

FUTURES

The Actualized Enterprise

Exploring the next frontier of business

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Summary

- Most organizations are deploying AI onto existing processes and seeing no ROI. The real bottleneck is not technology but execution capacity. Human coordination is the ceiling, and better tools alone cannot raise it.
- A convergence of transformative technologies—agentic AI, enterprise digital twins, quantum computing, physical AI, and more—is making possible a fundamentally different kind of organization.
- The Actualized Enterprise is that organization: one that doesn't just use technology, but thinks and acts with it. It operates like a cerebral cortex that can sense, reason, decide, act, and learn continuously across the entire enterprise, dynamically executing objectives defined by leaders.
- In the Actualized Enterprise, humans are freed from rote tasks to serve as the legislators, governors, and creatives who give the system its direction, values, and vision.
- For leaders willing to throw out today's maps, this report charts the course: the steps to start building the foundation of the Actualized Enterprise today.





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The leaders who will define the future will not be the ones who optimize the enterprise they inherited. They will be the ones who let the technology guide them toward an enterprise that doesn't yet exist.

Somewhere in the Pacific, while trying to circumnavigate the globe, Ferdinand Magellan threw his maps overboard. They were so inaccurate, so anchored to a world smaller than the one he was crossing, that they had become a liability. Freed from the maps, he and his crew were unexpectedly “liberated” because they were “forced to navigate by reading the signs in the ocean environment,” leading them to discover the trade winds blowing across the Pacific.¹

Maps are confined to a known world. At a certain scale of journey, the old maps don't just become unhelpful. They lie and mislead. They impose the borders of a known world onto one that has already grown beyond them.

Technology today has placed us in another great Age of Exploration. Artificial intelligence, quantum computing, robotics, and other converging forces are opening waters that no existing map can chart. And yet most business leaders have

responded by leaning into the hyper-familiar, deploying AI onto routine processes, optimizing existing workflows, and piloting use cases within the boundaries of what they already know. They are captains who know their harbor perfectly but have not looked past the horizon.

This report is an invitation to throw the maps overboard and to develop a new way of knowing by reading the signals that don't yet appear on any org chart, earnings report, or technology roadmap. The leaders who will define the future will not be the ones who optimize the enterprise they inherited. They will be the ones who let the technology guide them toward an enterprise that doesn't yet exist.

By throwing out the maps and casting our gaze toward the horizon, we can start to see the outlines of what's coming: an enterprise as different from today's organization as open ocean is from a familiar harbor. We call it the Actualized Enterprise: an organization that doesn't just use technology but thinks and acts with it. Powered by the convergence of new technologies, it is a place where dynamically connected workflows enable leadership to define objectives while intelligent systems execute across a cognitive network. It will deliver new value by optimizing the enterprise and augmenting decision-making, execution, and innovation that were previously unattainable. Let the second Age of Exploration begin.



Sailing beyond where the map ends

We are in the midst of a truly transformative technological moment. AI is unlocking new capabilities at breakneck speed. And yet, in the face of this intelligence revolution, most organizations are relying on what they know and how they already work to navigate the change.

AI implementation largely remains siloed and confined to optimizing existing ways of working. In a McKinsey survey, approximately 88% report using AI in at least one business function.² But, at the enterprise level, 62% are still in the experimenting or piloting stages with AI.³ And only a small percentage are focused on redesigning workflows or scaling AI.⁴ The challenge is that “ease of use of many basic tools and their increasing availability have generated a proliferation of often-disconnected use cases, pilots, and features.”⁵ But legacy systems, siloed data, and other challenges mean most of these pilots cannot scale, what McKinsey calls “pilot purgatory.”⁶

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Research is increasingly coalescing around a clear conclusion: Successful AI transformation cannot come from isolated use cases. It requires bigger, more transformative undertakings that reimagine how work gets done.¹¹

The consequences are showing up in companies' bottom lines. BCG's study of 1,250 firms found only 5% are “achieving value at scale,” and 60% are “not achieving material value at all.”⁷ Likewise, recent MIT research reveals that 95% of generative AI pilots fail to create



meaningful revenue acceleration.⁸ The cause, crucially, is not the technology itself. As the MIT report puts it, for the 95%, there is “high adoption, low transformation”⁹ and a bias toward “directing resources toward visible but often less transformative use cases, while the highest-ROI opportunities in back-office functions remain underfunded.”¹⁰ Companies are optimizing yesterday’s business models instead of inventing tomorrow’s operating systems.

