

# Implementing Azure OpenAI in Large Enterprises

Nikolay Markov and Nikolay Panchev



# Q&A

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# Agenda

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# Presenters

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**Nikolay Markov** with over 20 years of experience at the forefront of IT innovation, Nikolay is an expert in AI, cloud computing, and cybersecurity. As a researcher, innovator, and creator of the AI Topologies Framework, Nikolay is recognized for bridging the gap between advanced technology and strategic business solutions. His visionary work continues to push the boundaries of AI, driving efficiency and problem-solving across industries.

Passionate about promoting AI adoption, Nikolay co-hosts Cloud Talks and AI Talks, creating a space for like-minded professionals to learn and embrace the future of AI. His commitment to digital transformation and his role as a techno-optimist make him the ideal guide to help you understand the vast potential of AI and how it can revolutionize the way we work.

**Nikolay Panchev** has over 18 years of experience in IT, evolving from building enterprise systems to driving meaningful change through Artificial Intelligence. His extensive background in workplace software gives him a deep understanding of how organizations operate, which has been instrumental in recognizing how AI can revolutionize businesses. He views AI not just as a set of tools, but to unlock efficiency, innovation, and new possibilities for organizations.

As a certified trainer and speaker on AI technologies, Nikolay has led numerous workshops and seminars, helping professionals and enterprises navigate the complexities of AI adoption. His passion lies in empowering teams to leverage AI to drive strategic transformation and reshape their approach to problem-solving.

# Some Stats

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## Market Growth

- The global AI market is expected to grow by **37.3% annually** from 2023 to 2030
- By **2030**, AI is projected to contribute **\$15.7 trillion** to the global economy, more than the combined GDP of India and China

## Enterprise Adoption

- 65% of companies** are currently using AI in some capacity, with **74% testing** its applications
- 56% of businesses** use AI to enhance operational efficiency, with **51% employing it for cybersecurity and fraud management**

## Productivity Boost

- AI is expected to **improve employee productivity by 40%**, with businesses leveraging AI to increase output and optimize processes

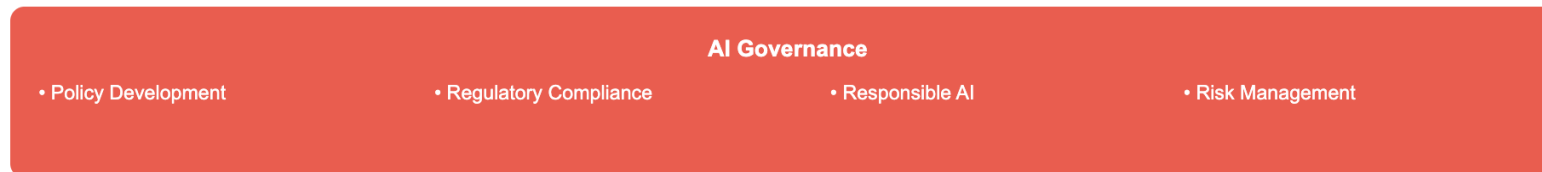
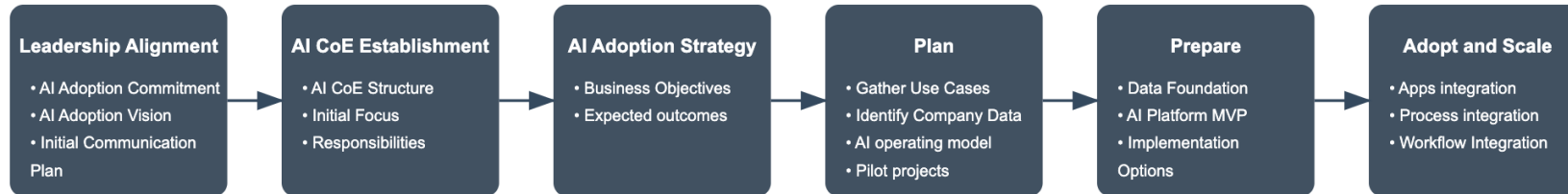
## AI Investment

- In **2023**, **25% of all U.S. startup investment** went to AI-related companies, a significant increase from the 12% average over the previous four years

## AI in the Workplace

- Generative AI** has been shown to increase work performance by **66%** on average across different use cases, including customer service and programming

# AI Adoption Framework



# AI Adoption in Organizations

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## Current State

- Rapid, unplanned adoption of AI technologies
- Similar challenges faced during early cloud adoption

