WHITE PAPER

The Value-Driven AI Roadmap

The CIO's Blueprint for AI Implementation and Adoption

ValueOps™ by Broadcom

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The AI Adoption Challenge

Regarding enterprise AI adoption, CIOs face a significant challenge: AI initiatives frequently fail to deliver on their promises. According to Gartner, only 53% of AI pilots make it to production, and of those, barely half deliver their expected benefits. Understanding why these initiatives fail is critical to developing effective implementation strategies.

Several factors contribute to these failures. Recent research from Microsoft's 2025 Work Trend Index highlights what they term a "capacity gap," where 53% of leaders say productivity must increase, while 80% of the global workforce reports lacking enough time or energy to complete their work. During core work hours, employees are interrupted every 2 minutes by meetings, emails, or pings, resulting in fragmented, chaotic work patterns. This context helps explain why many AI initiatives struggle to gain traction.

Other factors affecting AI implementation success include the following issues:

- Misalignment between AI solutions and business problems.
- Inadequate data quality and availability.
- Organizational resistance to change.
- Lack of clear success metrics and ROI tracking.
- Insufficient technical expertise and skills gaps.

This paper examines these challenges and explores methodologies that can help organizations address them systematically.

The most successful AI implementations aren't about having the most advanced technology. They're about applying the right technology to the right business problems at the right time.

THE GENIUS OF THIS APPROACH LIES IN ITS MULTI-LAYERED STRUCTURE

Technology Roadmapping: A Time-Tested Framework for Technology Planning

Technology roadmapping methodology emerged in the late 1970s when the telecommunications giants needed a structured approach to navigate increasingly complex product development cycles. Its key innovation was integrating market analysis, product planning, and technology forecasting into a unified visual framework.

"The genius of this approach lies in its multi-layered structure," explains Richard Phaal, Senior Lecturer at the University of Cambridge and road mapping expert. "By connecting market needs at the top, to product/service capabilities in the middle, and enabling technologies at the bottom, it creates clear line-of-sight from customer value to technical implementation."

The methodology includes several distinctive elements:

- Time-based visualization: Maps technology evolution across defined timeframes (typically 1 to 2 years, 3 to 5 years, and 5 or more years).
- Multi-layered integration: Establishes clear connections between market needs, product capabilities, and enabling technologies.
- Pull and push perspectives: Balances market demands (pull) with technology possibilities (push).
- Cross-functional collaboration: Employs workshops with diverse stakeholders to populate and validate roadmaps.
- Flexible adaptation: Scales from product-specific planning to enterprise-wide strategy.

This approach aligns with what Microsoft's Work Trend Index describes as the "journey to the Frontier Firm," in which organizations progress through three phases of AI adoption: first using AI as an assistant, then deploying human-agent teams, and finally evolving to human-led, agent-operated models where agents run entire business processes and workflows.

VALUE STREAM MANAGEMENT GIVES YOU THE METRICS THAT MATTER

Value Stream Management: The Business Context for AI

While technology roadmapping provides the "how" of AI implementation, Value Stream Management (VSM) delivers the critical "where" and "why."

VSM is a lean business practice that identifies, measures, and optimizes the flow of value from ideation to customer delivery. When applied to AI adoption, VSM provides essential business context for technology decisions.

"Value stream management gives you the metrics that matter," says Michael Rodriguez, Senior Partner at a global strategy consulting firm. "It shifts the conversation from 'What can AI do?' to 'Where will AI create measurable impact?'"

In AI contexts, VSM provides five critical functions:

- Value-based targeting: Identifies processes where AI can deliver maximum benefit.
- Baseline metrics: Establishes quantitative measurements to evaluate AI impact.
- Use case prioritization: Ranks potential AI applications by business value.
- Dependency mapping: Reveals process interdependencies affecting implementation.
- Continuous improvement: Ensures ongoing optimization through measurement.

VSM employs key metrics, including lead time (total time from request to delivery), process time (actual work time), percent complete and accurate (work completed without rework), and flow efficiency (ratio of process time to lead time).

AI-specific considerations include data quality and availability across the value stream, decision points that could benefit from AI enhancement, areas of high manual effort, and existing bottlenecks limiting performance.

