orange™ Business

Measuring AI impact

A practical framework for business leaders

Introduction

Artificial Intelligence has moved from experimentation to expectation. Across industries, leaders are being bombarded with promises of exponential ROI, instant transformation, and effortless personalization at scale. If you believe the noise, AI is a magical tool that generates value simply by being deployed.

But the organizations that are truly succeeding with AI know a different truth. Impact is not something AI delivers by default. It is something you design, measure, and manage intentionally. And measuring that impact is becoming one of the most strategically important capabilities of modern enterprises.

Today's businesses face a dual challenge:

- AI value takes time to materialize.
- AI value is complex to attribute.

A writing assistant may boost productivity subtly over months. A ticket-triage agent may gradually reshape operational workflows. A transformative AI-driven R&D engine may take years before it becomes your competitive differentiator. Meanwhile, intangible yet powerful benefits, like better decisions, enhanced customer experience, cultural readiness for innovation, often go unreported because they're difficult to express in euros. In this environment, traditional ROI tools are no longer enough.

Organizations need a holistic framework that accounts for costs, benefits, risks, and time horizons, and that can distinguish between incremental productivity gains and true business transformation.

This ebook explores how companies can move beyond the hype to build AI projects that deliver measurable, sustainable, and strategic value. It introduces the AI impact pyramid, explains why attribution is often the hardest part of the journey, and provides a clear methodology to calculate ROI, TCO, and even RONI: the risk of not investing in AI.

Because in the coming years, the real competitive divide will not be between those who adopt AI and those who don't. It will be between those who can prove and amplify AI's impact, and those who simply hope for it.

Contents

Why measuring AI impact is complex

Evaluating AI impact is challenging because AI does not operate like a traditional technology investment. Its value unfolds gradually, is shared across teams and processes, and often appears in intangible or indirect ways. At the same time, models evolve, user adoption shifts, and risks must be managed. Recognizing this complexity is the first step toward developing a measurement strategy that captures the full spectrum of AI's effects, not just the easiest ones to count.

Time

AI value often unfolds over months or years rather than immediately. Outcomes may compound gradually, as models improve and adoption increases over time.

Attribution

AI is frequently embedded in complex processes, making its impact difficult to isolate. When multiple factors influence results, directly attributing gains to AI can be challenging.

Intangible gains

Some AI benefits are difficult to quantify directly. Improvements in decision quality, brand reputation, or market insight may create value that is real but not immediately measurable.

AI Innovation

AI systems continuously evolve through updates, new use cases, and increased adoption. As a result, the benefits realized in one period may differ significantly in the next.

Risk

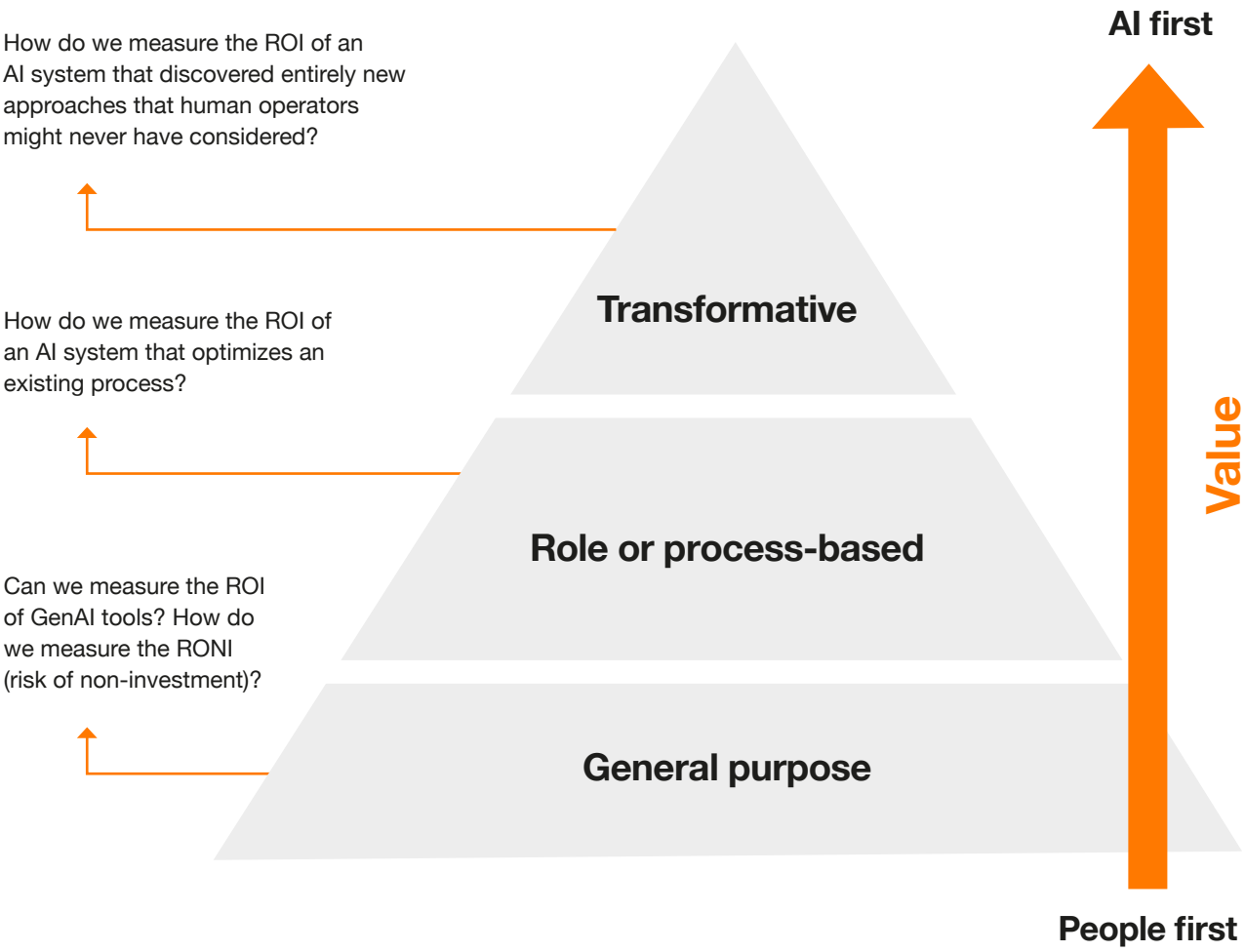
AI initiatives carry inherent uncertainty. Model accuracy may vary, regulatory or integration hurdles can delay deployment, and adoption may be lower than expected.

