# Quantifying AI: Building and Measuring AI's Business Value

Lenovo

## Executive Summary

The true value of AI lies in its ability to create measurable business outcomes. To fully harness AI's transformative potential, organizations must define, quantify, and consistently measure the value AI delivers.

Achieving impactful results with AI requires aligning initiatives with core business goals and understanding their impact on either top-line growth or bottom-line efficiencies. Whether it is enhancing customer engagement, accelerating expansion into new markets, or driving innovation, AI can deliver tangible business value at the top line. AI can also automate routine tasks, optimize resource allocation, and drive significant cost efficiencies, impacting the bottom line by streamlining operations and freeing up resources for higher-value activities.

As many organizations still grapple with maximizing AI value, this paper provides foundational context to help IT Decision Makers (ITDMs) define and articulate the value of AI and align it with broader business goals. It explores how AI can be systematically embedded within the organization, emphasizing a structured approach for measuring the value of AI investments. This includes prioritizing high-value use cases, defining an AI business case, unlocking executive buy-in, and setting up a framework for ongoing value measurement. By focusing on these areas, this paper equips ITDMs with actionable strategies to successfully deploy AI initiatives and maximize their impact—turning AI-driven projects into value-focused initiatives.

# Framing the Business Case

A comprehensive AI business case is critical for securing executive buy-in and funding. The business case provides a clear roadmap to value by articulating impact, ROI, resourcing, timelines, and risks.

## Key Components of a Business Case

A compelling AI business case must define several critical components. These components ensure that the business case is comprehensive, actionable, and aligned with organizational goals. While certain elements directly inform the core business case deliverable, other considerations shape key assumptions that are part of the AI value story.

**Core Business Case Components:**

1. **Expected Business Impact:** Articulates the expected value of the AI initiative by quantifying expected outcomes in terms of top line gains or bottom-line efficiencies. *Key data points: Market Opportunity Analysis, Revenue Growth Projections, Cost Optimization Metrics, Hours Take Out, ROI and Break-even Analysis*

2. **Resources and Capabilities:** Specifies the infrastructure, human capital, and financial investments required for implementation. It should detail technical architecture, data requirements, and

operational dependencies. *Key data points: Infrastructure Costs (Compute, Storage, Network), Data Readiness and Quality Investments, Talent Costs (Data Scientists, AI Engineers, Domain Experts), Financial Investment Breakdown*

3. **Scenario Analysis:** Outlines various scenarios to forecast potential outcomes and associated risks. This includes sensitivity analysis on financial and operational impacts. *Key data points Scenario Planning (Financial Projections, Risk Scenarios), Sensitivity Analysis, Operational Impact Projections, Risk Tolerance Thresholds*

**Key Inputs Informing Business Case Assumptions and Socialization:**

4. **Competitive Landscape Assessment:** Includes a detailed market analysis to evaluate competitor moves and how AI can drive relative differentiation. This assessment also looks at market trends and how the AI solutions can capitalize on them. *Key data points: Industry Benchmarking, Competitive Differentiation, Trend Analysis, Market Share Projections*

5. **Stakeholders:** Identifies key stakeholders required for successful execution. Defines their roles and technical contributions to ensure seamless implementation and integration. *Key data points: Internal Stakeholder Identification, Vendor and Partner Selection, Role Definitions, Technology Partnerships, Contractual Obligations, Ownership of Deliverables*

6. **Timelines and Milestones (Including Timeline to ROI):** Provides a detailed, phase-based project timeline that

includes all technical deliverables, integration points, and development cycles to ensure accountability and progress tracking. Additionally, it includes timeline to ROI, which forecasts when the initiative will achieve positive returns. *Key data points: Gantt Chart for Phased Deliverables, Development Timelines, Pilot and Production Milestones, Deployment Windows, Continuous Optimization Cycles, Timeline to ROI*

7. **Risk Assessment:** Conducts an in-depth technical risk analysis covering regulatory, operational, and financial risks. Frames mitigation strategies to minimize impact and ensure project resilience. *Key data points: Risk Matrix (Technical, Operational, Financial, Regulatory Risks), Risk Probability and Impact Assessment, Contingency Planning, Mitigation Strategies, Failover Protocols*

## Top-Down and Bottom-up Approaches of Building a Business Case

IT Decision Makers (ITDMs) should use both a Top-Down and a Bottom-up approach when developing an AI business case. Both methods help estimate financial returns, define resource requirements, and assess AI value and ROI but at different altitudes. In practice, many organizations use a combination of both approaches to balance strategic alignment with detailed accuracy. A top-down approach might be used to set initial targets and strategic goals, followed by a bottom-up approach to refine estimates and develop detailed plans.