THE JOURNEY BEGINS WITH PARALLEL ASSESSMENTS OF VALUE STREAMS AND AI TECHNOLOGIES

The Integrated Framework: A Four-Phase Approach

The integration of these methodologies creates a comprehensive framework for AI adoption that proceeds through four distinct phases.

Phase 1: Assessment

The journey begins with parallel assessments of value streams and AI technologies:

- Value Stream Analysis:
  - Map current value streams end-to-end.
  - Identify critical pain points and bottlenecks.
  - Measure baseline performance metrics.
  - Identify stakeholder needs and expectations.
- Technology Assessment:
  - Evaluate market drivers for AI adoption.
  - Assess internal AI capabilities and maturity.
  - Identify technology gaps requiring investment.
  - Analyze competitive AI adoption patterns.

Integration Point: Prioritize value streams based on alignment with strategic technology goals and rank potential AI use cases by value stream impact potential.

A global financial institution highlights this approach effectively. During their assessment phase, they identified customer onboarding as a high-friction value stream with considerable potential for AI improvement. “We examined the areas where customers faced the most difficulties and where internal costs were the highest,” explains its CIO. “Document processing during onboarding met both criteria.”

Phase 2: Planning

With priorities established, the planning phase creates a detailed roadmap for AI implementation:

- Value Stream Targeting:
  - Define specific improvement objectives for targeted value streams.
  - Establish quantifiable success metrics for AI implementation.
  - Identify stakeholders and change management requirements.
  - Map current-state process flows in detail.
- AI Technology Roadmapping:
  - Develop a multi-layer roadmap connecting business needs, AI capabilities, and required technologies.
  - Define the market layer: customer needs, regulatory requirements, and competitive pressures.
  - Define the product layer: AI-enhanced features, data-driven services, and automation opportunities.
  - Define the technology layer: algorithms, data infrastructure, integration points, and skills requirements.
  - Establish realistic timelines across all layers.

Integration Point: Map specific AI technologies to value stream improvement opportunities and develop business cases with quantifiable ROI projections.

THE ROADMAPPING PROCESS CREATES INVALUABLE CLARITY

Anita Patel, CIO at a multinational technology corporation, notes: "The roadmapping process creates invaluable clarity. When everyone can see how the market needs connect to product features and enable technologies—all on a defined timeline—alignment happens naturally."

This phase is where organizations begin to consider what Microsoft's Work Trend Index calls the "human-agent ratio"—the balance between human oversight and agent efficiency that maximizes performance on both sides of the equation. As the report notes, "Too few agents per person underutilizes both agentic and human resources, while too many agents per person overwhelms human capacity for applying judgment."

Phase 3: Implementation

With the roadmap established, implementation proceeds with continuous attention to both technology deployment and value stream improvement:

- Value Stream Optimization:
  - Apply lean principles to optimize value streams before AI integration.
  - Establish measurement systems to track performance changes.
  - Prepare teams for process changes through training and communication.
  - Identify and address potential barriers to adoption.
- Technology Deployment:
  - Execute technology acquisition and development plans according to the roadmap timeline.
  - Follow agile implementation methodology with frequent feedback loops.
  - Develop required talent and skills through training or recruitment.
  - Address data quality and integration requirements.

Integration Point: Implement AI solutions with clear metrics for value stream performance and ensure ongoing communication between technical teams and value stream owners.

A global manufacturing firm illustrates this approach. After mapping production value streams and developing a roadmap for computer vision implementation, they optimized their quality control processes before introducing AI. "We realized that deploying AI into a broken process would just give us faster-broken results," the firm's CTO explains. "By optimizing the value stream first, we created the perfect environment for AI to thrive."

BY OPTIMIZING THE VALUE STREAM FIRST, WE CREATED THE PERFECT ENVIRONMENT FOR AI TO THRIVE

During this phase, organizations begin developing what the Work Trend Index calls the "agent boss mindset," where employees learn to build, delegate to, and manage AI agents to amplify their impact. The most successful companies invest heavily in upskilling their workforce, with 47% of leaders listing this as a top workforce strategy.

Phase 4: Evaluation & Refinement

The framework culminates in rigorous evaluation and continuous refinement:

- Value Stream Performance Analysis:
  - Measure improvements in value stream metrics post-AI implementation.
  - Identify unexpected consequences or new bottlenecks.
  - Calculate actual ROI compared to projections.
  - Gather stakeholder feedback on process changes.
- Technology Evolution Tracking:
  - Monitor technology progress against roadmap projections.
  - Assess emerging AI capabilities and their potential impact.
  - Identify new technology gaps requiring attention.
  - Evaluate vendor performance and partnerships.

