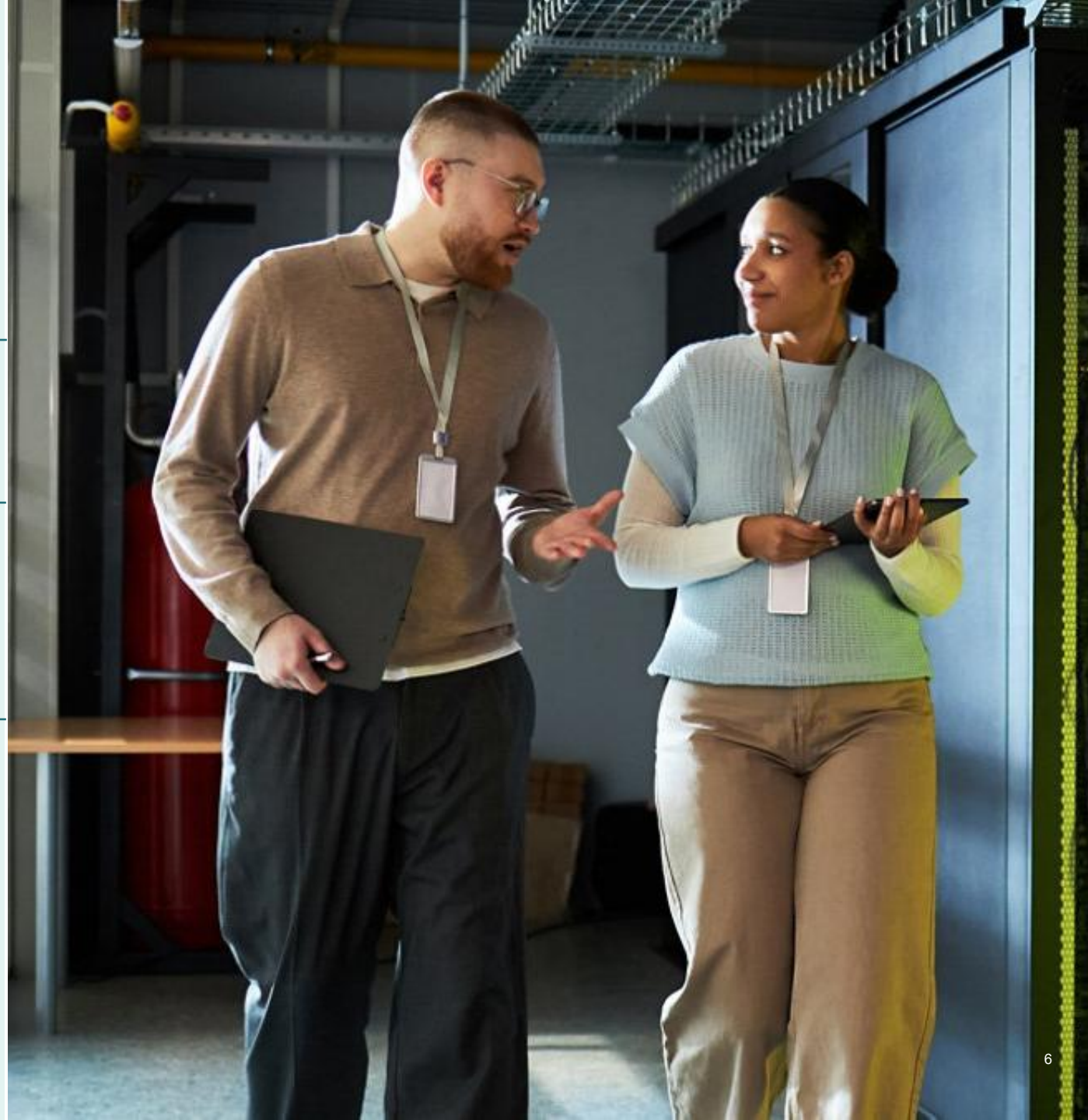


Speed



Value

kyndryl



Why Kyndryl & Microsoft

A new approach to mainframe modernization



Kyndryl delivers

- **Application-led, assessment-driven strategy:** Defining the right modernization path aligned to business priorities
- **AI-powered discovery and dependency analysis:** Visibility into complex environments to reduce risk
- **Industrialized, factory-based execution model:** Scalable modernization with AI agents and expert oversight
- **Continuous modernization and operations:** Incremental transformation with ongoing optimization and governance