## Top-Down Approach

The top-down approach starts with a high-level overview and breaks that down into finer details. It relies on broad estimates and assumptions based on historical data, industry benchmarks, or executive input. It is fast to create, relying on high level estimates, helps to quickly allocate resources and set priorities, and is often driven by senior management or strategic goals. It is most useful for initial project evaluation and feasibility studies. The high-level steps for building a top-down business case are outlined below.

**1  Define Strategic Objectives**

Establish AI goals that align with broader business priorities, such as improving customer retention, increasing market share, or boosting operational efficiency

**2  Estimate Costs**

Use historical data to capture cost categories such as capital costs, operational costs, and any other significant expenses

**3  Estimate Benefits**

Identify key benefits unlocked with AI i.e. top or bottom-line impacts at a functional level utilizing industry benchmarks and historical data

**4  Conduct Risk Assessment**

Document key risks with high-level assessment of the likelihood and impact of each risk as well as mitigation strategies

**5  Conduct Financial Analysis**

With collected data, estimate ROI, assess AI project NPV and IRR, and consider payback period implications if relevant

**6  Consolidate Business Case**

Synthesize analyses to inform strategic decision- making, clearly demonstrating how AI initiatives will drive financial value and support the organizational goals

*Figure 5: Top-Down Approach*

While the top-down approach provides strategic alignment and a clear connection to financial objectives, it may not always be suitable. It can be less accurate due to reliance on broad estimates and assumptions and is less adaptable to changes in specific project components.

In such cases, pivoting to a bottom-up approach is more appropriate. By validating AI use case impact through detailed process-level metrics, the bottom-up approach allows organizations to more granularly understand AI impact. This leads to more reliable financial estimations and risk assessments, offering a data-driven foundation for AI investment decision making.

## Bottom-up Approach

The bottom-up approach is a more granular and accurate estimate of AI value, as it uses detailed estimates for specific process and activity impacts. It is more complex and detailed, providing a rigorous analysis of AI impact. It becomes useful for detailed project planning and when precise budgeting and forecasting are critical.

**7 — Develop Business Case**
Calculate net business impact by subtracting aggregated costs from aggregated savings. Build a business case with pilot data, projected cost savings, and a roadmap for full-scale deployment

**6 — Apply Costs for Implementation**
Incorporate costs associated with AI implementation, including development, deployment, scaling, and ongoing maintenance

**5 — Aggregate Financial Benefits**
Scale validated AI improvements across functions to achieve org-wide efficiency gains and cost savings. Aggregate savings by combining financial benefits from all functions

**4 — Estimate Financial Impact**
Use pilot data to project AI's impact on P&L including cost savings from improved efficiencies. Estimate savings by calculating the difference between baseline and post-AI implementation metrics

**3 — Pilot Projects for Validation**
Initiate small-scale pilots to test AI solutions, validate technical feasibility, measure initial financial returns, and build roadmap for scaling

**2 — Collect Value Drivers**
Gather baseline, process-level metrics (e.g., time spent on tasks, error rates) to quantify current performance and assess potential AI improvements

**1 — Identify Departmental AI Use Cases**
Engage business units to identify AI opportunities that address operational inefficiencies, such as workflow bottlenecks and manual processes

*Figure 6: Bottom-Up Approach*

Below is an illustrative, stepwise example of how ITDMs can run a bottom-up calculation for their business case:

**7 Develop Business Case**

**Total Gain:** Deduct costs of implementation from estimated aggregate gains
**Example:** $240k - $80k = $160k/year

**6 Apply Costs for Implementation**

**Costs of Implementation:** Apply costs of implementation for AI solution
**Example:** $50K fixed cost for deployment; $30K/year for maintenance