Research is increasingly coalescing around a clear conclusion: Successful AI transformation cannot come from isolated use cases. It requires bigger, more transformative undertakings that reimagine how work gets done.¹¹ According to the 2025 IBM-Oracle agentic AI study, 78% of C-suite executives recognize that the maximum AI benefit requires a new operating model, yet more than three-quarters admit their current investments focus on improving existing processes rather than net-new capabilities.¹²

The awareness hasn’t translated into action. As one McKinsey article put it, “Integrating AI will not be a simple technology rollout but a reimagining of work itself—redesigning processes,



roles, skills, culture, and metrics so people, agents, and robots create more value together.”¹³ And that’s before accounting for other converging technologies—quantum computing, AI-generated user interfaces, digital twins, and others—that may prove equally consequential and will compound both the opportunity and the complexity.

It is difficult to imagine what an enterprise fully transformed by these technologies might look like, much less how to get there, when so many organizations remain anchored in pilot purgatory and the pull of business as usual. The reason these pilots cannot scale is not primarily technological. The bottleneck is not intelligence or information, but execution capacity, with human coordination as the ceiling. The real competitive differentiation in the era of autonomous systems will not come from generating more insights but from the ability to execute, specifically by tackling the problems organizations currently avoid because they are too complex to coordinate.

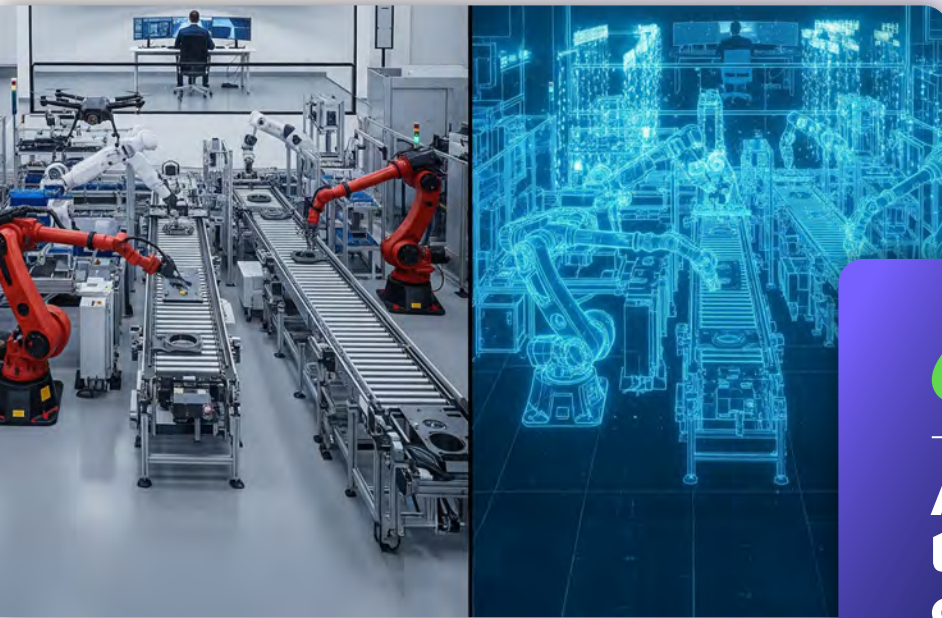


While the competitive edge shifts from insight to execution, current AI cannot close that gap. Most AI deployed today is still fundamentally deterministic, following a script and merely automating. Agentic AI, on the other hand, follows a goal. That shift from deterministic to probabilistic, goal-seeking systems is what makes enterprise-scale autonomy possible. Without it, even the most sophisticated AI deployment remains just a very fast conveyor belt. The organizations that escape pilot purgatory know they must leave charted waters entirely.

Where all the currents meet

No single technology will unlock the future of the enterprise. But several transformative technologies are maturing at the same time, and their convergence is creating something far more significant than any one of them could produce alone.

