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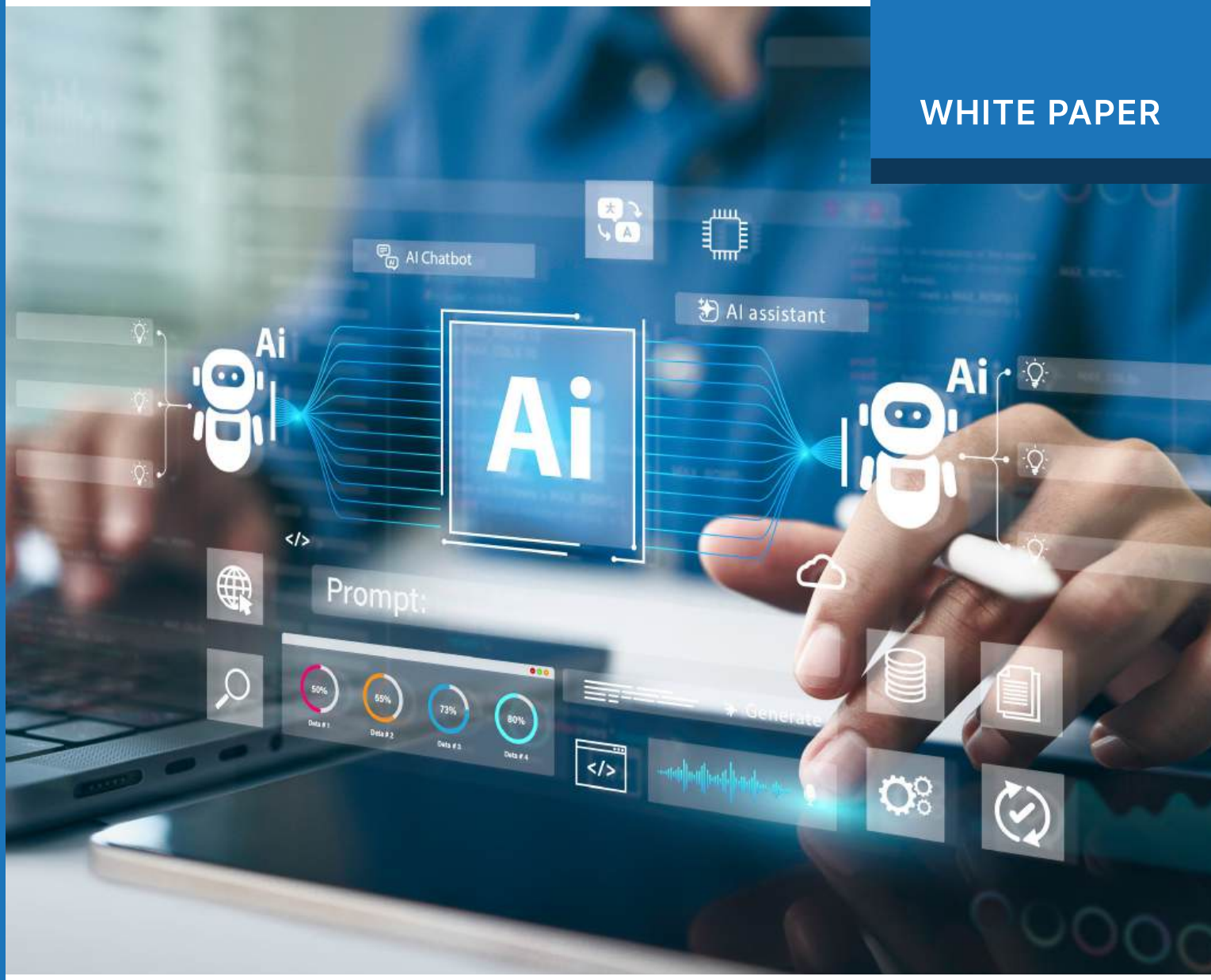