Integration Point: Update the roadmap based on actual value delivery data, refine AI strategy based on lessons learned, and scale successful implementations to additional value streams.

A regional healthcare network demonstrates this phase in action. After implementing AI for patient scheduling, they tracked improvements in no-show rates, resource utilization, and patient satisfaction. These metrics informed refinements to their AI model and guided expansion to other scheduling processes across the network.

Implementation Pitfalls and How to Avoid Them

Despite its power, this integrated approach has common pitfalls that CIOs should address proactively:

- Technology Fixation:
  - Pitfall: Focusing on AI technology capabilities rather than business problems.
  - Solution: Start with value stream analysis to identify high-impact business problems before selecting AI solutions.
- Data Underestimation:
  - Pitfall: Underestimating data preparation and integration requirements.
  - Solution: Include data readiness assessment in the roadmap planning phase and allocate sufficient resources.
- Skills Deficit:
  - Pitfall: Failing to address AI skills development across the organization.
  - Solution: Include a talent development track in the technology roadmap.
- Change Resistance:
  - Pitfall: Encountering resistance when AI changes established processes.
  - Solution: Use VSM to engage process stakeholders early and demonstrate value creation.
- Myopic Metrics:
  - Pitfall: Measuring only technical success rather than business impact.
  - Solution: Define success metrics based on value stream improvements, not just AI performance.

EACH ORGANIZATION MUST DETERMINE ITS OWN OPTIMAL APPROACH BASED ON ITS UNIQUE CHALLENGES, CAPABILITIES, AND GOALS

A CIO's Implementation Playbook

To implement this framework successfully, CIOs should follow these eight practical steps:

1. Establish cross-functional governance: Create a steering committee with business, IT, data science, and operations representation to guide AI adoption.
2. Conduct value stream discovery: Map key value streams and identify points of friction or opportunity for AI enhancement.
3. Assess AI readiness: Evaluate data infrastructure, technical capabilities, and organizational readiness for AI adoption.
4. Develop a multi-layer roadmap: Create time-based visualizations connecting business drivers, AI-enhanced capabilities, and enabling technologies.
5. Prioritize and sequence initiatives: Use value stream impact assessment to determine which AI initiatives to pursue first.
6. Implement with agility: Deploy AI solutions using agile methodology with frequent reassessment and course correction.
7. Measure value stream improvements: Track quantifiable improvements in value stream performance metrics following AI implementation.
8. Refine and scale: Update the roadmap based on implementation learnings and expand successful approaches to additional value streams.

The Path Forward

Our examination of AI implementation challenges has revealed several methodologies that can help address the root causes of failure. Technology roadmapping provides structure and timeline visualization, while value stream management offers business context and measurement frameworks.

The data from Microsoft's 2025 Work Trend Index suggests that organizations successfully implementing AI are undergoing fundamental transformations in how they operate. These "Frontier Firms," as Microsoft calls them, show markedly different characteristics from traditional organizations: 71% report their company is thriving (compared to 37% globally), and their employees are more optimistic about future work opportunities (93% vs. 77% globally).

Each organization must determine its own optimal approach based on its unique challenges, capabilities, and goals. The methodologies presented here offer potential tools that can be adapted to specific circumstances. As CIOs evaluate these options, they should remain focused on what matters most: delivering measurable business value through thoughtfully implemented AI solutions.

Thomas Reynolds, AI Strategy Director at a leading consulting firm, states, "Organizations that excel at AI adoption maintain a dual focus. They keep one eye on the evolving technology landscape and the other firmly on the value streams that drive their business."

In an environment where AI capabilities evolve rapidly, a value-driven approach to implementation helps ensure that organizations derive real benefits from their AI investments.

About ValueOps

ValueOps® by Broadcom is the leading enterprise value stream management (VSM) platform. With robust business planning, agile team management, value stream automation, and enterprise analytics, ValueOps uniquely accelerates digital transformation by improving visibility, alignment, and efficiency at every stage of value creation.

To learn more, please contact us for a demo or conversation.

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