The World Economic Forum calls this technology convergence, when “multiple foundational technologies are maturing simultaneously,



creating unprecedented opportunities for those who understand their combined potential.”¹⁴

Researchers and technologists have begun identifying the potential of specific technology pairings: agentic AI and digital twins;¹⁵ quantum and AI;¹⁶ and AI, robotics, and quantum.¹⁷ But a complete view of the future enterprise only begins to take shape when you see all these technologies working together. The major technologies contributing to this convergence are:

- **Agentic AI:** Unlike earlier automation that followed predefined scripts, agentic AI operates toward goals. It reasons, adapts, and acts under conditions never explicitly mapped in advance. Critically, agents now have persistence and memory, enabling far more complex decision-making than before.

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- **Connected AI:** The next evolution is agents that work together. Connected AI operates as a mesh of workflows, with agents coordinating and monitoring one another, and collectively pursuing outcomes. This shift from task-based to network-based AI is what makes enterprise-scale autonomy possible.
- **Enterprise digital twins:** By digitizing workflows and data across the organization, companies can build a living model of how the enterprise actually operates, enabling leaders to predict issues, recommend actions, and test decisions before executing them.
- **Quantum computing:** Uniquely suited to modeling complex, interdependent systems, quantum computing can run multiple simulations simultaneously and surface patterns invisible to conventional computation.
- **Physical AI and robotics:** Physical AI and robotics extend the enterprise's reach into the real world with tools such as autonomous vehicles, field-service drones, and multitasking humanoid robots, integrated into the same cognitive network as digital workflows.

- **AI as the new UI:** As AI becomes capable of generating interfaces in real time based on what a user needs in the moment, the static dashboard gives way to something far more dynamic. Information surfaces itself, pulling from across the enterprise to give each person exactly what they need, when they need it, and in the form most useful to them.
- **Autonomous governance:** Agentic AI can embed compliance not as a periodic audit but as a real-time, code-level capability. New regulations, compliance rules, or AI use policies are applied enterprise-wide automatically the moment they take effect.

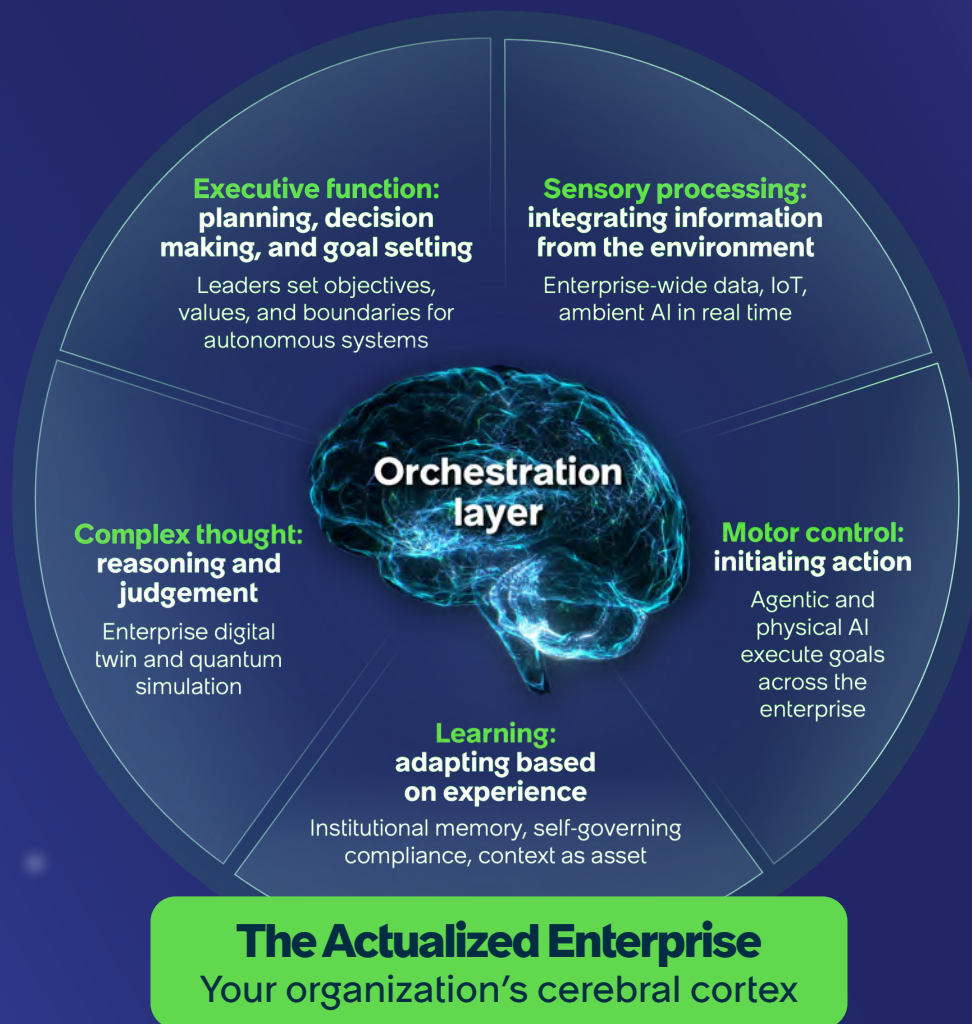
The power of convergence is that “[t]echnologies combine to create capabilities impossible through any single innovation.”¹⁸ The Actualized Enterprise is that impossible thing, thanks to technology convergence, now coming into view on the horizon.