## Need for Strategic Planning

- Importance of building a structured AI strategy
- Planning and executing AI adoption thoughtfully
- Educating teams and aligning with organizational goals

## Avoiding Past Mistakes

- Learning from inefficient cloud adoption experiences
- Ensuring AI is adopted correctly from the start

# Popular AI Use Cases in Enterprises

## Chatbots

- Most prevalent use case in large enterprises
- Enhanced capabilities with integration into platforms like Microsoft Teams
- Chatbots connected to internal data sources

## Document Interaction

- AI tools enabling interaction with internal documents
- Improved efficiency in data retrieval and processing

## Customer Service Enhancements

- AI agents providing first-line support
- Personalized interactions and quick resolutions

## Data Analysis

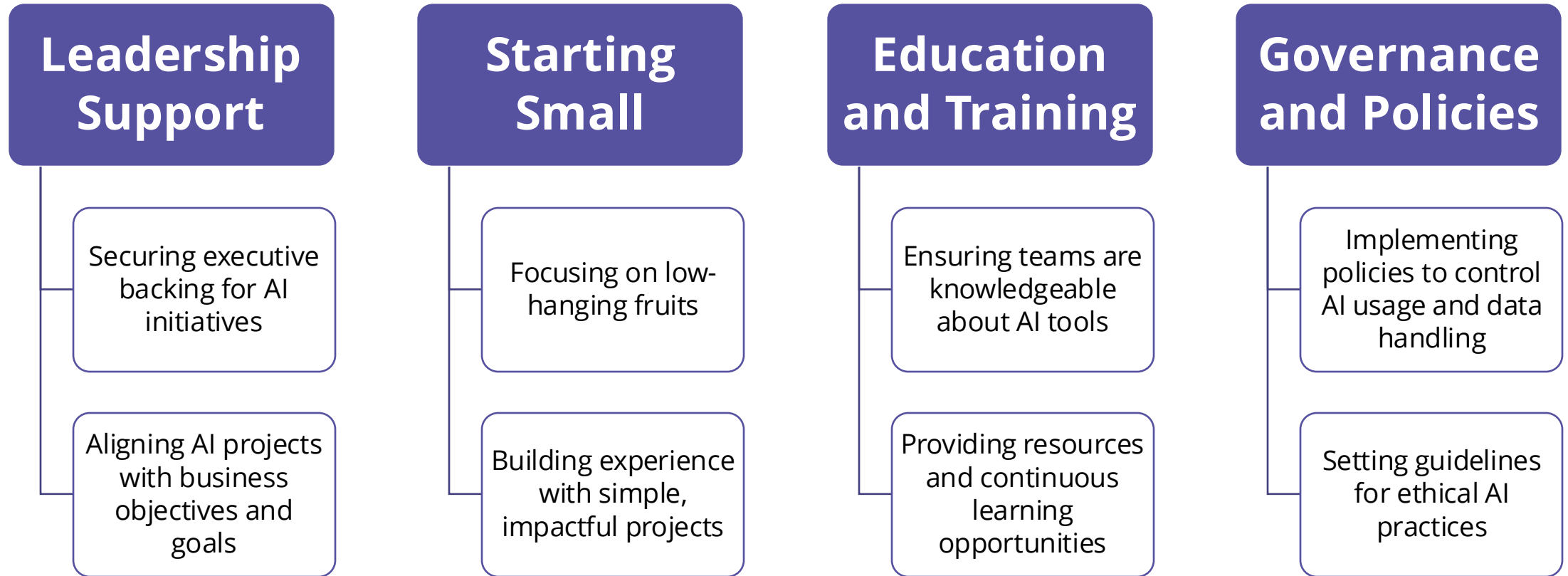
- AI enhances data analysis by identifying patterns in large datasets, leading to better decision-making.
- 35% of enterprises use AI for content and data production

## Staff Augmentation

- AI systems augment staff by automating repetitive tasks, allowing employees to focus on higher-value work.



# Strategic AI Adoption Pillars



# Role of AI Centers of Excellence (CoE)

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## Establishing CoEs to Guide AI Initiatives

- An AI CoE centralizes expertise, providing consistent governance, resource allocation, and strategic direction
- It helps manage AI risks, enforce ethical standards, and align projects with business goals.