Understanding where AI creates value

Not all AI initiatives create value in the same way. While the market often speaks about AI as if every tool delivers the same kind of impact, the reality inside organizations is far more nuanced. Some solutions generate broad but shallow gains across the workforce. Others create deep, measurable improvements in specific processes. And a select few fundamentally reshape how a company operates, competes, and grows.

As you move upward in the pyramid, the potential impact increases, but so do complexity, investment, and time to value.

The impact pyramid



To clarify this spectrum, we use the impact pyramid, a simple but powerful model that illustrates how different categories of AI contribute to organizational value. As you move upward in the pyramid, the potential impact increases, but so do complexity, investment, and time to value.
At the base, you find general-purpose tools that support everyday productivity. In the middle, role- or process-based AI accelerates or automates targeted workflows. At the top sit transformative solutions: AI systems embedded into core functions, capable of delivering breakthrough performance improvements and long-term competitive advantages.

This structure allows leaders to understand *where* their AI initiatives sit today, and *what type of value* they can realistically expect at each level.

Understanding where AI can generate value is only the first step. To translate this potential into business results, organizations need a clear framework for connecting costs, benefits, and performance.

Building an AI impact framework

A practical framework for measuring AI impact

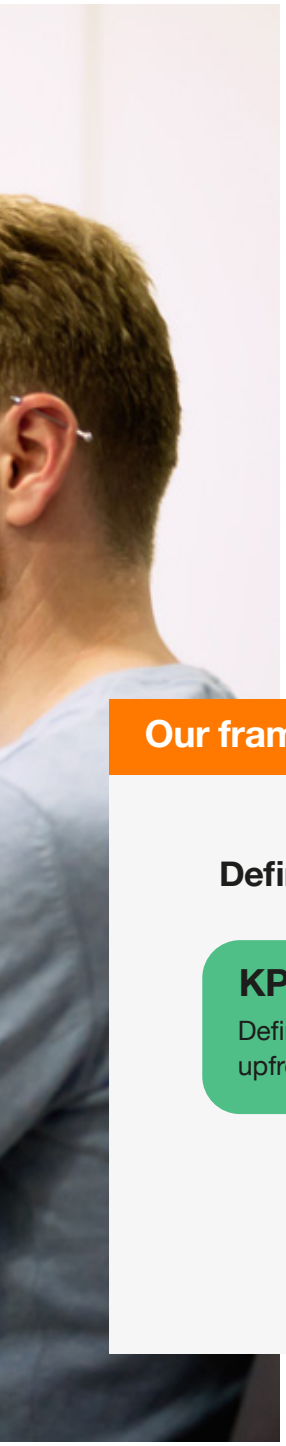
To measure AI impact effectively, organizations need a structured way to connect the investments they make with the results they expect. Our framework brings clarity to that process by uniting three essential components: accounting for cost, defining success, and understanding value.

It begins with establishing a rigorous view of the Investment ("I"), captured through the Total Cost of Ownership (TCO), including development, deployment, operations, and long-term maintenance. With the investment baseline set, we then define the Return ("R") by setting clear KPIs that ensure every AI initiative has measurable, agreed-upon outcomes. From there, we evaluate value through two lenses: ROI, which quantifies the tangible benefits generated by the initiative, and RONI, which highlights the strategic risk of not acting at a time when competitors or the broader market may be accelerating.

