Benchmarking the Journey of the World's 100 Most Productive Companies™

The COO Playbook for Aligning Strategy, Industrial AI, and Operating Models for Profitable Growth

2025 Annual Report and Industrial Productivity Index™ Results

LNS Research

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Section 1

President's Letter

President's Letter

After decades of declining industrial productivity, documented by NIST, BLS, and independent analysis from LNS Research, the forces shaping global competitiveness are now impossible to ignore. Four megatrends are driving the crisis:

1. Workforce demographics
2. Product and asset complexity
3. Sustained supply network volatility
4. AI going mainstream

Across industries, COOs are saying the same thing: our current operating models were not built for the world we operate in today. They are too brittle, too slow, and too dependent on institutional knowledge that is rapidly disappearing.

From 2008 to 2023, U.S. Total Factor Productivity declined 4.4%; a stunning reversal during a period of record investment in automation and digital transformation. Meanwhile, the Industrial Productivity Index™ reveals the widening gap between the World's Most Productive Companies™ (WMPCs) and everyone else. These leaders aren't lucky; they have built capabilities that allow them to adapt at scale.

Throughout our 2024–2025 The COO Council™ sessions, the message was consistent:

- We can't close the experience gap fast enough.
- We haven't distributed the intelligence or autonomy necessary to operate at the speed of business.
- Our operating models don't scale knowledge or the effective use of Industrial AI.
- We lack transformation approaches that embed new ways of working.

What has emerged is clear: world-class productivity comes from four system-level choices: strategy, transformation, operating models, and intelligent supply networks. When these work together, companies compound productivity. When they don't, even significant technology investments won't deliver.

This year's research highlights the organizations getting it right. The WMPCs and Productivity Pathfinders treat productivity as the strongest indicator of profitable growth. They invest intentionally in people, knowledge, and decision intelligence. They deploy AI within a safe operating envelope, so technology amplifies trust instead of undermining it.

These leaders prove that productivity is not stagnant or cyclical, it is a capability that can be measured, benchmarked, and improved. The opportunity is enormous, but the window will not remain open indefinitely.

At LNS Research, our mission is unchanged: to help industrial leaders become agile, autonomous, and sustainable. This report and our research agenda reflect this commitment.

Best Regards,

Matthew Littlefield
President, LNS Research

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Section 2

Executive Summary

Executive Summary

Industrial productivity is collapsing, and most companies still misdiagnose the problem.

For the past two decades, Total Factor Productivity has trended downward despite record investment in automation, digital technologies, and capital expansion. The LNS Research Industrial Productivity Index™ confirms the same pattern: while a few companies break away, the majority continue to lose ground. This divergence is neither cyclical nor temporary, and industry effects cannot explain it. Therefore, we conclude that it is structural.

The uncomfortable reality is that most industrial organizations have not built the internal capabilities required to convert investment into performance. They continue to rely on legacy operating models, models designed for stable labor markets, predictable supply chains, and incremental change. Those conditions no longer exist. Complexity has multiplied. Experience has evaporated. Volatility is now the baseline operating environment. And while AI is accelerating expectations, very few companies are prepared to scale it safely or effectively.

Our research shows that productivity leadership is no longer a function of technology choices, project volume, or benchmarking against peers. It is the outcome of four strategic imperatives that determine whether companies compound advantage or accumulate friction:

1) Operations Strategy, 2) Industrial Transformation, 3) Operating Models, and 4) Intelligent Supply Networks.

The World's Most Productive Companies™ (WMPCs) succeed because they make these choices deliberately and align them tightly. They treat productivity as the primary engine of profitable growth and design their organizations accordingly. More specifically, these leaders:

- Invest in human capability with the same intention as they do in physical capacity.
- Simplify architectures so that innovation can scale.
- Create transparency across supply and demand to reduce systemic variance.
- Deploy AI within a safe operating envelope where data integrity, process discipline, and trust amplify performance rather than undermine it.

By contrast, companies that fall behind exhibit a consistent pattern: fragmented strategies, disconnected transformations, brittle operating models, and supply networks that obscure more than they illuminate. These organizations do not lack effort; they lack coherence. Their investments generate activity but fail to deliver advantages.