**5 Aggregate Financial Benefits**

**Aggregated Gain:** Consolidate savings from across products/services
**Example:** $20k/month

**4 Estimate Financial Impact**

**Financial Gain:** Estimate increase in new sales and upsells/month per product
**Example:** $2k/month for 1 product

**3 Pilot Projects for Validation**

**AI Solution:** Implement AI-driven call deflection to reduce average call duration
**Example:** Average call duration reduced from 20 mins to 10 mins

**2 Collect Value Drivers**

**Value Driver:** Time saved per call
**Target Gain:** Reduction in average time per call; Increase in volume of queries resolved

**1 Identify Departmental AI Use Cases**

**Use Case:** AI-powered Call Deflection at Call Centre
**Target Inefficiency:** High average time per call; Low volume of queries resolved

*Figure 7: Illustrative Example of Bottom-up Calculation*

Whether applying a top down or bottom-up approach, decision makers should factor for business user adoption and trust. Expected gains and efficiencies are contingent upon the technology being used and value calculations should be caveated accordingly.

**Avoiding Common Pitfalls**

Building a multi-year AI business case often comes with challenges. One common pitfall is the over-reliance on PoC outcomes for projecting broad ROI figures. Executives often use PoC results to extrapolate long-term ROI, which can lead to unrealistic expectations and complicate AI program deployment. While PoCs are valuable for testing feasibility, they often fail to capture the full complexities and costs of scaling AI initiatives. To avoid this, organizations should:

• **Adopt a phased approach:** Use PoC results as an initial validation step, followed by more comprehensive pilots or production deployments that offer a clearer view of how AI

will perform at scale. This approach ensures that ROI projections are based on real-world conditions.

- **Consider scaling costs:** Account for the additional infrastructure, integration, and operational expenses that full-scale AI deployments will require, beyond the scope of the PoC.

Another frequent issue is setting unrealistic ROI expectations due to low AI readiness. Organizations that have not fully developed their data infrastructure and tooling, AI governance, or invested in the needed capabilities tend to overestimate how quickly AI will deliver value. Many AI initiatives take years to provide significant ROI, and understanding this timeline is critical to setting realistic targets. To address this, organizations should:

- **Assess their AI maturity:** Evaluate current capabilities, including data readiness, governance structures, and workforce skills, to establish a realistic foundation for AI deployment and adoption.

- **Focus on measurable KPIs:** Tie ROI projections to specific, measurable outcomes, such as cost savings, efficiency improvements, or revenue growth, and clearly outline the actions—such as resource reallocation or operational changes—required to achieve these outcomes.

- **Factor for longer path to value:** AI investments often require extended time horizons to fully materialize. Organizations should recognize that AI initiatives may take years to deliver substantial returns and set expectations accordingly.

By regularly calibrating AI performance and ROI metrics with evolving business conditions, AI value projections will remain realistic and accurate. Focusing on AI readiness, realistic timelines, and continuous measurement will help organizations avoid the pitfalls of over-promising returns and pave a more grounded path to achieving long-term AI value.

## Ongoing Value Measurement

Continuous measurement is critical for demonstrating the sustained value of AI initiatives over time. By systematically tracking key metrics, organizations can validate initial ROI assumptions, make data-driven decisions, and optimize AI deployments. To achieve this, ITDMs should apply a structured framework that encompasses both quantitative and qualitative inputs and aligns with business goals.

## Implementing an AI Value Measurement Framework

The following diagram highlight the key steps for implementing a value measurement framework for AI initiatives. Organizations should adequately invest both in the resources and tooling to systematically activate these processes, so that value measurement does not become a disparate activity.