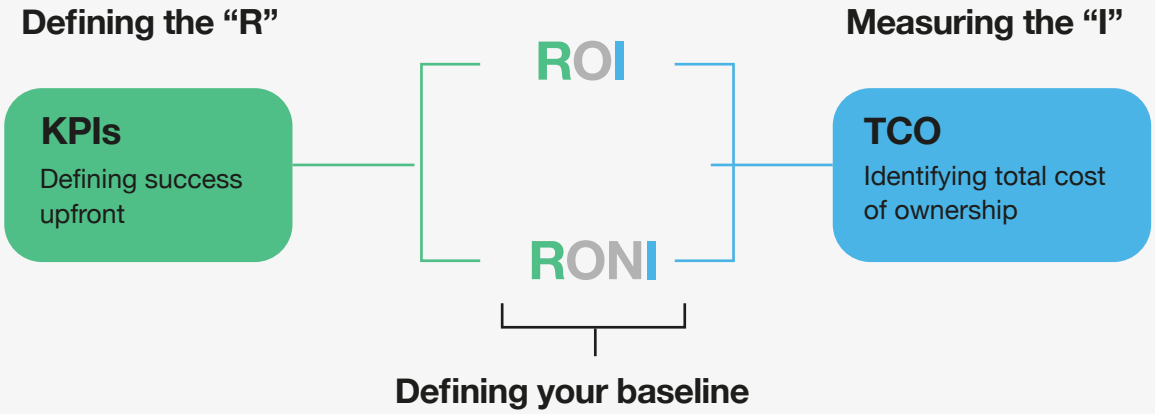
Taken together, this approach provides a realistic and evidence-based baseline that enables leaders to make informed decisions, compare scenarios, and continuously track the true impact of their AI investments.

The objective is simple: move from intuition and hype to disciplined, evidence-driven AI value management. With the framework defined, the next step is to understand the investment side of the equation. Let's take a closer look at the true cost of AI and what really shapes its Total Cost of Ownership.

Move from intuition and hype to disciplined, evidence-driven AI value management.



Our framework in a nutshell

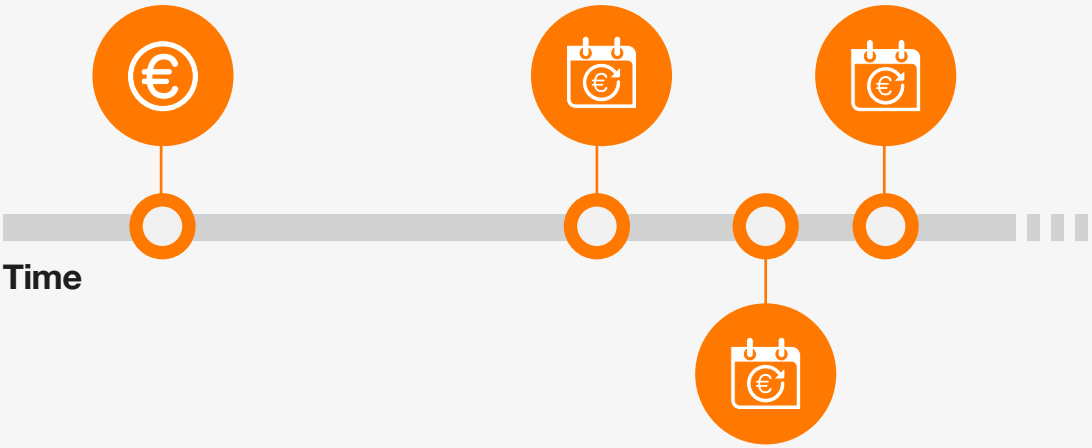


Understanding the true cost of AI

Before evaluating the benefits of any AI initiative, it's essential to understand its full cost profile. Many organizations underestimate the true investment required, focusing only on initial development while overlooking the ongoing resources needed to keep AI systems reliable, compliant, and performant over time. Calculating the Total Cost of Ownership (TCO) provides a realistic view of what it truly takes to operate AI at scale. It forces a shift from one-off project thinking to long-term lifecycle thinking, a crucial step for making informed decisions and ensuring sustainable ROI.
To support more precise decision-making, the full TCO must be detailed clearly. This table breaks down each cost component, from hardware and software to human expertise, training, and ongoing operational needs, so organizations can anticipate not just what it costs to build an AI solution, but what it costs to sustain it. Having this granular view enables more realistic ROI calculations and helps ensure long-term scalability.

Our framework for measuring the "I"