## Governance and Best Practices

- Ensuring compliance and ethical AI use
- Cross-team collaboration and knowledge sharing

## Addressing Shadow AI Risks

- Mitigating unsanctioned AI projects using company data
- Promoting responsible AI usage across the organization

# AI CoE Responsibilities

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## Leadership and Support

Importance of executive backing

Aligning AI initiatives with business strategy

## Diverse Team Composition

Combining expertise from data science, engineering, and business

## Continuous Learning

Keeping up with rapid AI developments

Offering training programs and workshops

## Evangelizing AI Adoption

Promoting AI benefits across the organization

Encouraging collaboration and knowledge sharing

# Common AI Workloads in Azure

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Machine Learning

Computer Vision

Natural Language Processing

Document Intelligence and Knowledge Mining

Training and deploying custom models

Azure Machine Learning Studio for development

Image recognition, object detection

Applications in manufacturing and predictive maintenance

Chatbots, language translation, sentiment analysis

Integration with Azure Cognitive Services

Extracting insights from unstructured data

Azure AI Search capabilities

# Implementing Azure OpenAI in Enterprises

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## Access Methods

- Azure AI Studio, REST APIs, SDKs, and command-line tools

## Security and Compliance

- Importance of network security and architecture planning
- Data processing and privacy considerations
- Monitoring and content filtering for responsible AI use

## Scalability and Integration

- Ability to scale services based on demand
- Integration with existing systems and data sources
- Use of API gateways and load balancing

# Deep Dive into Azure OpenAI Services

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## Overview of Azure OpenAI

- Microsoft's collaboration with OpenAI to offer AI models as services
- Access to all OpenAI's model portfolio

## Benefits of Using Azure OpenAI

- Cost savings and operational efficiency
- Enhanced productivity through automation and AI-driven insights
- Accelerated innovation and industry transformation

## Enterprise-Grade Features

- Security controls, private networks, and compliance support
- Enterprise support

# Key Considerations and Best Practices

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## Capacity and Latency

- Awareness of model availability across regions
- Importance of proximity to reduce latency

## Model Assessment

- Regularly evaluating models for performance and cost-effectiveness
- Staying updated with new model releases and features

## Governance Structures

- Establishing clear roles and responsibilities
- Implementing a governance framework for AI projects

## Developer Support

- Providing guidance and resources to development teams
- Encouraging best practices in AI implementation

# Risk and Ethical Considerations

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## Data Integrity and Security

- Safeguarding data used with AI models
- Compliance with data protection regulations

## Responsible AI Use

- Implementing content filtering and monitoring
- Ensuring AI outputs are ethical and unbiased

## Addressing Shadow AI

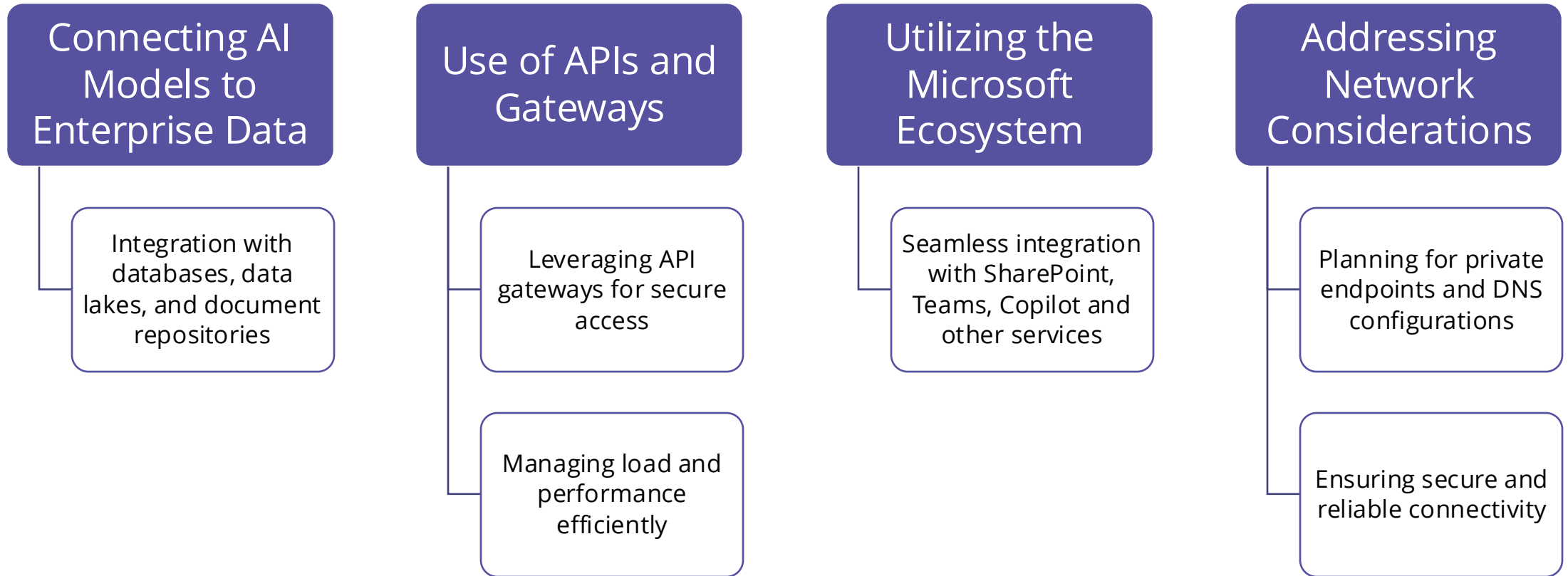
- Mitigating risks from unsanctioned AI projects
- Establishing policies and oversight mechanisms