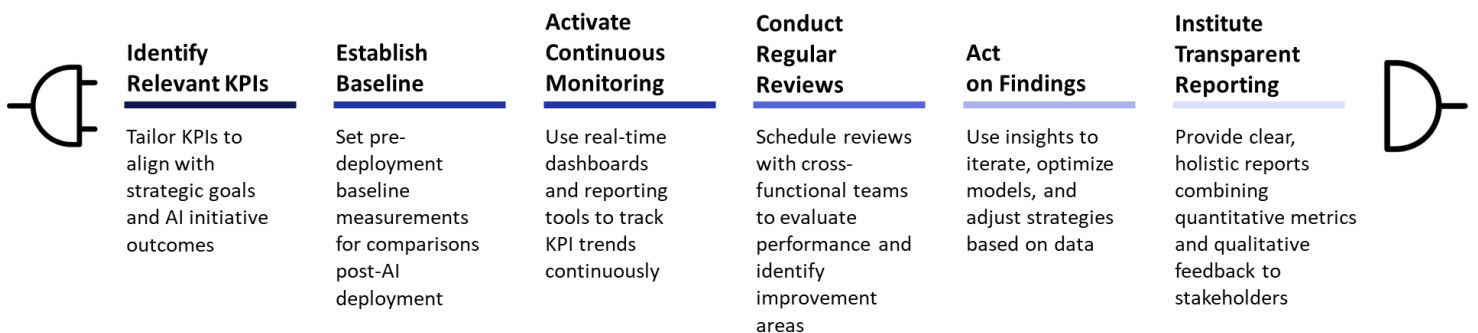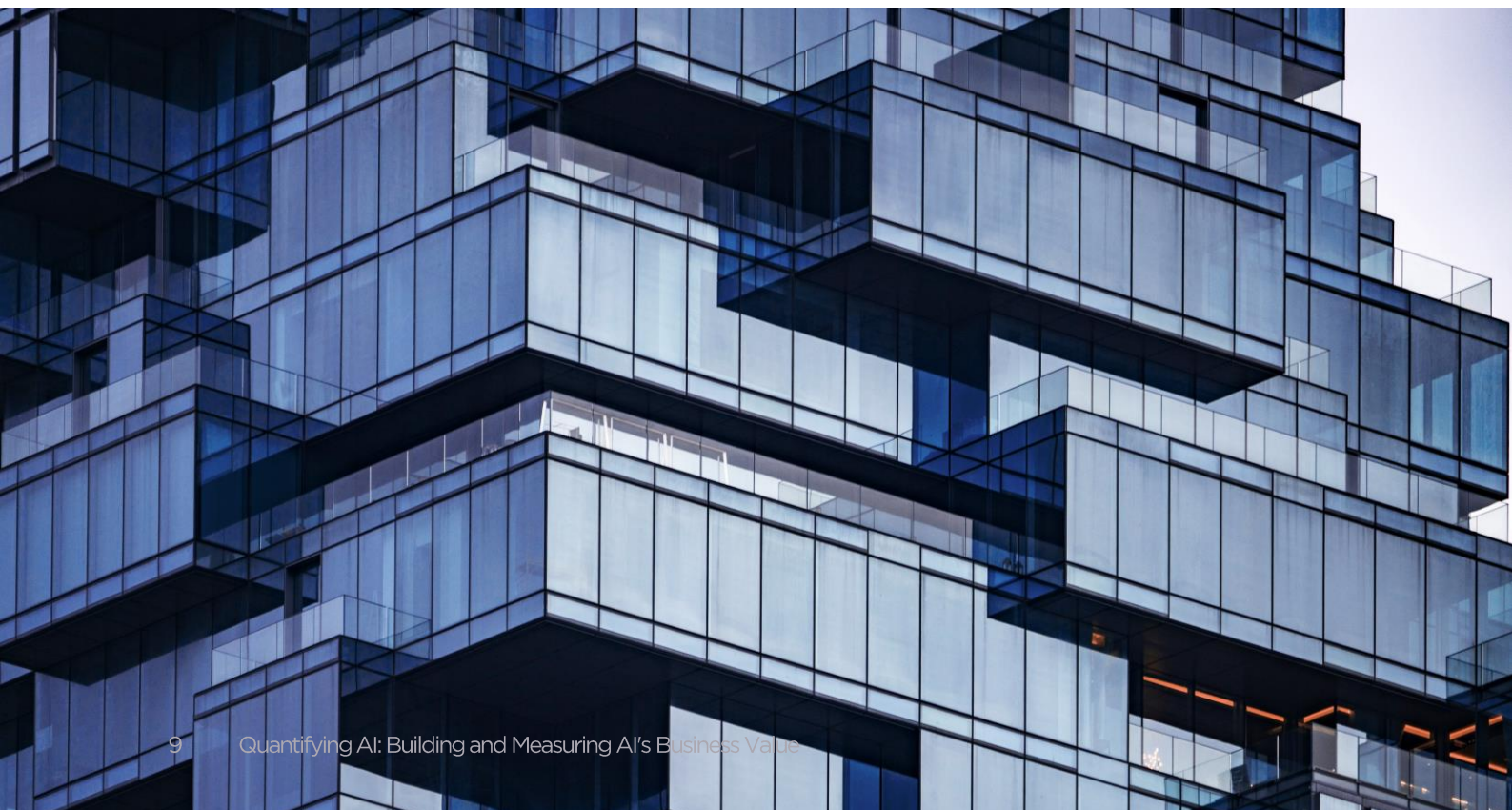| Identify Relevant KPIs | Establish Baseline | Activate Continuous Monitoring | Conduct Regular Reviews | Act on Findings | Institute Transparent Reporting |
|---|---|---|---|---|---|
| Tailor KPIs to align with strategic goals and AI initiative outcomes | Set pre-deployment baseline measurements for comparisons post-AI deployment | Use real-time dashboards and reporting tools to track KPI trends continuously | Schedule reviews with cross-functional teams to evaluate performance and identify improvement areas | Use insights to iterate, optimize models, and adjust strategies based on data | Provide clear, holistic reports combining quantitative metrics and qualitative feedback to stakeholders |