Calculate the TCO of an AI initiative

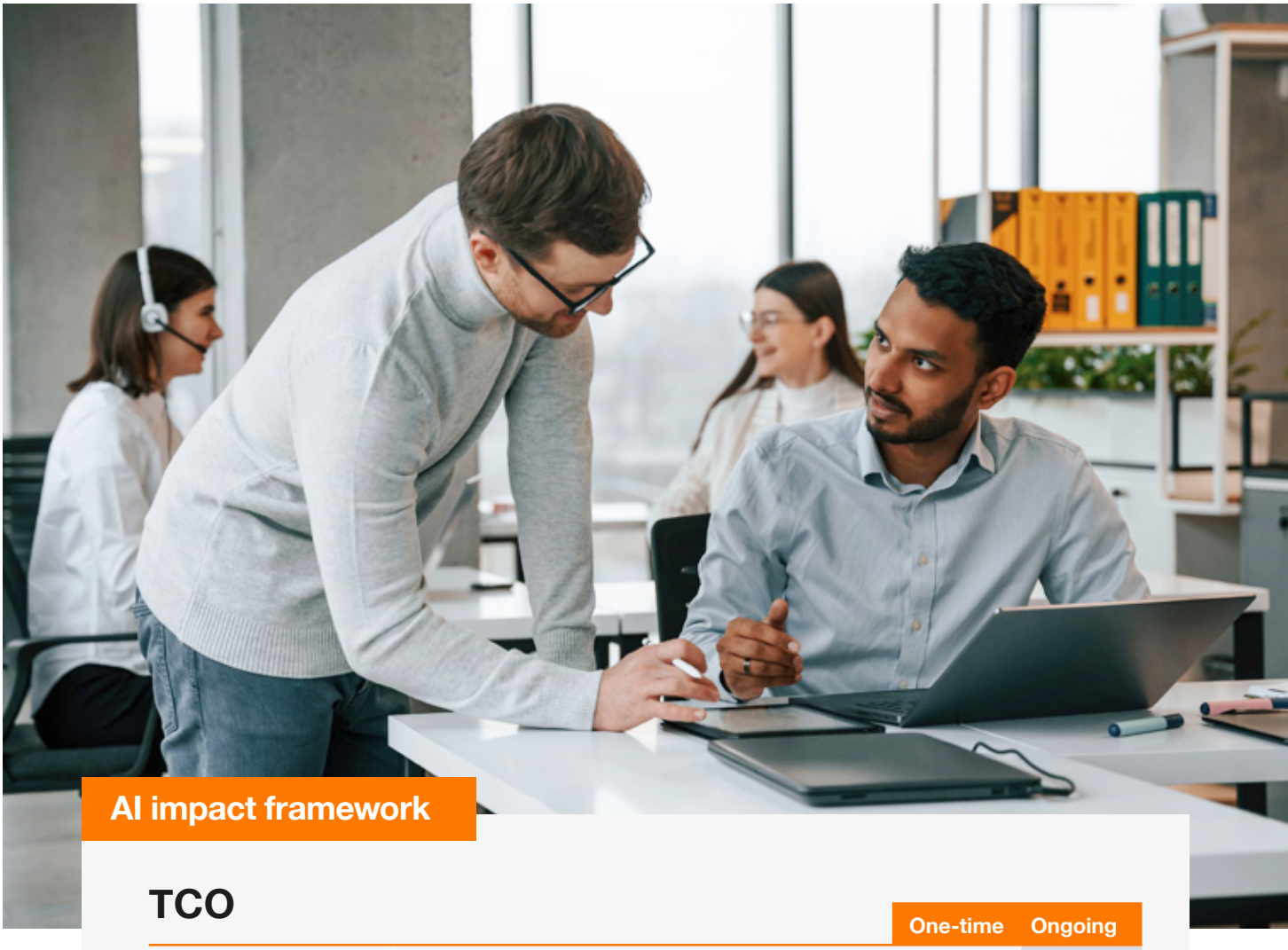


One-time cost

- Software licenses
- Development effort
- Purchase of hardware or sensors
- Initial staffing training

Ongoing costs

- Cloud Computing charges
- Maintenance
- Subscription renewals
- Periodic retraining
- Data updates
- Support contracts



AI impact framework

TCO

		One-time	Ongoing
CapEx	Equipment / hardware	X€	
	Software / licenses	X€	
	Infrastructure upgrades (on-premises/cloud)	X€	
Human & professional services	Data acquisition (data purchasing, data labeling)	X€	
	Data engineering (external consulting or internal labor costs) – preparing and cleansing data	X€	
	AI implementation (external and/or internal developers) – AI and system integration	X€	
	Time spent by the business (requirements, testing, feedback, etc.)	X€	X€
Operational costs	Training	X€	X€
	Change management		X€
	Maintenance and model refresh (MLOps, LLMOps)		X€
Intangible	Lost productivity elsewhere during the project	X€	
			Cost scalability

How to identify and categorize AI impact

Once the full cost of an AI initiative is clearly understood, the next step is to determine what kind of value, or return, it can actually generate. Not all benefits look the same, some improve processes, some create direct financial gains, and others strengthen the organization in ways that become valuable over time. To measure impact effectively, it's essential to distinguish between these different types of returns and understand how each contributes to overall business value. This is where our "R" framework comes in.
But knowing what impact looks like is not enough, we also need to understand when that impact will materialize.

Defining the "R" framework

From qualitative to quantitative (ability to translate the AI impact in €)

Intangible impact

Intangibles may lead to financial gains over time but are not immediately reflected in financial results.

Process (soft savings)

May not reduce costs unless or until further action is taken to generate new revenue or cost efficiencies.

Outcome (hard savings)

"Dollars in the bank" that are typically recognized by finance teams as real, budget-impacting savings.