The railroad and telegraph convergence of the 1840s to 1860s did not merely improve existing supply chains; it made national-scale enterprises



structurally possible for the first time. The PC, internet, and database convergence of the 1990s did not merely speed up existing work; it created the Connected Enterprise. In each case, it was not the individual technologies but their interoperability that unlocked transformation. Organizations that tried only to improve their existing models were eventually displaced by those that built for the new architecture.

The same logic applies today: Each of the technologies above reaches its own ceiling in isolation. It is their convergence, and specifically the orchestration layer that connects them, that makes a new kind of enterprise not only possible but simply necessary.



The Actualized Enterprise

A major focus of enterprises in the SaaS era has been to connect the enterprise so that all departments are visible and coordinating with each other. However, today's technologies, converging at a breakneck speed, require a new kind of enterprise that shifts from visibility to action.

That future enterprise is the Actualized Enterprise. Its name carries two meanings. First, it signifies the move from an enterprise that sees to one that executes actions; and second, it borrows from psychologist Abraham Maslow's idea of reaching one's fullest potential¹⁹: not merely connected, but fully realized. Tapping into the potential of agentic AI, the Actualized Enterprise is autonomous. Its intelligent systems follow a goal, not a predetermined script, reasoning toward outcomes under conditions that may not have been explicitly mapped in advance.

The biological counterpart is the cerebral cortex, the outermost layer of the human brain. It is the seat of executive function, complex thought, sensory processing, motor control, and learning. It holds intention, sets priorities, navigates tradeoffs, and coordinates action across complex, interconnected systems, continuously, in real time.²⁰ Rather than performing a single function, it serves as the integrating layer that makes all other functions purposeful.

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“I can see everything” is not the same as “I can do everything.” The Actualized Enterprise closes that gap, becoming the organization’s cerebral cortex.



Today’s enterprises lack this layer. Most have a nervous system, the network of data and digital infrastructure that senses what is happening. But “I can see everything” is not the same as “I can do everything.” The Actualized Enterprise closes that gap, becoming the organization’s cerebral cortex. And like the cortex itself, it operates through five integrated capabilities:

1. Executive function: planning, decision making, and goal setting

The cortex’s highest function is the capacity to hold goals, set priorities, and coordinate the whole system toward a chosen future. In the Actualized Enterprise, this remains a human-led role. Leaders define objectives, set values, and establish the boundaries for intelligent systems. This is the most important role in the entire

organization because it gives direction and meaning to the fabric of systems executing toward these goals.

2. Complex thought: reasoning and judgment

As the cortex interprets signals, reasons, and decides, the Actualized Enterprise performs this function through its enterprise digital twin, a living model of how the organization actually operates. Powered by quantum computing's ability to simulate complex, interdependent systems, it gives leaders the ability to model multiple futures simultaneously, testing decisions and running scenarios before a single real-world action is taken.