*Figure 8: Steps for Implementing the Value Measurement Framework*

The KPIs below offer a starting point for measuring and capturing AI value and informing data-driven AI decision making.

1. **Operational Efficiency:** Operational efficiency KPIs track improvements in resource usage, cost savings, and process optimization driven by AI. These metrics ensure that AI deployments reduce costs and improve workflow performance.
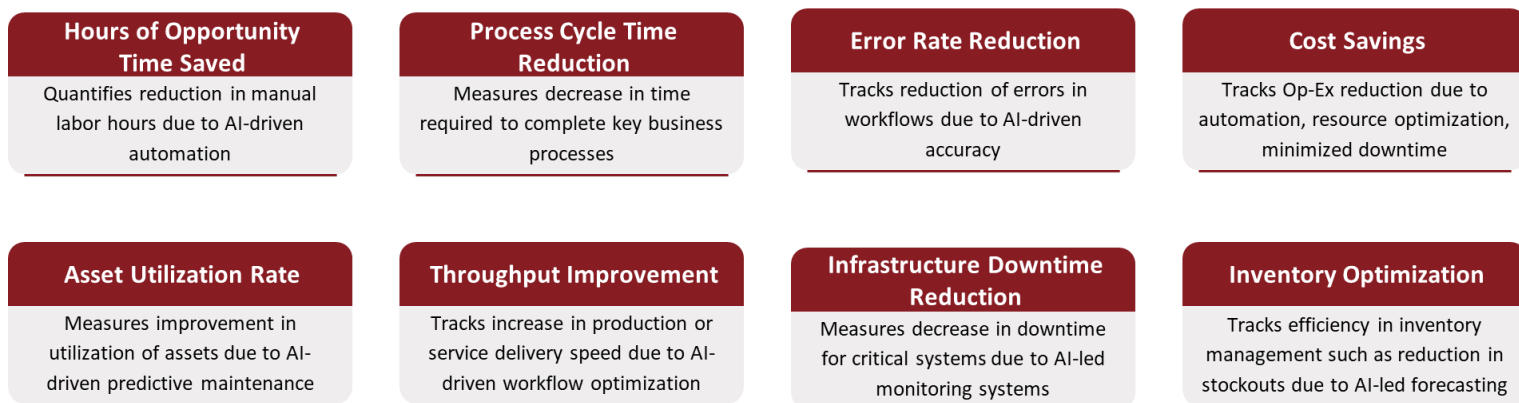
| Hours of Opportunity Time Saved | Process Cycle Time Reduction | Error Rate Reduction | Cost Savings |
|---|---|---|---|
| Quantifies reduction in manual labor hours due to AI-driven automation | Measures decrease in time required to complete key business processes | Tracks reduction of errors in workflows due to AI-driven accuracy | Tracks Op-Ex reduction due to automation, resource optimization, minimized downtime |

| Asset Utilization Rate | Throughput Improvement | Infrastructure Downtime Reduction | Inventory Optimization |
|---|---|---|---|
| Measures improvement in utilization of assets due to AI-driven predictive maintenance | Tracks increase in production or service delivery speed due to AI-driven workflow optimization | Measures decrease in downtime for critical systems due to AI-led monitoring systems | Tracks efficiency in inventory management such as reduction in stockouts due to AI-led forecasting |