Defining the time horizon

Understanding the different types of impact is only part of the equation. The other critical dimension is time. AI initiatives do not deliver value at the same pace: some generate rapid, measurable gains, while others build impact gradually as adoption grows and behaviors evolve. Recognizing these different timelines is essential for setting realistic expectations, securing stakeholder buy-in, and evaluating success appropriately.

The next step, therefore, is to map each type of impact, hard, soft, and intangible, to the time horizon over which it typically materializes.

Outcome (hard savings)

A GenAI-powered sales assistant is deployed on the company's e-commerce site. Within the first quarter, it increases the conversion rate by 1%, resulting in $500,000 in additional sales revenue in just three months.

Process (soft savings)

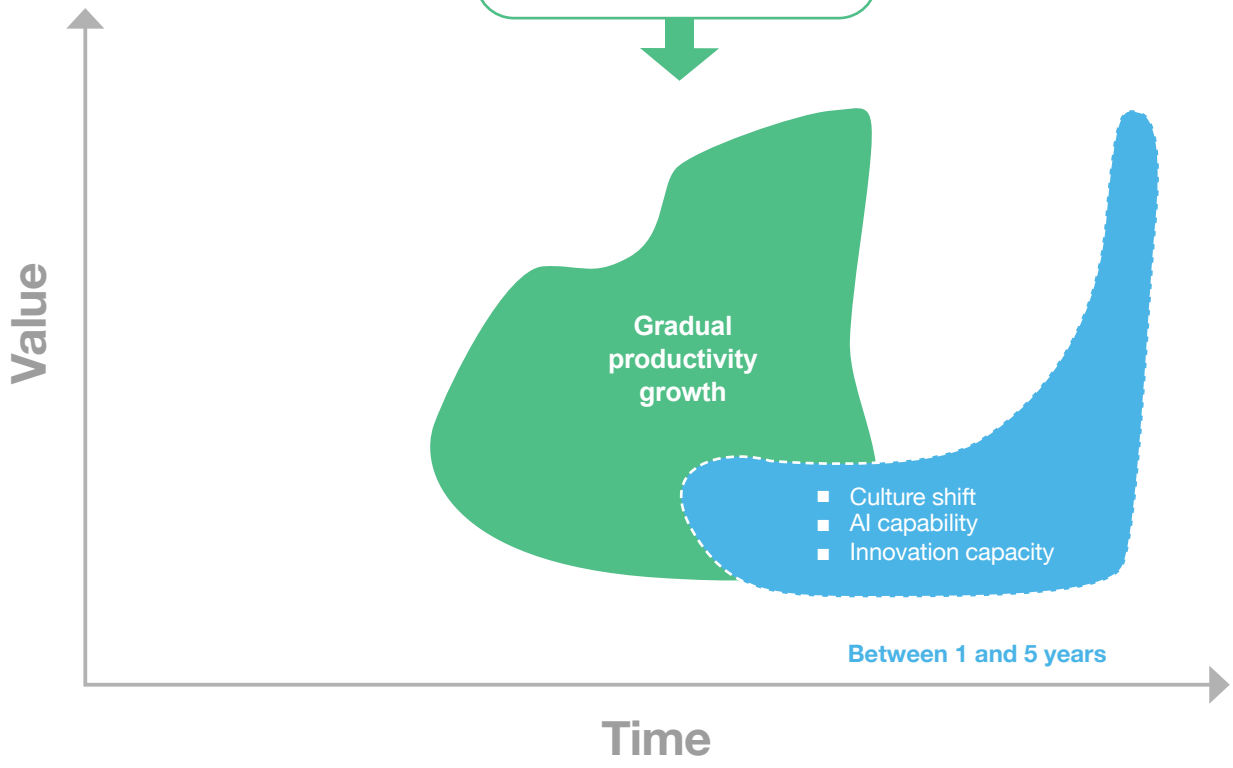
Agentic AI automates customer support ticket triage, allowing agents to resolve issues faster. Over 18 months, the average resolution time drops by 30%, freeing up agent capacity for upselling and complex cases. The financial impact is gradual and accumulates as productivity grows.

Resolution time drops by 30%

Intangible impact

A central team deploys a GenAI-powered internal search and knowledge assistant to help employees find relevant case studies and documentation.