Intelligent Automation

The Next Leap Forward in Business Productivity

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Executive Summary

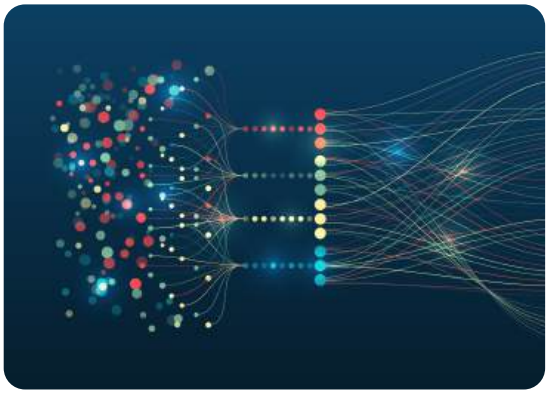
This paper examines the integration of AI and human activity in business processes. While the vision of AI as a true co-creator is on the horizon, most organizations are currently focused on mainstream adoption of intelligent automation and AI-enabled tools to drive productivity and efficiency.

Current State and Opportunities:

Organizations are embedding AI-enabled tools and intelligent automation into their operations. Over the next 18–24 months, there is a significant opportunity to complete this transition, maximizing the impact of automation on business effectiveness.

Current State	Opportunity
AI tools used in silos	AI tools integrated end-to-end
Limited adoption	Full adoption (18–24 months)
Basic workflows	Intelligent workflows

Challenges:



Key challenges include a lack of knowledge on how to use and integrate AI Agents, limitations of classic automation (which requires explicit logic and structured data), balancing human and machine roles, selecting and integrating the right mix of automation tools, governing the adoption of emerging technologies and fostering a mindset of continuous innovation.

> ⚠ *If not addressed, automation adoption becomes fragmented - **reducing ROI** and **increasing operational risk**.*

Action Plan and Recommendations

Foster a Mindset of Continuous Innovation

Become a frontier firm by encouraging experimentation with new technologies, piloting initiatives, learning from outcomes, and scaling what works. Apply governance frameworks to manage adoption, ensure alignment with business goals, and control risk.

Select and Integrate the Right Tools to create a new IT foundation

Deploy a mix of automation capabilities:

- Use classical RPA for cross-system data integration and workflow orchestration (e.g., Power Automate, MuleSoft).
- Leverage in-app AI for tasks within a single software tool (e.g., Salesforce flows or ServiceNow AI features) when you need to perform specific tasks.
- Adopt enterprise AI platforms (e.g., Microsoft Copilot Studio) to enable reasoning across workflows and data sets that span multiple IT systems.

Accelerate Adoption of Intelligent Automaton capabilities across business processes

Apply AI-enabled automation to high-volume, repeatable business processes to reduce manual work and allow employees to focus on higher-value activities.

Overcome Limitations of Classic Automation

Combine rules-based automation with AI to handle ambiguity. Use RPA for structured tasks and AI for unstructured data analysis and recommendations.

Balance Human and Machine Roles

Maintain human-in-the-loop controls for critical decisions. Automation handles routine tasks, while humans provide oversight for high-risk or uncertain scenarios.

Prepare for What Comes Next

Monitor emerging technologies such as collaborative AI and plan adoption using realistic timelines based on maturity and readiness.

Intelligent Automation – The Next Stage of Technological Evolution

Pre 1900s

Over the past 30 years, we've been on a sequential progression of technology evolution in support of the goal of improved productivity. It starts with manual tasks—people doing the work by hand with manual tools (think pen and paper). The focus was on the skills, knowledge and experience of individuals to achieve productivity.

Late 1900s

In the late 1990s, we moved to a phase of tool-enabled work, with IT systems, databases, and software supporting people in their job roles by providing electronic records and enhanced user interfaces (web, mobile, etc.) for capturing and managing information. The focus shifted from individuals and tasks to job roles and the management of data.

Early 2000s

The third phase in the evolution Business Process Automation (Early 2000s), using software and rules-based logic, and workflows to perform tasks and string them together into business processes that span multiple systems, job roles and even organizations. This era used Business Process Management (BPM) for optimization and Robotic Process Automation (RPA) as the "hands" of the digital workforce. While efficient, these systems were brittle, requiring explicit logic and structured data to function. (Forbes 2025) The focus was automating interfaces and driving efficiency by eliminating some of the busy work within the business.