*Figure 9: KPIs to Measure Operational Efficiency*

2. **Workforce Productivity:** Workforce productivity KPIs focus on how AI enhances the speed, effectiveness, and output of employees. These metrics track improvements in how AI augments human capabilities.
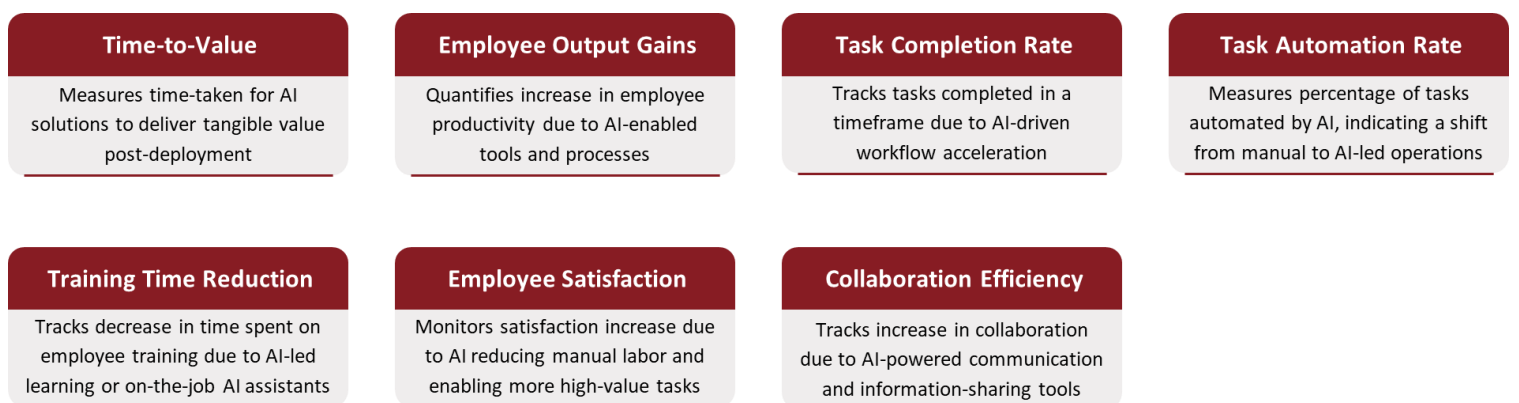
| Time-to-Value | Employee Output Gains | Task Completion Rate | Task Automation Rate |
|---|---|---|---|
| Measures time-taken for AI solutions to deliver tangible value post-deployment | Quantifies increase in employee productivity due to AI-enabled tools and processes | Tracks tasks completed in a timeframe due to AI-driven workflow acceleration | Measures percentage of tasks automated by AI, indicating a shift from manual to AI-led operations |

| Training Time Reduction | Employee Satisfaction | Collaboration Efficiency |
|---|---|---|
| Tracks decrease in time spent on employee training due to AI-led learning or on-the-job AI assistants | Monitors satisfaction increase due to AI reducing manual labor and enabling more high-value tasks | Tracks increase in collaboration due to AI-powered communication and information-sharing tools |