- Faster onboarding
- Cross-team collaboration
- Stronger firm reputation



Measuring AI impact

Outcome family	Metrics
Cost reduction Many AI initiatives aim to reduce operating costs. This can come from automation (reducing labor costs), efficiency gains (using fewer resources or less time), or better accuracy (reducing waste, scrap, or rework).	■ Euros saved in labor per year ■ Decrease in cost per unit produced ■ Reduction in error-related costs ■ Labor cost reduction ■ Cloud infrastructure optimization
Revenue uplift AI can directly or indirectly drive new revenue. Examples include personalization algorithms that increase sales conversions, recommendation engines that boost cross-selling, or predictive analytics that improve win rates in marketing campaigns.	■ Increase in conversion rate (%) ■ Incremental sales revenue (in euros) ■ Increase in average revenue per user/customer
Time saved / productivity gains One of AI's biggest benefits is speeding up processes. This could mean faster customer response times, quicker document processing, or enabling employees to handle more volume at the same time.	■ Hours of work saved per month ■ Percent increase in tasks completed per week ■ Reduction in average handling time
Customer experience metrics Many AI deployments impact the customer experience — chatbots, personalized content, faster delivery through AI logistics, etc. Intuitively, happier customers lead to greater loyalty and sales, so these metrics, while sometimes intangible, are crucial.	■ Customer satisfaction score (CSAT) ■ Net promoter score (NPS) ■ Customer retention or churn rate
Decision speed and quality Internally, AI can help managers and analysts make decisions faster and with better information (e.g., forecasting tools or decision-support systems).	■ Planning cycle time ■ Number of scenarios evaluated ■ Improvement in outcomes (e.g., forecast error reduction or schedule adherence)
Innovation and growth metrics The value of many AI projects lies in enabling innovation. In these cases, consider proxy metrics.	■ Number of new products or features launched in a year ■ Market share changes ■ Patent filings

Examples

An AI-driven maintenance system might cut unplanned downtime, saving, for example, €500,000 annually in avoided production losses.

If an AI upsell model in a call center results in an additional €2 million in annual sales (as evidenced by comparing revenues with and without the model), that revenue uplift can be credited in the ROI analysis.

A manual data entry task took 5 minutes per record, and the AI now processes each record in 1 minute — an 80% time reduction. Multiply that by the volume of tasks to calculate the total hours saved.

A bank's AI chatbot might reduce customer wait time from 5 minutes to near-instant. Concurrently, its NPS might rise by several points, linking AI to improved customer sentiment.

The forecasting process now takes 1 week instead of 3. Forecast accuracy has improved by 15%.

AI enabled the team to prototype three new product ideas, two of which were converted into patents or product launches.

Measuring the value AI creates

Understanding when different types of impact materialize is essential, but the next challenge is knowing how to measure them. AI creates value across multiple dimensions, including financial, operational, customer-facing, and strategic, and each requires its own set of metrics. To evaluate AI fairly and systematically, organizations need a measurement framework that translates these diverse benefits into indicators that finance teams, business leaders, and operational managers can rely on.

This next section outlines the key outcome families, the metrics that best capture them, and practical examples to help quantify AI's real contribution.

The key metrics for measuring AI impact

Once the different types of impact are understood, the next step is choosing the right metrics to measure them. AI value shows up across financial, operational, customer, and workforce dimensions. Each requires its own set of KPIs to capture that value.

While these metrics capture financial and operational performance, AI also generates strategic and cultural benefits that are harder to quantify, and equally important.

AI also generates strategic and cultural benefits that are harder to quantify, and equally important.

Measuring the “R” framework

Financial metrics

ROI, net present value (for multi-year initiatives), payback period, total cost saved, total revenue added.

Operational metrics

Processing time, throughput, error rate, uptime, productivity (output per person or machine).

Customer metrics

Customer satisfaction, customer retention, customer acquisition (new customers gained through AI offerings), usage and adoption of AI features.

Workforce metrics

Employee productivity, reduction in low-value work (so staff can focus on higher-value tasks), employee satisfaction with new tools, reduction in training time (as AI augments learning).

Measuring the intangible side of AI impact

Not all the value created by AI appears immediately in financial reports. Some of the most important benefits, such as better customer sentiment, improved employee morale, faster onboarding, stronger collaboration, or enhanced brand perception, are intangible and develop gradually. Yet these elements often play a decisive role in long-term competitiveness.

To evaluate AI holistically, organizations must measure these intangible signals with the same rigor as hard and soft savings.

The table below outlines practical methods to capture and demonstrate intangible value, and ways to approximate its financial impact when needed.

Even when value cannot be directly monetized, it can and must be evidenced.

By combining measurable indicators with qualitative signals, organizations can capture a broader view of AI's contribution.

This becomes even more powerful when we distinguish between expected results and the additional benefits AI unlocks.

Converting impact into € is harder

- **Link** NPS improvements to retention, repeat purchases, or higher customer lifetime value
- **Estimate** the financial impact of improved loyalty
- **Highlight** how higher employee morale reduces turnover costs
- **Quantify** the economic value of reduced risk