2000s to Now

The fourth stage is intelligent automation, which has taken off over the last two years with the introduction of ChatGPT and generative AI capabilities. Intelligent automation uses the power of AI to perform basic reasoning tasks that rules-based automation struggled with. The convergence of RPA's execution and AI's "brain." By leveraging large action models (LAMs), these agents handle the ambiguity and exceptions that paralyzed classical automation (KPMG 2025).

AI is a Game Changer for Automation

A key challenge of the third phase of this technology evolution was that classic automation, or robotic process automation (RPA) as it is often referred, does not know how to manage ambiguity other than to stop processing. Since it is grounded in pre-defined triggers, rules and actions - this type of automation requires very explicit logic, structures for actions under specific scenarios, and complete and accurate data to be effective. Ambiguity, change and exceptions are problematic.

Intelligent automation that uses the reasoning capabilities of AI addresses the shortcomings. It can analyze computer screens and software, infer meaning, and apply human intent to the environment. It can interact with IT systems as humans would: looking at data, finding gaps, connecting the dots, and figuring out what it is seeing.

Intelligent automation is already taking root within enterprises and large organizations as they look at digital process automation and where to apply AI for maximum effectiveness - increasing productivity, reducing cycle time, and lowering costs. Enterprise investment and adoption of AI agents are already well underway, signaling a clear market consensus on their importance. A recent PwC survey of senior US executives quantifies this trend:

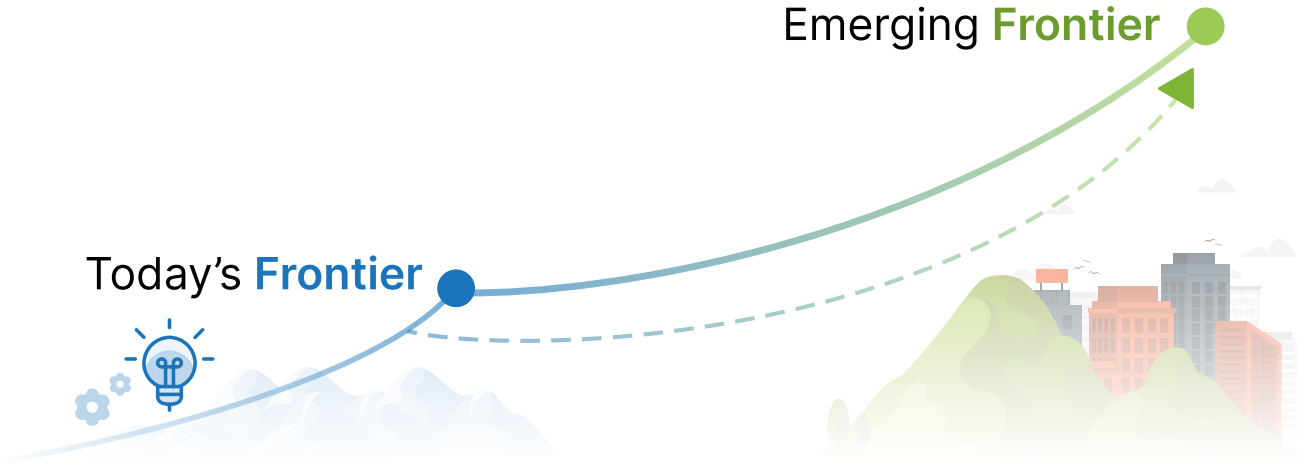
79%
of companies report that AI agents are already being adopted within their organizations.

88%
of executives state their team or business function plans to increase AI-related budgets in the next year specifically due to agentic AI.

66%
of adopters say their AI agents are already delivering measurable value, primarily through increased productivity.

We are moving toward a new type of workforce, with a clear understanding of the roles humans need to play based on their skills, experience, and ability to provide guidance, as well as the appropriate place to apply technology, whether deterministic automation using rules and workflows, or AI to fill gaps and analyze data at scale.
This is the new reality of an IT-enabled organization.