3. Sensory processing: integrating information from the environment

Like the cortex, which draws on all senses simultaneously to form a coherent picture of reality, the Actualized Enterprise is continuously fed by a rich data infrastructure—enterprise-wide, longitudinal data, IoT sensors, and ambient AI—creating a real-time view of operations, markets, supply chains, and customers. The depth and history of that data are what give it power, enabling richer insights, earlier issue prediction, and sharper recommendations. For humans, dynamically generated, context-aware interfaces will surface exactly the right information at the right moment, so people are better equipped to understand and act.²¹ In the Actualized



Enterprise, humans and agents can decide, respond, and act because so much more is seen and known across the organization.

4. Motor control: initiating action

The cortex translates decisions into action by initiating bodily movements. In the Actualized Enterprise, agentic AI and physical AI serve as the hands, executing outcomes set by leaders and actions triggered through sensory processing, such as preventative maintenance. The orchestration layer coordinates this entire system: knowing when to deploy a classical versus quantum agent, how to synchronize digital and physical workflows in real time, and how to govern the whole continuously. Within that fabric, agents follow a goal, coordinate across functions, adapt dynamically, and pursue outcomes without explicit instructions on how to get there. The result is not mere automation but genuine autonomy: a mesh of workflows

capable of executing complex, multifunction tasks across the organization to achieve set objectives.



5. Learning: adapting based on experience

As the cortex rewires itself through experience, the Actualized Enterprise learns continuously, building institutional memory from every interaction, decision,

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The Actualized Enterprise is not bound by an outdated map of best practices, but by outcomes, leveraging intelligent systems to find the best path that may be entirely unfamiliar.

and outcome, and applying it to make progressively better decisions over time. The system is also self-governing. Compliance is embedded in real time, so when new rules arise, they are applied enterprise-wide immediately. And where most organizations inadvertently discard institutional knowledge through data retention policies that delete the reasoning behind decisions, the Actualized Enterprise treats context as an asset, remembering not just what happened, but why, so it grows wiser with every cycle. Because the Actualized Enterprise learns, changes are not a liability but a variable the enterprise can monitor, integrate, adapt to, and learn from.

Rather than diminishing the role of humans, these five capabilities shift human contribution from coordinating and executing to directing: setting intent, defining the ethical boundaries within which autonomous systems must operate, and adjudicating the decisions that require human wisdom. It becomes more critical for organizations to identify, protect, and develop crucial human capabilities. The Actualized Enterprise is not bound by an outdated map of best practices, but by outcomes, leveraging intelligent systems to find the best path that may be entirely unfamiliar.

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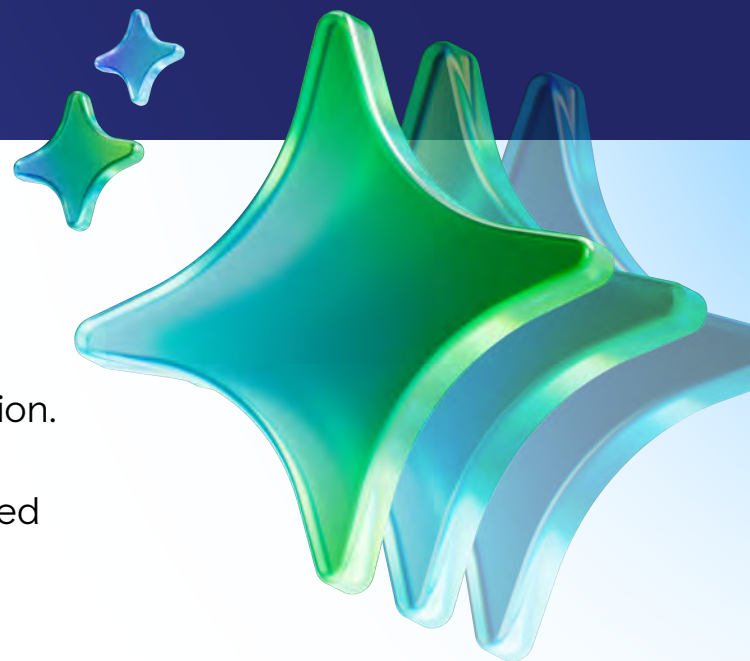
This is what distinguishes the Actualized Enterprise: not a faster, more efficient version of what exists today, but an organization that has fundamentally changed what it is capable of because it finally has the cortex to match its ambition.