## Transparency and Accountability

- Documenting AI decision-making processes
- Providing explanations for AI-driven outcomes



# Integration with Existing Systems



# Monitoring and Optimization

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## Tracking Usage and Performance

- Using Azure Monitor and Application Insights
- Identifying bottlenecks and optimizing resources

## Scalability Strategies

- Implementing Provisioned Throughput Units (PTUs)
- Utilizing best practices for scaling AI services

## Cost Management

- Monitoring expenses related to AI workloads
- Adjusting resources based on demand

## Continuous Improvement

- Regularly reviewing AI implementations
- Incorporating feedback and updating models

# Advancements in Open-Source AI Models

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## Development of New Models

- Llama, Qwen, Hermes, Mistral
- Performance nearing that of proprietary models like the GPT-4 family

## Benefits of Open-Source Models

- Customization and fine-tuning capabilities
- Cost-effectiveness and control over data privacy

## Community Contributions

- Collaboration leading to rapid advancements
- Continuous improvements and updates

# On-premise use of AI models

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## Hardware Considerations

- Ability to run AI models on modest hardware
- Use of consumer **NVIDIA** GPUs and **MacBooks** with M-series chips
- Enterprise grade hardware is often very expensive and hard to get

## Tools for Local Deployment

- Containerization and Virtualization Using tools like **Docker** and **Kubernetes** to manage local deployments
- Many inference engines to choose from – **vLLM**, **Llama.cpp** and others

## Advantages of Local Models

- Reduced dependency on cloud services
- Enhanced data privacy and security

# AI Agents Revolutionizing Automation

## What are AI Agents?

- Autonomous systems that perform tasks, make decisions, and learn from their environment.

## Types of AI Agents

- **Task-Specific** Virtual assistants, chatbots.
- **Multi-Agent Systems** Collaborate on complex tasks.
- **Autonomous Agents** Adapt and act independently.

## Enterprise Applications

- **Process Automation** Data entry, report generation.
- **Decision Support** Financial forecasting, supply chain optimization.
- **Customer Interaction** 24/7 automated support.

## Key Benefits

- **Scalability** Handle growing volumes without added labor.
- **Efficiency** Automates repetitive tasks.
- **Continuous Learning** Improves accuracy over time.

# AI Agents in the enterprise

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## Ready for production use?

- Variety of mature agent services are now available - Low code/no code, multi-agent systems and complete frameworks.
- Microsoft Copilot, Autogen, CrewAI, LangGraph and many others.

## Emphasis on Specialized, Smaller Language Models

- Teams of agents working together efficiently
- Increased speed and effectiveness in AI systems

## Agents Building Tools

- Ability to generate code and create custom tools
- Solving specific problems creatively

# Summary

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## AI Adoption

Start small and scale up using AI to rethink how your business works and drive innovation step by step



## Cloud and Hosted AI Solutions

Leverage cloud AI services like Azure or AWS to quickly access powerful tools without needing costly infrastructure



## AI Centers of Excellence

A dedicated AI team ensures your AI projects are well-managed, ethical, and aligned with your company's goals



## Balancing Local and Cloud Models

Choose the right mix—local AI for secure, real-time needs and cloud AI for scalability and flexibility



## AI Agents

AI agents can take over routine tasks, helping your team focus on what really matters and boosting overall productivity



## Looking Forward

Success with AI comes from using it thoughtfully and thoroughly



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# Thank you!

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