Frontier Firms and Continuous Innovation

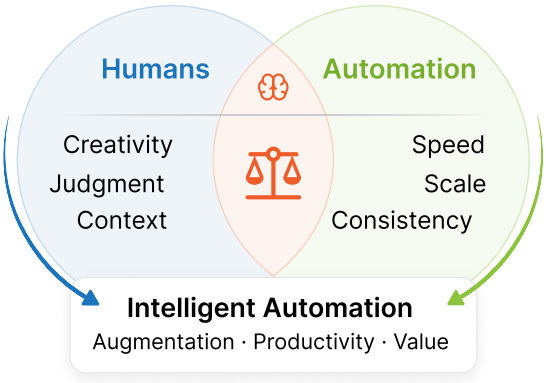


Microsoft coined the term "frontier firm" to describe a new type of organization that uses the power of AI and intelligent automation to drive business productivity. What they describe in terms of AI and technology use within organizations is focused on the frontier as it exists today.

The challenge with this label is that the frontier is always moving and just because you are on the frontier today, you may not be next year. Microsoft's definitions provide a good benchmark for organizations to evaluate their understanding and adoption of intelligent automation, but the essence of a frontier firm is less about skill sets and technology and more about organizational mindset.

A frontier firm's mindset is about continuous innovation. They are not afraid of change and are constantly bringing in innovative ideas, methods, and technologies - embracing them, identifying where it makes sense to adopt them, and governing them effectively. As technology and ideas evolve, frontier firms must continuously scan the environment and evolve their thinking, methods, and investments to align with what is possible and emerging. Success is not about being on the frontier today, but about staying on the frontier and understanding what is coming and how to apply it most effectively.

Intelligent Automation Is Not Just About AI



Intelligent automation is not about any specific set of tools - it is about people, business processes, and activities that add value to your organization. Improving individual productivity within the context of current business operations is key. While some business processes may radically transform due to intelligent automation, in most cases, the focus will be on improving productivity within your current context.

When considering intelligent automation, several questions must be answered. Where is human involvement needed and how can we maximize the value that employees generate? Where do the skills, knowledge, experience, and reasoning of employees create competitive differentiation for the organization? There is a role for humans and their ability to innovate and see beyond past practices. AI and automation cannot manage this today. That is likely where the fifth industrial revolution will take us, but we are not there yet.

Augmentation is the key term when it comes to intelligent Automation. The goal is not about replacing humans but giving them better tools to do their jobs more effectively and efficiently. The role of automation and AI in an intelligently automated business is to automate busy work. For information workers, only about 10 to 15% of their work requires pure human involvement and cannot be automated. That means 80 to 85% of a typical information worker's job can be augmented with intelligent automation. Organizations that fail to grasp the velocity of this shift - where agent capabilities are currently doubling every 3 to 7 months, risk immediate obsolescence (KPMG 2025)

80–85% *(Source: KPMG 2025)*

of information work can be augmented with intelligent automation.

The Grounding: A Glossary of the New Workforce

Before we can build a strategy, we need to speak the same language. The world of automation is currently a soup of acronyms and buzzwords—from GenAI and Copilots to AI Agents. While those technical details are important for the developers, the rest of us need to ground ourselves in what these technologies are versus what we perceive them to be. Clarity starts with clear definitions of the building blocks of this new ecosystem.

- **Robotic Process Automation (RPA)**

  Think of this as the "hands" of your digital workforce. It is automation based on strict rules and logic—if this happens, do that.

- **Artificial Intelligence (AI)**

  This is the "brain." It is a system designed to "think" like a human, looking for patterns and guessing what response is needed based on earlier experiences.

- **Intelligent Automation (IA)**

  This is the convergence of the hands and the brain. It combines rules-based workflows (RPA) with reasoning engines (AI) to manage tasks that require both action and thought.

- **Agentic AI (Intelligent Automation Agents)**

  These are the containers or "building blocks" of capability. Think of them like specialized digital coworkers that can be called upon to use specific tools and knowledge to solve a problem.