Humans in the Actualized Enterprise are freed for higher-order work, falling into five roles.

- 1. Legislators:** Set direction, drawing on richer data and simulation to make better decisions and entrusting autonomous systems to execute their objectives
- 2. Governors:** Maintain oversight and accountability
- 3. Judges:** Handle exceptions and ethical decisions
- 4. Creatives:** Imagine new services, markets, and possibilities the organization previously avoided as too complex to coordinate
- 5. Meaning makers:** Preserve brand, culture, and human essence

The direction remains fully human while the execution becomes autonomous. This is what distinguishes the Actualized Enterprise: not a faster, more efficient version of what exists today, but an organization that has fundamentally changed what it is capable of because it finally has the cortex to match its ambition.



From horizon to landfall

The Actualized Enterprise isn't just an abstraction. Here are two examples of how the converging technologies, when connected and orchestrated within the Actualized Enterprise, will operate.

Scenario 1: Auto-governing frameworks

A sweeping data privacy regulation is published after hours. Before, this would trigger months of work: legal parsing requirements, compliance mapping exposure, IT identifying affected systems, and project managers coordinating remediation across a dozen departments.



Now, the Actualized Enterprise's system detects the regulation the moment it is published, reads it, and overlays it onto the organization's digital twin. Within minutes, it has identified every point of non-compliance, ranked by risk, and generated an action plan. Lower-risk remediations execute automatically within pre-approved boundaries. Higher-stakes decisions—where business impact and compliance cost must be weighed—are surfaced to the right leaders with full context, recommended options, and modeled outcomes. By the time the compliance team arrives the next morning, the organization is already 70% compliant. What would have taken months takes days.

Scenario 2: When “maybe someday” becomes today

A global consumer goods company has dominated its home markets, but growth has plateaued. The remaining opportunities are always deemed too complex to pursue. Leadership sets a new objective: Identify and enter the highest-potential adjacent market within 18 months.

The enterprise digital twin models current capabilities against continuous market signals such as competitor



movements, customer feedback, supplier relationships, and regulatory landscapes across 40 countries. Quantum simulations stress-test hundreds of entry scenarios simultaneously. The system surfaces an opportunity leadership shelved years earlier as too difficult to coordinate: a fast-growing middle-class demographic in Southeast Asia with unmet demand in exactly the category the company knows best. Now, the complexity that made it impossible before—cross-functional coordination, regulatory navigation, supplier sourcing, localized product adaptation—is handled by the system. In 18 months, the company is operating in the new market. Growth has resumed.