Worst case **Base case** **Best case**

€ conversion assumption

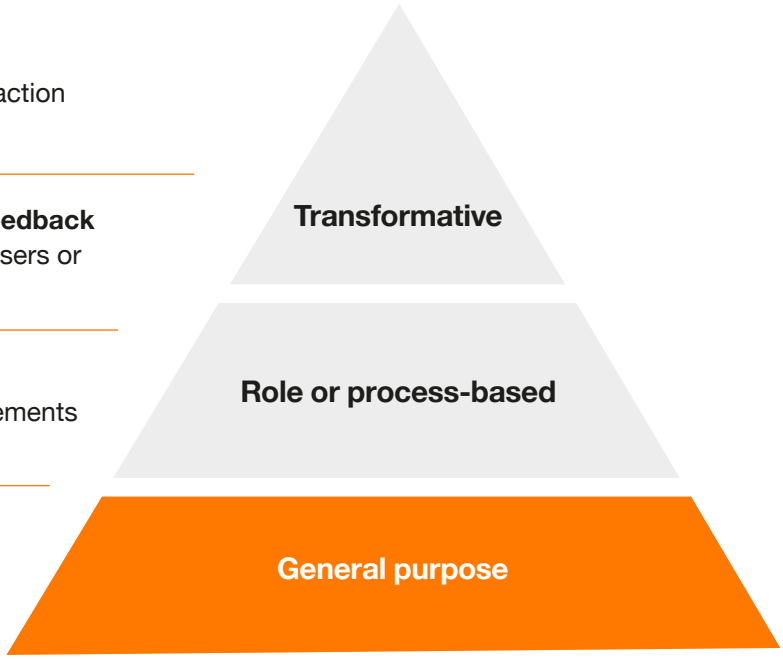
How to measure intangible benefits

Conduct pre- and post-AI surveys
Measure customer or employee satisfaction before and after AI implementation.

Collect testimonials or qualitative feedback
Capture quotes or short stories from users or clients describing the AI's impact.

Track adoption and engagement
Monitor usage data to identify improvements in satisfaction, efficiency, or behavior.

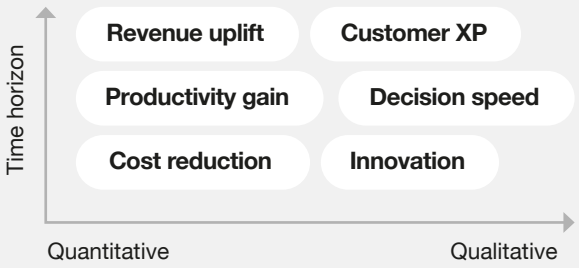
Leverage external validation
Reference positive media coverage, industry recognition, or awards that strengthen brand value.



Expected results and additional benefits

AI initiatives generate two types of value: the expected, measurable results tied directly to your metrics, and the broader benefits that strengthen customer experience, employee engagement, innovation, and overall organizational capabilities. Both are essential to capturing the true impact of AI efforts and ensuring they align with long-term business goals.

Expected results



Measurement

- Post-implementation tracking (using the same metrics as the baseline)
- Time to value (how quickly improvements are realized)
- Use of control groups or sequential comparisons

Financial translation

Additional benefits

Customer satisfaction **Risk reduction**

Employee engagement **Data quality**

Innovation capacity

Measurement

- Proxy metrics (adoption rates, survey results)
- Qualitative evidence (user testimonials, anecdotes)
- External validation (awards, media coverage)
- Usage statistics (adoption & engagement rates)

Financial translation **Company vision alignment**

Building AI capabilities **Competitive differentiation**

Measuring your baseline for benchmarking

To understand the true impact of an AI initiative, you will also need a clear point of comparison. A well-defined baseline makes it possible to measure progress objectively, distinguish AI-driven improvements from normal business fluctuations, and evaluate performance over time. Establishing this baseline before deployment , and validating it during and after the initiative, is essential for credible, evidence-based benchmarking. Once baselines are in place, we can translate improvements into financial terms, beginning with ROI and payback time.

Before the initiative

Point of comparison (pre-AI performance)

During the initiative

Establish control groups or A/B tests

Post-release

Translate value into tangible terms, but give it time.

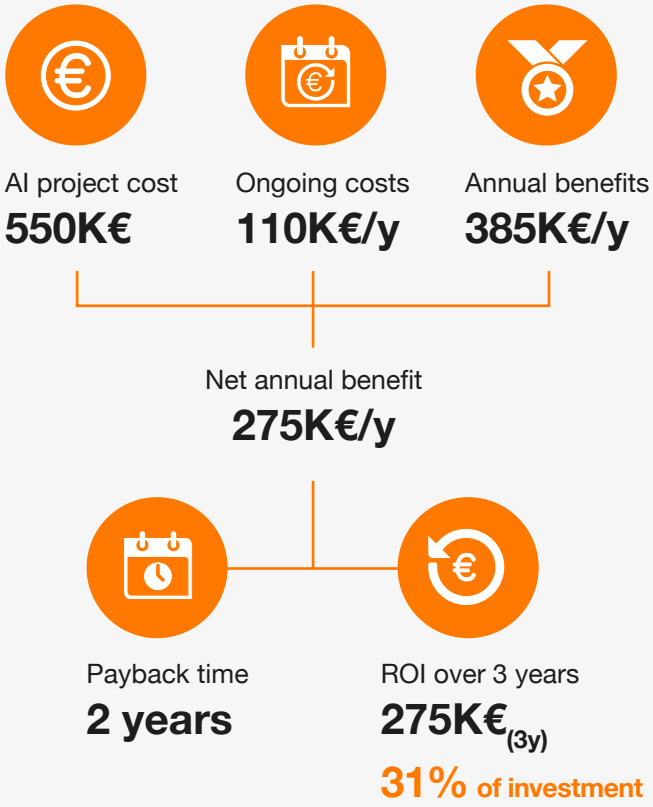
Financial translation

Bringing it all together
ROI in practice

ROI provides a clear way to evaluate whether an AI initiative delivers more value than it costs, both upfront and over its operational lifecycle. This example illustrates how to calculate net benefits, payback time, and overall return, giving leaders a concrete method for assessing the viability and impact of AI investments.