- **Deterministic Logic**

  The foundation of RPA. It is black-and-white, true-or-false logic with no room for gray areas.

- **Inference (Reasoning)**

  The foundation of AI. It is the ability of the system to look at incomplete data and "connect the dots" to infer the correct path forward.

- **Human-in-the-Loop (HITL)**

  A critical safety step where a workflow pauses to seek guidance from a human before continuing.

Humans in the Loop

Striking the right balance between humans and automation is crucial. A key development in AI over the last six months has been the concept of "human in the loop," which defines the guardrails for automated processes. I would not want to fly on a plane today that doesn't have a human either in the cockpit or able to take control remotely if something goes wrong. For the same reason, I would not trust my business run on autopilot either. The risk and impact are too great.

Perhaps the most important consideration when working with AI is when automation should perform tasks autonomously and when it should defer to humans for guidance. This may be necessary to define intended outcomes, provide clarity when data is ambiguous, or when rules-based exceptions require human review and authorization.

Non-Negotiable Success

Harvard Business Review (HBR) emphasizes that "Human-in-the-Loop"" is non-negotiable for success, as humans provide the empathy and contextual judgment AI lacks.

Governance Hurdles

Deloitte highlights that regulatory compliance is the top barrier for 60% of AI leaders, reinforcing the need for these human-centric safeguards.

AI today bases its reasoning and outputs on data from the past. It may be able to forecast trends, but it is not able to truly innovate and create something new that doesn't exist in some form.

Selecting the Right Tools for the Job

Another area that deserves more discussion is the choice of the right automation capabilities for specific activities. We are seeing an influx of AI agents and automation capabilities being made available for businesses and individuals to use. The problem is not that we lack the tools, but the problem is that we have too many tools to choose from. The loudest voices in the room are the technology companies building and selling these tools.

Most of the AI messaging comes from a few tech companies promoting their tools, but there isn't a "one size fits all" solution and businesses often need multiple tools to support a process. There are three primary categories of automation capabilities to consider for intelligent automation projects:

→ Classical Robotic Process Automation Tools

Examples include Power Automate, MuleSoft, WebMethods, and Zapier. These use APIs and rule-based workflows to execute tasks, often spanning different IT systems. They were designed for process automation and data integration.

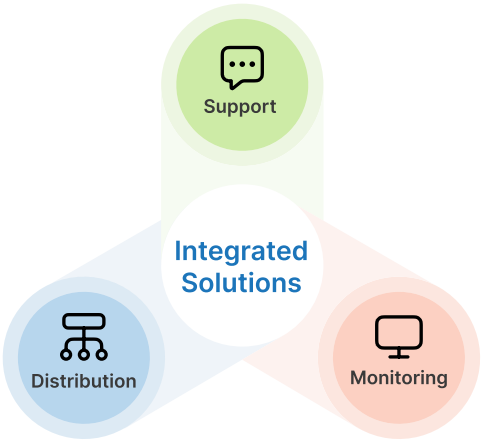
→ In-App Developed AI Capabilities

These are AI and automation features built within specific software, such as flows and Agentforce within Salesforce, or AI capabilities embedded in systems from SAP or ServiceNow. They are important for automating tasks and analysis within a single IT platform because they have access to internal data structures and APIs that are not available externally.

→ Enterprise AI Capabilities

Examples include Google's Gemini platform, Microsoft Copilot Studio and internally developed LLM implementations. These environments focus on integrations and tasks that span multiple IT systems, stitching together workflows across tools, much like humans do in an IT-enabled business process.

How these capabilities fit together in an intelligently automated business process is an important consideration. Even within these categories, not all capabilities are created equal. For example, Google's Gemini platform performs better with creative use cases where Microsoft Copilot outshines in more business workflow use cases and those heavily dependent on email and other forms of communication.



AI capabilities from SAP are well suited for analyzing and improving supply chain operations, while ServiceNow's AI capabilities excel at analyzing IT infrastructure and Salesforce AI capabilities specialize in improving customer engagement. Nearly all organizations will find themselves using a combination of these tools, depending on the tasks and/or processes they are looking to automate.

