


WHITE PAPER

# The New Enterprise Resource Planning Era: Why Leaders Are Scaling Agentic AI.

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# From Modernization to Intelligence

A new era of Enterprise Resource Planning (ERP) transformation is upon us, with 40%[1] of enterprises ranking AI as their top ERP investment priority. The question facing technology leaders is no longer whether or not AI will reshape ERP, but **how quickly and responsibly can applications be scaled?**

Early adopters have shown that AI can automate testing, accelerate data migration, and improve decision-making through process automation and intelligent agents. However, most enterprises today remain in pilot mode, struggling to operationalize AI at scale. This is where **generative AI** and **autonomous agents** come in.

Successfully embedding these technologies into an ERP system transforms it from a passive system of record into an intelligent, active system—one that has been enabled to anticipate needs, recommend decisions, and automate execution.

Agentic systems are able to do this continually, tapping into **exponential value:**

- Faster innovation cycles
- Greater resilience
- Higher productivity
- Adaptive operations

**The message for CIOs and CFOs is clear:** ERP without AI and autonomous agents risks locking in existing inefficiencies for the next decade. This is an inflection point that cannot be ignored, and now is the time for AI to be woven into the fabric of an ERP transformation.

# Why Must ERP Evolution Continue?

Without the intelligence enabled by AI and autonomous agents, ERP modernization simply moves legacy bottlenecks **forward rather than removing them entirely**. Today's leaders recognize that ERP evolution must continue, which means transitioning from predictive models to agentic ones.

1. IDC Source: https://my.idc.com/research/viewtoc.jsp?containerId=US51078024

**EXHIBIT 1**

## The Four Stages of ERP Evolution

| ERP Stage | Core Capability | Business Outcomes |
|---|---|---|
| Automated ERP | Executes standardized processes | Efficiency and compliance |
| Predictive ERP | Surfaces insights through analytics | Better visibility and planning |
| Generative ERP | Creates test cases, documentation, and content | Faster delivery and fewer manual tasks |
| Agentic ERP | Acts autonomously within governance guardrails | Continuous optimization and learning |

**Source:** BCG analysis.

The stages of ERP evolution no longer emerge sequentially; they are converging, and the journey will be completed in **two main waves**. **Gartner** projects that over **50%** of ERP transformations will embed AI or agentic capabilities as standard accelerators by 2027, a shift that will redefine delivery speed and value realization.

## Wave One:

### Generative Acceleration (Today).

**This is where many are today.** AI is delivering measurable ERP results by augmenting human productivity across ERP, delivery, and operations. **Three areas** modernized by this approach include:

1. **Transformation Delivery:** AI-generated test scripts and automated defect resolution reduce testing cycles by **30%** to **50%**, with data-mapping and cleansing copilots cutting migration effort by up to **75%**.

    - **Example: A global information services company** used an AI-powered modernization service to modernize legacy .NET applications, increasing modernization velocity fourfold and cutting release cycles from **months** to **two weeks**.

    - **Example: A European energy company** developed a generative AI ERP data-mapping tool that reduced migration effort by 75% and shortened idea-to-go-live cycles to four weeks.

2. **Finance and Reporting:** Generative copilots produce reconciliations, documentation, and regulatory reports in hours rather than weeks, and predictive modelling improves forecasting accuracy (enriching scenario planning).

    - **Example: A Middle Eastern oil and gas company** automated finance reporting with a generative AI tool, saving approximately **2,000** hours a year and facilitating benchmarking across **40** industry peers.

3 **Data Management and Governance:** AI-based enrichment and profiling significantly improve master data quality before transformation takes place. This makes it possible to significantly reduce costly manual effort and resources.

- **Example: A North American utilities provider** applied generative AI duplication checks to procurement data, halving manual effort and eliminating **800** hours of duplicate review time.

Generative AI is accelerating ERP delivery and amplifying human capacity, creating the foundation for **the next wave of intelligence**.

## Wave Two:

### Agentic Optimization (Tomorrow).

Agentic AI builds on existing generative ERP foundations by empowering systems to act rather than just inform. Agentic models can sense context, evaluate options, deliver on decisions, and adapt continuously.

1 **Finance:** Autonomous agents reconcile entries, identify anomalies, and finalize journals under supervision. This significantly reduces close cycles **from weeks to just days**, while exception-handling agents minimize manual intervention.

2 **Supply Chain and Procurement:** Agentic demand-planning systems detect disruptions, simulate scenarios, and trigger sourcing or production adjustments automatically. Procurement agents optimize supplier allocations and renew contracts based on live data feeds.

3 **Order to Cash, Procure to Pay:** Collections agents reprioritize outreach based on payment behavior analytics, improving cash conversion and reducing days sales outstanding (DSO). Reconciliation bots automatically match invoices and payments, allowing finance teams to focus on exceptions.

4 **Workforce Enablement:** Skill-matching agents allocate talent dynamically as demand changes, and adaptive learning agents personalize training and compliance guidance within daily workflows.

- **Example: A global manufacturing client** launched a generative AI upskilling hub that evolved into agentic learning agents, continuously adapting content based on employee interactions.

This is the kind of closed-loop intelligence that agentic AI can bring to an ERP system—which gives innovative players a significant competitive edge over those lingering in previous stages of evolution.

# Rethinking ROI

As part of this transition, enterprises will need to reframe how they think about ROI. While traditional ERP ROI focuses on IT cost and process standardization, the new equation must also include **agility**, **innovation**, and **empowerment**:

- **Agility** to accelerate responses to regulatory and market changes.
- **Innovation** to support new digital services and customer experiences.
- **Empowerment** to free up capacity for strategic and creative work.

In the case of a global utility company, the organization was able to reduce its migration costs by **25%** by using AI for data cleansing. As a result, cutover was accelerated by **three months**.

# Success Criteria for Smart ERP

Data, technology, and governance lay the foundations of intelligent ERP, but meaningful transformations hinge on a deep understanding of how people work, their processes, their policy knowledge, and their ability to apply AI responsibly.

Striking this balance calls for an effective framework, one that ensures technology, algorithms, and models do not take precedence over people and processes. **In order of time and effort required**, there are three focus areas a successful framework for scaling AI in ERP needs to consider:

1. **People and Process Enablement.** The majority of the effort lies in change and in how teams use, trust, and scale new AI capabilities. Effective programs focus on workforce upskilling, agile operating models, responsible AI governance, and embedding AI insights into daily decision-making.

2. **Technology and Data Infrastructure.** Modern ERP ecosystems require open, composable architectures that integrate AI services seamlessly. For example, cloud service provider platforms provide a cloud-native backbone for scalable AI deployment.

3. **Algorithms and Models.** The AI itself—the foundation models, copilots, and agentic logic—has the smallest influence on overall success. Organizations must ensure model quality, guardrails, and alignment with domain-specific ERP use cases (such as finance close and procurement automation).

# The Era to Come

The journey doesn't stop at the intelligent, agentic ERP stage; the next generation will be self-healing, self-optimizing, and self-learning—**at which point ERP becomes truly autonomous**.

Agents will refine forecasts, resolve exceptions, and rebalance operations under human oversight (but without human delay). However, to get to this stage, CIOs and CFOs must first move beyond AI pilots and double down on AI-native delivery and laying the right data foundations.

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