Microsoft provides

- **Azure AI and Azure OpenAI platform:** Accelerate application analysis, transformation, and testing using enterprise-grade AI
- **Hybrid cloud foundation on Azure:** Integrate mainframe, distributed, and cloud-native environments seamlessly
- **Unified data platform (Microsoft Fabric):** Modernize legacy data and enable real-time insights and AI-driven innovation
- **Enterprise security and governance:** Built-in identity, protection, and compliance with Microsoft Entra, Defender, and Purview
- **Cloud-scale application platform:** Modern application runtime and DevOps with Azure Kubernetes Service and GitHub

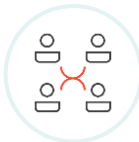
Microsoft's leading cloud and AI platform, combined with Kyndryl's modernization expertise and proven execution, delivers faster value with less risk.



Kyndryl & Microsoft help customers modernize mission-critical applications with confidence



40+ years of experience across **22K+ subsystems**, and **100+ million batch jobs** per day



Managing **6.2M/ 50%** of the IBMz MIPS in the service provider market – more than 3x any other provider



70k+ global, highly skilled, mainframe expert team keeping a currency of **expertise and deep skills** through a dedicated education program

Built on a holistic, end-to-end strategy:

Help customers **manage** and **optimize** their **mission-critical** workloads

Right Application on the Right Platform at the Right Pace — accelerated with AI, Azure and Kyndryl expertise



Modernize on

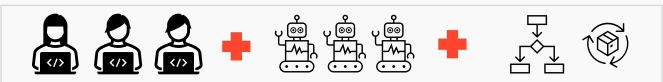


Integrate with



Move off

Enterprise-grade Agentic Workflows powered by Kyndryl Agent Builder and Microsoft AI technologies

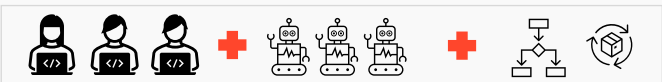


Experts

Agents

Existing Assets

Combines deep functional and technical human expertise with AI to analyze and execute modernization at scale



Experts

Agents

Existing Assets

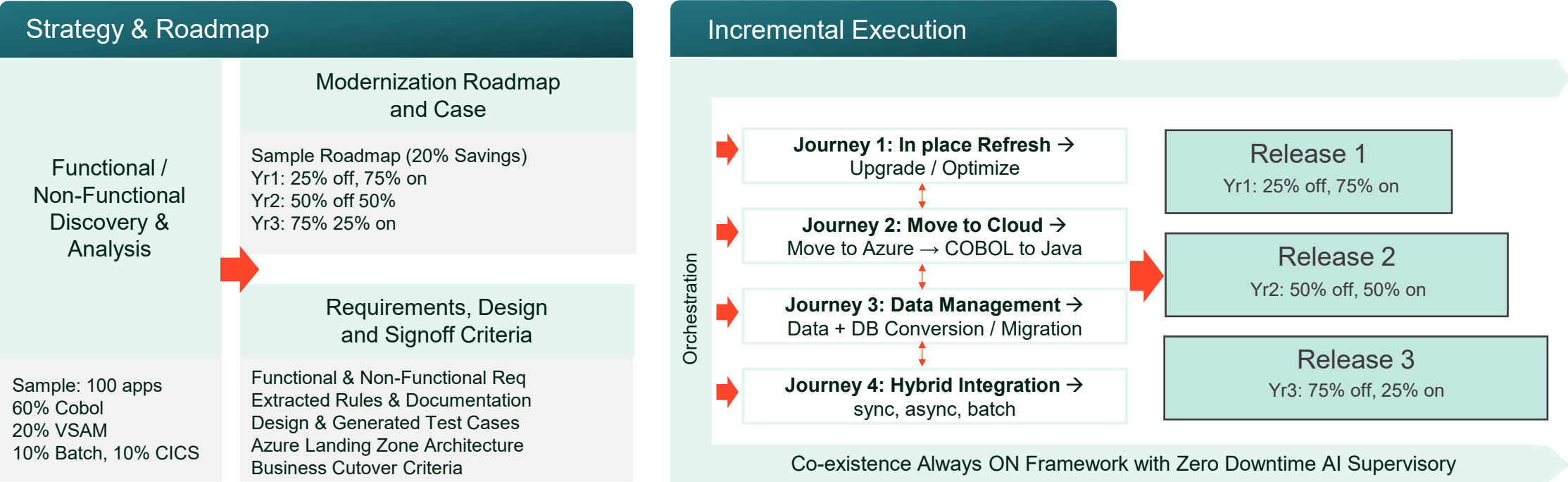
Enterprise-grade AI, secured and governed using Microsoft AI capabilities and Kyndryl operational expertise.