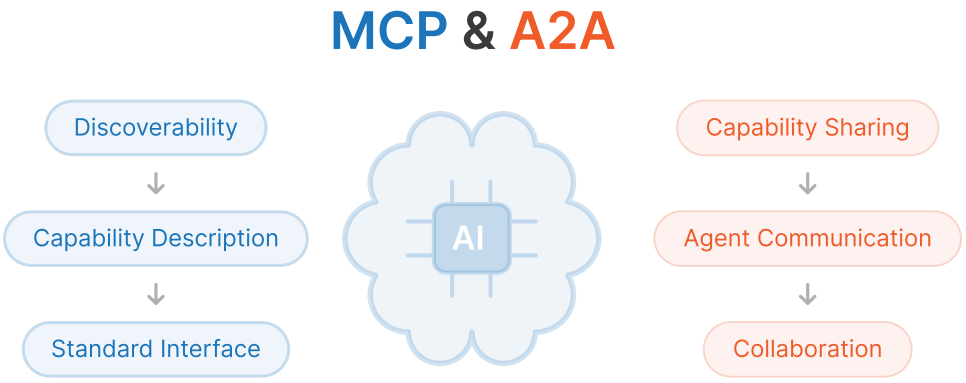
Most of the AI messaging comes from a few tech companies promoting their tools, but there isn't a "one size fits all" solution and businesses often need multiple tools to support a process. There are three primary categories of automation capabilities to consider for intelligent automation projects:

Success isn't about buying the newest tool; it's about the right mix of rules and reasoning. To maximize value, you must follow a process-first approach:

- **Mindset Shift**
  Continuous improvement requires embracing innovative ideas and technologies.
- **Workflow Integration**
  Assemble the steps, provide knowledge sources, and define triggers into a packaged agent.
- **Human-Centric Design**
  Put serious thought into what is autonomous versus where humans need to stay in the loop for context and creativity.

Standards are Driving Interoperability and Creating Endless Possibilities

There are two technology standards which have been developed to support AI implementation which play a key role in enabling interoperability between AI agents and capabilities developed from various technology suppliers. Model Context Protocol (MCP) is a standardized wrapper that enables people who develop AI capabilities to advertise to others what their solutions can do and how to use them. Agent-to-Agent (A2A) is a lower-level interoperability standard that enables one AI agent to use the capabilities of others.



These standards make it possible for AI and RPA agents from different manufacturers to be assembled into an infinite number of combinations – like the way LEGO® blocks can be connected to form any number of creations. This is important in the context of intelligent automation because businesses and individuals are not dependent on a single vendor to solve their entire problem. They are also no longer constrained to adapting their business processes to the way that an IT platform prescribes that something should be done.

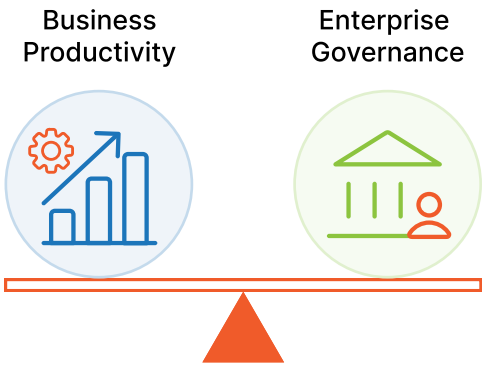
> *The impact of a large and diverse marketplace of AI and RPA agent capabilities interoperable through MCP and A2A is that companies can pick and choose the best solutions to apply to their unique needs – balancing considerations of cost, efficiency and competitive differentiation. For business leaders, the possibilities are endless.*

Balancing Business Productivity with Enterprise Governance

IT leaders face a unique set of challenges related to governing Intelligent Automation and AI usage within their organizations. Their business counterparts are deeply invested in driving efficiency and productivity improvements using modern technology. In the past, IT investments were expensive to buy and manage, providing clear justification for IT exerting influence over what should be allowed within the organization and what should be forbidden.