What the new world yields

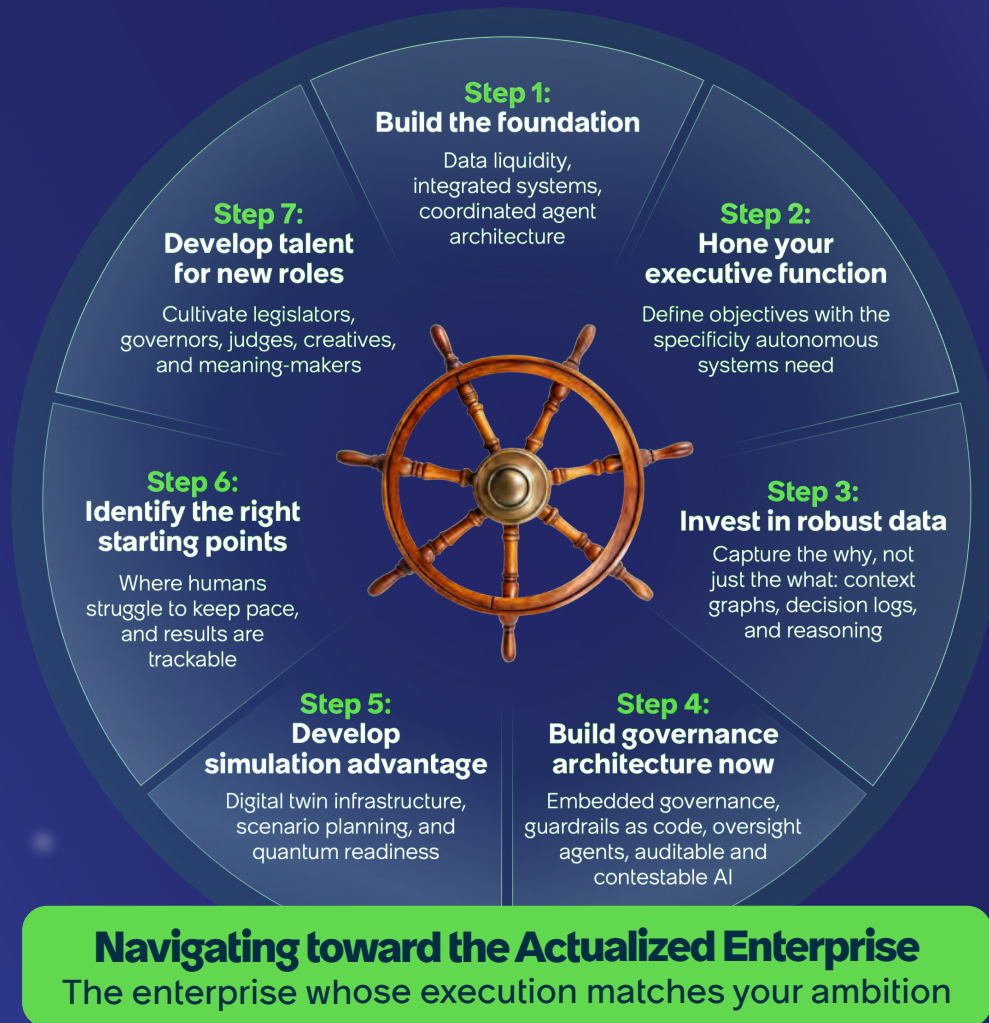
As the Actualized Enterprise sails to waters the old enterprise could never reach, the value it unlocks comes into full view.

- **Optimization beyond the incremental.** Existing processes improve through a dynamic, learning fabric of digital and physical workflows—and more powerfully, the Actualized Enterprise reimagines those processes entirely, uncovering ways of working that aren't visible from inside the boundaries of the old operating model.

- **Faster, smarter decisions.** A real-time enterprise view, continuous learning, and the ability to simulate outcomes before committing give leaders decisions that are more timely, informed, and confident.
- **Proactive risk management.** Risk is embedded continuously across the value chain. Exposures surface before they become crises, and decisions are stress-tested before they are made.
- **Adaptability as a core competency.** Rather than disrupting the organization every time the environment shifts, the Actualized Enterprise absorbs change in regulations, markets, and competitive conditions and adapts continuously.
- **Innovation embedded in the operating model.** Organizing around outcomes equips leaders with richer tools to imagine, simulate, and pursue possibilities that the old operating model would never have surfaced.
- **Value that wasn't previously attainable.** Growth opportunities too complex to pursue, customer needs too difficult to coordinate around, and strategic moves always deferred all become possible when the gap between intention and execution finally closes.



McKinsey estimates that “[b]y 2030, about \$2.9 trillion of economic value could be unlocked in the United States—if organizations prepare their people and redesign workflows, rather than individual tasks, around people, agents, and robots working together.”²² The value is clear. The path there is not, but it is navigable.



Navigating the uncharted waters

The Actualized Enterprise will not be built overnight. The organizations that will get there are not the ones with the most detailed maps but the ones that develop the navigational capability to move toward an unseen destination. The journey begins with a series of deliberate steps that leaders can start today.

Step 1: Build the foundation

You cannot have autonomous execution without integrated systems, digitized workflows, and data liquidity. Without them, signals cannot reach the systems that need to act, and decisions cannot draw on the full picture. Organizations should prioritize breaking down data siloes by investing in interoperability, standardizing data models across functions, and creating the shared infrastructure that allows information to move freely across the enterprise. AI investments must follow the

same logic: design agent systems that coordinate, self-monitor, and collectively pursue outcomes rather than single-purpose bots.



Step 2: Hone your executive function

Autonomous systems can only execute well when the objectives they are pursuing are well defined. Few organizations can articulate their objectives today with the specificity that intelligent systems require. Leaders should begin the discipline of intent definition now, before the systems that will depend on it are in place.