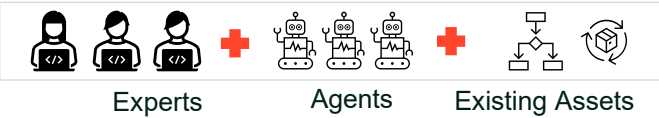
Commitments

Step change in speed, predictable outcomes, business alignment and better overall risk management

Kyndryl & Microsoft Mainframe Application Modernization Approach



Enterprise Grade Agentic Workflows powered by Kyndryl Agent Builder, Azure AI and Azure OpenAI



Combines deep functional and technical human expertise with AI to analyze and execute modernization at scale



All AI hardened for enterprise-grade scalability and security leveraging Azure AI capabilities and enterprise governance.

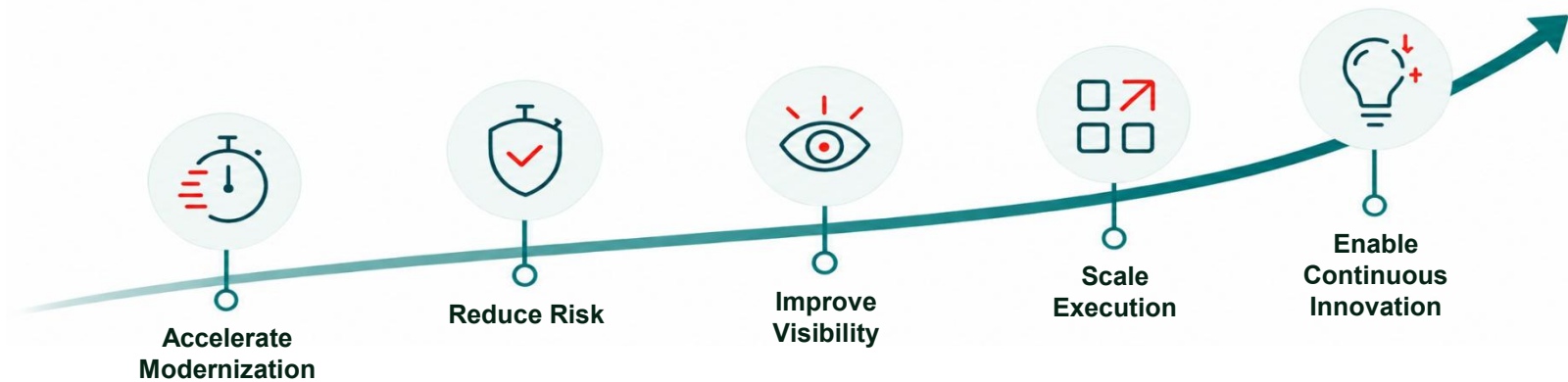


Commitments

Step change in speed, predictable outcomes, business alignment and better overall risk management

Solution Benefits

Delivering faster, safer, and scalable mainframe modernization





Accelerate Modernization

AI-powered analysis and automation deliver faster decisions and execution



Reduce Risk

Incremental modernization with built-in validation and expert oversight minimizes disruption.



Improve Visibility

Actionable insights across applications, dependencies, and modernization pathways.



Scale Execution

Factory-based, repeatable execution ensures consistency across applications and environments.



Enable Continuous Innovation

Ongoing optimization allows applications to evolve with business needs over time.



Faster delivery
From weeks to days



Lower risk
With validated, iterative modernization



Better decisions
With end-to-end visibility and insights



Higher impact
Through scalable execution and continuous innovation

Next Steps

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-
-
-
-

New to modernization?

Start with a Mainframe Modernization Assessment

Identify application modernization pathways, dependencies, and risks—and define a prioritized roadmap aligned to your business goals.

Already advancing modernization?

Validate and scale with a targeted pilot engagement.

Apply AI-led modernization to a selected application to accelerate outcomes, reduce risk, and build a scalable execution model.

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Get started today

Connect with Kyndryl to begin your modernization journey and define your next steps.

<https://www.kyndryl.com/us/en/about-us/alliances/consult>



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Thank you

thank you