Shadow IT was a big problem in the early 2000s as business users became more technology savvy and began bringing their own devices and software to the workplace. IT cost management, access to infrastructure and data connectivity were the key levers used by IT to control IT use across the enterprise.

The proliferation of cloud computing and the availability of personal productivity software led to a second wave of business-led IT in the late 2010s, and the work-from-home environment of the COVID-19 pandemic effectively undermined the ability of most IT departments to control what software and hardware end-users were using to support their daily work. The source of their control shifted from software to controlling enterprise data assets.



The introduction of ChatGPT and other LLM capabilities in 2024 and the explosive use of Generative AI over the past 2 years introduced a new set of challenges for IT – particularly when it came to preventing sensitive company data from being exposed to external systems that had the ability to index it and recompile it into the underpinning models that competitors also had access to.

IT departments began restricting the use of public LLMs with enterprise data – leading to the introduction and adoption of enterprise LLM capabilities that could ensure data security. Unfortunately, this security had a heavy price tag that came with it. IT cost management of AI capabilities re-emerged as a core problem for IT organizations. We have now come full circle and IT leaders have a renewed mandate from corporate leadership to balance business productivity with data security and cost management while enabling Intelligent Automation. This is projected to be a major focus of corporate IT over the next couple of years.

Potential Value Left to Harvest

We have reached a point where the foundational technologies are in place for widespread reinvention of business processes with the opportunity to achieve 8-10x productivity gains using technology. AI-enabled tools and intelligent automation help drive efficiency and productivity within the workforce and influence a fundamental transformation of business ecosystems.

Despite these impressive adoption figures, there is a notable disconnect between broad implementation and deep, transformative impact. Many organizations currently use agentic features embedded within enterprise applications to accelerate routine tasks, which delivers an immediate productivity boost but falls short of fundamentally redesigning how work gets done.

This is corroborated by the finding that most companies (68%) report that half or fewer of their employees interact with agents in their daily work. As PwC notes, "Few have the kind of agentic workflows that a leading hospitality company we worked with has already put in place," illustrating the gap between common practice and best practice.

Operational Excellence

Gartner forecasts that organizations can lower operational costs by 30% by combining these technologies with redesigned processes.

Workflow Impact

McKinsey analysis reports that routine contact-center requests drop by 40–50% when Agentic AI is correctly integrated into workflows.

The economic potential of closing this gap between routine use and true transformation is staggering. Industry analysts (KPMG 2025) project that this technological shift will unlock immense value across the global economy. Agentic AI is estimated to be key to unlocking US $3 trillion in corporate productivity improvements. The average company could see a potential 5.4 percent improvement in EBITDA from labor productivity gains driven by agentic AI.

Now What?

We stand at the threshold of a transformative era where businesses and IT are converging to unlock unprecedented levels of productivity and innovation. The mainstream adoption of technologies like AI and automation is not only reshaping industries but also redefining the way we work, learn, and interact. The gap between initial adoption and true transformation is not a technological failing but a direct consequence of the organizational, strategic, and governance barriers.

> *Organizations have the unique opportunity to harness the advancements of Intelligent Automation and AI agents to reinvent their processes and position themselves for long-term success. The journey ahead promises exciting possibilities, and those who embrace the evolving partnership between humans and intelligent machines will be at the forefront of this new phase in business and technology.*

About NovoCircle:
Enabling a Culture of Continuous Innovation

At NovoCircle, we believe that the future belongs to organizations that foster a culture of continuous innovation. As a consulting firm, NovoCircle partners with clients to help them navigate technological change, develop new ideas, and implement modern methods. We guide organizations in building environments where emerging technologies are not feared, but embraced as the fuel for business success.

Our mission is to empower leaders and teams to turn disruption into opportunity—cultivating resilience, adaptability, and a mindset where innovation is a daily practice. With NovoCircle, your organization can confidently shape the future, leveraging new tools and approaches to achieve lasting competitive advantage.

To learn more about how we can help you prepare for the future, visit www.novocircle.com or contact us at sales@novocircle.com

THANK YOU.