Impact is not an endpoint. It is a discipline, and the foundation of strategic AI leadership.

ROI Calculation



An AI project costs 550K€ to develop/deploy and has ongoing costs of 110K€/year, with a projected annual benefits of 385K€

Calculating a net benefit per year after going live is 385K€ – 110K€ = 2750K€

The up-front 550K€ would be paid back in 2 years (since 275K€/year net covers it in 2 years)

Giving a net of €275K ROI over 3 years (which represent 31% ROI on the €880K total cost on the same period).

The complete AI impact framework

This final view consolidates the entire methodology into a single, comprehensive framework (see next pages). It connects the total cost of ownership with expected results, additional strategic benefits, baseline performance, and financial indicators such as ROI and payback time. Together, these elements provide a clear and structured approach to evaluating AI initiatives end-to-end, from investment to measurable impact. With a complete view of how AI value is created, measured, and translated, we can now step back and reflect on what it takes to deliver impact consistently across an organization.

Delivering impact with AI is not about running isolated experiments or validating technology after the fact. It is about adopting a disciplined, continuous approach to measuring value, one that guides decisions, shapes strategy, and accelerates learning. The organizations gaining the most meaningful competitive advantages today are those that treat impact measurement as a management tool, not merely a validation exercise. When AI initiatives are evaluated with clarity and consistency, they become engines of performance, innovation, and organizational transformation. But impact doesn't happen by accident, it emerges from intentional choices made at every stage of the journey. To move from potential to proven value, organizations should adopt a structured path (See boxed text on the right).

By following this approach, organizations can transform AI from a collection of technical initiatives into a cohesive capability, one that evolves, strengthens, and compounds over time.

Next steps for your organization

1 **Clarify your ambition**

Identify where AI can unlock the greatest value in your core business.

2 **Set your baseline**

Establish pre-AI performance to enable fair, evidence-based comparisons.

3 **Define your KPIs early**

Align with finance and operations on what success should look like.

4 **Model your TCO**

Account for development, data, operations, and long-term maintenance costs.

5 **Track with consistency**

Rely on a mix of quantitative metrics and qualitative signals to capture full impact.

6 **Review and refine**

Treat impact measurement as an iterative feedback loop, not a one-off step.

7 **Scale with confidence**

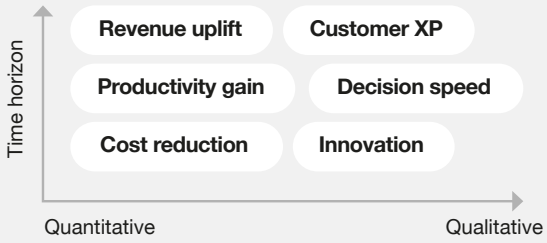
Expand what works, pause what doesn't, and reinvest where value is proven.

The complete AI impact framework

TCO

		One-time	Ongoing
CapEx	Equipment / hardware	X€	
	Software / licenses	X€	
	Infrastructure upgrades (on-premises/cloud)	X€	
Human & professional services	Data acquisition (data purchasing, data labeling)	X€	
	Data engineering (external consulting or internal labor costs) – preparing and cleansing data	X€	
	AI implementation (external and/or internal developers) – AI and system integration	X€	
	Time spent by the business (requirements, testing, feedback, etc.)	X€	X€
Operational costs	Training	X€	X€
	Change management		X€
	Maintenance and model refresh (MLOps, LLMOps)		X€
Intangible	Lost productivity elsewhere during the project	X€	
			Cost scalability

Expected results



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Financial translation **Company vision alignment**

Building AI capabilities **Competitive differentiation**

Baseline performance

Metrics	Measurement	Documentation	Attribution
Financial	Historical data	Baseline value	External factors
Operational	Manual tracking	Qualitative baseline	Parallel initiatives
Customer	Surveys	Industry benchmark	
Workforce	A/B testing		

ROI

Expressed in € or % of investment

Time horizon

Hard savings | Soft savings

$$\left[\frac{\left(\sum_{t=1}^{n} \text{Expected benefits}_t\right)}{\left(\text{One-time investment}+\sum_{t=1}^{n} \text{Ongoing costs}_t\right)} - 1\right]*100$$

Upfront investment | Ongoing costs

Payback time

Expressed in years or months

Upfront investment

$$\frac{\text{Upfront investment}}{\text{(Net annual benefit after go-live)}}$$

Annual benefits | Annual ongoing costs

Worst case | Base case | Best case

Impact is not an endpoint.
It is a discipline, and the foundation of strategic AI leadership.

Do you have any further questions?

Or, if you'd like to learn more about using AI to create business value from your company's data, feel free to get in touch.

Orange Business

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