Step 3: Invest in robust data

The Actualized Enterprise runs on data *and* context. An AI system trained on records of what an organization did can learn to replicate those actions. But without understanding the reasoning behind them—the tradeoffs considered, the constraints that applied, the judgment calls that shaped the outcome—it cannot make genuinely intelligent decisions. It can imitate the past. It cannot navigate the future. Leaders should update retention policies and build infrastructure to capture the “why” alongside the “what”: context graphs, decision logs, meeting notes, emails, and other informal knowledge.

Step 4: Build governance architecture before you need it

Autonomy without governance is not a competitive advantage. It must be structural from the outset, not retrofitted once systems are running. Without constraints, autonomous systems in their quest to optimize will eventually act outside their intended roles. In practice, this means organizations should implement:

- **Governing framework:** (a) Set specific objectives that autonomous systems will be executing so these goals can be used to guide and audit systems over time, and (b) define the explicit boundaries within which autonomous systems are permitted to act. What decisions can an agent make without human approval? What actions are off-limits entirely? What triggers an escalation?
- **Guardrails as code:** Embed compliance, auditability, and ethical enforcement as real-time, code-level capabilities rather than periodic human reviews.
- **Agents that monitor other agents:** Create guardian agents designed to watch for failures, anomalies, and behaviors that exceed defined boundaries before they escalate.
- **Auditable AI:** Design the Actualized Enterprise to be autonomous, while also prioritizing transparency and explainability so humans can monitor and review to ensure safe and fair operations that continue to execute as intended.
- **Contestable AI:** Build autonomous systems so that humans can always interrogate, challenge, and reverse what has been done, and halt what is being done.
- **Continuous adaptation:** Ensure regular review of your governance architecture, systems, and outcomes to adapt and scale governance as the Actualized Enterprise evolves.

Effective governance enables the Actualized Enterprise by establishing the trust that undergirds autonomous systems.

Step 5: Develop simulation advantage

One of the most powerful capabilities of the Actualized Enterprise is the ability to test decisions before making them. Leaders can take steps today to prepare for when quantum computing becomes scalable in the enterprise.²³ And they can begin developing the simulation capability now by investing in digital twin infrastructure and building the organizational habit of scenario planning and simulation.



Step 6: Identify the right starting points

Be deliberate about where you start implementing autonomous execution. Early use cases should be identified using four criteria: (1) where the gap between what human coordination can deliver and what the situation actually demands is largest; (2) where decisions occur at volumes humans struggle to keep up with; (3) where conditions change faster than humans can coordinate; and (4) where outcomes are measurable with tight feedback loops. Prioritize these in early stages while leaving high-stakes, low-frequency decisions to humans.

Step 7: Redesign human roles for the new enterprise

As execution becomes increasingly autonomous, humans will shift to work that cannot be automated: setting intent, defining values, exercising ethical judgment, designing new services, and maintaining the organizational meaning and culture that gives the enterprise its identity. Leaders should proactively work to develop talent who can serve as legislators, governors, judges, designers, and meaning-makers in the Actualized Enterprise.

These steps are not only the path toward the Actualized Enterprise; they are the architecture of competitive advantage in the age of AI.

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For those bold enough to cast off into uncharted waters, the enterprise of the future is ready to be discovered.

to toss the atlas overboard. Centuries before, Polynesian wayfinders had already solved the problem of navigating the unknown, without needing to discard anything. They crossed thousands of miles of open Pacific to discover and settle the Hawaiian Islands, reading star paths, swell patterns, the flight of birds, and the color of clouds on the horizon.²⁴ They didn't wait for a map. They built a different kind of intelligence: one that read the world in real time and charged forward fearlessly.

The organizations that will lead in the era of the Actualized Enterprise are already doing the equivalent by building data foundations. The Actualized Enterprise may not fully materialize for several years, but the foundations are being laid today in the organizations that are investing in data liquidity, building governance architecture before they need it, developing simulation capabilities, and beginning to redesign human roles for the work only humans can do. For those bold enough to cast off into uncharted waters, the enterprise of the future is ready to be discovered.

Wayfinding tomorrow's enterprise

We began this report with a provocation: Sometimes the maps you have become the obstacle.

But there is a more instructive story, one that took place before Magellan decided



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The Innovation Office

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