*Figure 10: KPIs to Measure Workforce Productivity*

3. **Business Growth:** Growth-oriented KPIs measure AI's impact on revenue generation, market share, and customer retention, offering a clear view of how AI drives business expansion.
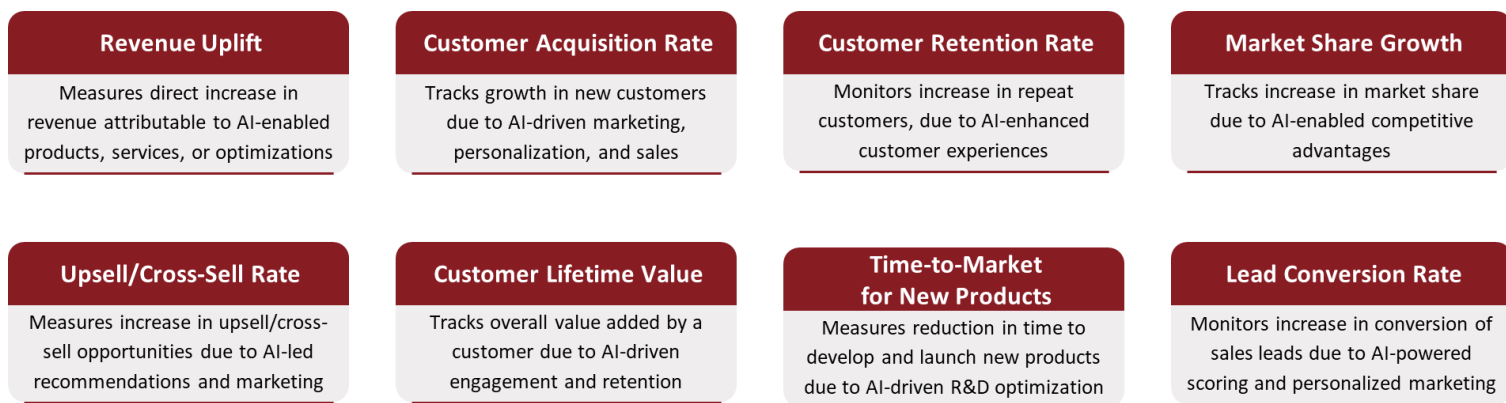
| **Revenue Uplift** | **Customer Acquisition Rate** | **Customer Retention Rate** | **Market Share Growth** |
|---|---|---|---|
| Measures direct increase in revenue attributable to AI-enabled products, services, or optimizations | Tracks growth in new customers due to AI-driven marketing, personalization, and sales | Monitors increase in repeat customers, due to AI-enhanced customer experiences | Tracks increase in market share due to AI-enabled competitive advantages |

| **Upsell/Cross-Sell Rate** | **Customer Lifetime Value** | **Time-to-Market for New Products** | **Lead Conversion Rate** |
|---|---|---|---|
| Measures increase in upsell/cross-sell opportunities due to AI-led recommendations and marketing | Tracks overall value added by a customer due to AI-driven engagement and retention | Measures reduction in time to develop and launch new products due to AI-driven R&D optimization | Monitors increase in conversion of sales leads due to AI-powered scoring and personalized marketing |

*Figure 11: KPIs to Measure Business Growth*

4. **Risk Mitigation:** Risk-related KPIs focus on how AI helps reduce operational and financial risks through predictive analytics, early warnings, and data security improvements.
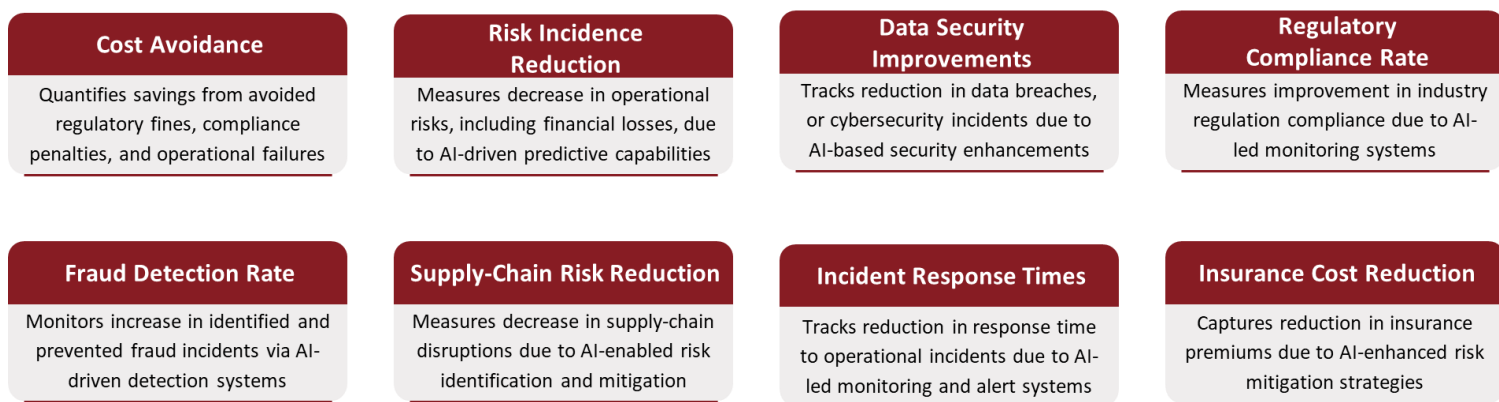
| **Cost Avoidance** | **Risk Incidence Reduction** | **Data Security Improvements** | **Regulatory Compliance Rate** |
|---|---|---|---|
| Quantifies savings from avoided regulatory fines, compliance penalties, and operational failures | Measures decrease in operational risks, including financial losses, due to AI-driven predictive capabilities | Tracks reduction in data breaches, or cybersecurity incidents due to AI-based security enhancements | Measures improvement in industry regulation compliance due to AI-led monitoring systems |

| **Fraud Detection Rate** | **Supply-Chain Risk Reduction** | **Incident Response Times** | **Insurance Cost Reduction** |
|---|---|---|---|
| Monitors increase in identified and prevented fraud incidents via AI-driven detection systems | Measures decrease in supply-chain disruptions due to AI-enabled risk identification and mitigation | Tracks reduction in response time to operational incidents due to AI-led monitoring and alert systems | Captures reduction in insurance premiums due to AI-enhanced risk mitigation strategies |

*Figure 12: KPIs to Measure Risk Mitigation*

# Socializing and Catalyzing AI Value

Executive leadership uses defined AI value to make informed decisions on funding, resource allocation, and technology investments. A robust, data-driven business case is critical for guiding these decisions. By aligning AI initiatives with broader organizational goals, the business case provides the foundation for evaluating the strategic and financial implications of AI. This structured approach helps leaders quantify AI's impact on key performance indicators (KPIs), ensuring that resource decisions are made with a clear understanding of the expected outcomes. Additionally, the ongoing value measurement framework enables leaders to continuously assess and optimize AI initiatives, providing the data needed to justify continued investment.

A well-developed business case that is translated into a compelling AI value proposition can also inform other critical leadership activities, including AI communications and cross-functional buy-in. Leaders should use the value of AI to anchor communications that drive excitement in AI investments and education programs that support teams in understanding the benefits and limitations of AI. Leaders can also lean on AI value as a tactic to recruit and mobilize AI committees or task forces that can champion AI programs and efforts across departments. Engagement with and commitment to the business case can help leaders more effectively establish feedback loops to refine and adapt AI deployments to changing business needs.

| Communicating AI Value | Catalyzing Value with Collaboration | Optimizing AI Value |
| --- | --- | --- |
| Develop a comprehensive AI business case, linking specific P&L levers to AI's financial and strategic impact (e.g., revenue growth, cost reduction) | Create AI task forces involving IT, operations, data science, and business units to align technical and strategic objectives | Implement automated monitoring systems for real-time KPI tracking, enabling continuous adjustment of AI models and workflows |
| Use success metrics (e.g., ROI, operational efficiency gains) and pilot data to illustrate AI's tangible value to stakeholders | Standardize processes for cross-departmental reporting on AI performance, ensuring technical progress is linked to business goals | Establish iterative feedback loops to refine AI models based on performance data and stakeholder input, using agile methodologies to enhance AI systems |
| Integrate AI governance and ethical standards into communications, ensuring that technical teams and leadership are aligned on compliance and risk management | Conduct regular technical reviews across departments to assess progress and identify opportunities for optimizing AI integration. | Quantify not only financial returns but also intangible benefits such as improved decision-making accuracy, customer experience, and long-term competitive advantages |

*Figure 13: Tips for Socializing AI Value*

# Conclusion

AI's potential lies in how effectively organizations can scale and measure its value. As organizations move beyond pilot projects and proofs of concept, they face the challenge of integrating AI at scale. Scaling AI requires continuous value measurement, so that AI deployments are optimized in real time and aligned with key business drivers. Organization must be able to define, quantify, and consistently measure the value AI delivers. This AI value muscle will better equip organizations to translate the impacts of technology into real, quantifiable business results.

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