The uncomfortable reality is that most industrial organizations have not built the internal capabilities required to convert investment into performance.

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Executive Summary (Cont.)

2025 marks a turning point. Capital expenditures remain historically high. Workforce instability has become chronic. Tariff fluctuations and geopolitical uncertainty continually reshape supply chains. Despite these headwinds, the gap between leaders and followers continues to widen. The WMPCs are not merely surviving in this environment; they are expanding margins, accelerating decision-making, and strengthening their competitive positioning.

Comparing the most recent two-year performance of the WMPCs with that of the other companies analyzed creates a clear picture of differentiated financial performance. On average, the WMPCs have a **28.7% higher Operating Margin** (15.9% vs. 12.4%), a **44.7% higher Net Income Ratio** (10.5% vs. 7.3%), a **33.5% higher Return on Assets** (6.7% vs. 5.0%), and a **52.5% higher Return on Invested Capital** (11.2% vs. 7.4%). Most CEOs and CFOs would be willing to make significant investments and implement major changes to the organization to achieve numbers like these.

The message for COOs is direct: **Productivity is now the most reliable and scalable path to profitable growth.** It can be engineered, benchmarked, and improved, but only through system-level alignment across the four imperatives.

This report provides the roadmap. Section 3 outlines what the Industrial Productivity Index™ is and how it is calculated. Section 4 highlights the companies already achieving outsized results. Section 5 details the strategic choices that determine whether productivity compounds or collapses. Together, they provide an operational playbook for leaders who are ready to move beyond incrementalism and reshape how their organizations create value.

The opportunity is enormous. The window is finite.

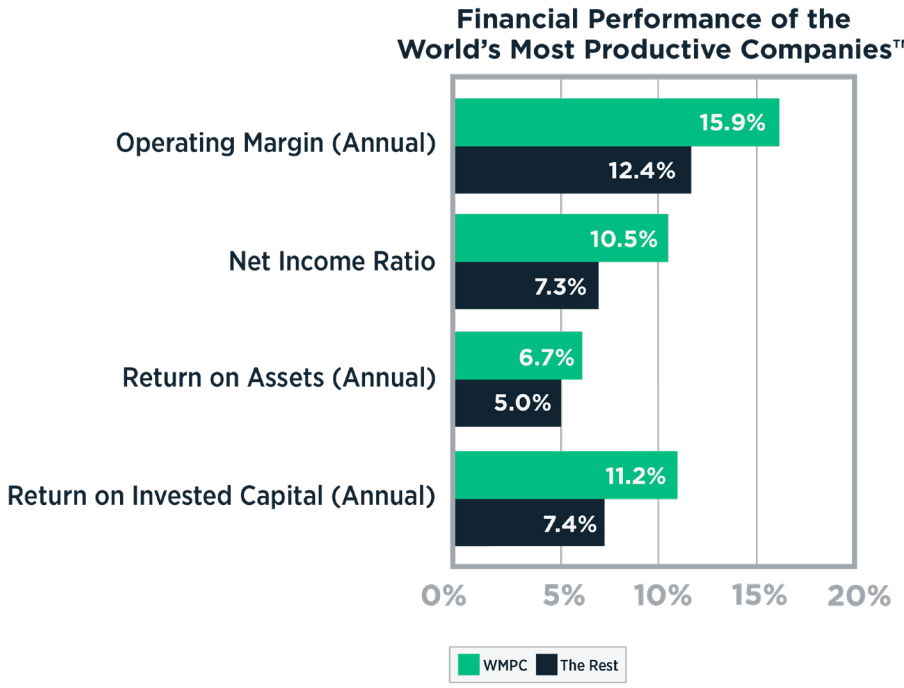

Figure 1 - The World's Most Productive Companies™ Financial Performance

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Section 3

The Industrial Productivity Index™

The Industrial Productivity Index™

LNS Research defines industrial productivity as the ratio of output delivered to inputs consumed, where output is the value-adjusted delivery of products and services to customers, and inputs are the value-adjusted consumption of labor, materials, energy, assets, and logistics used to deliver those products and services.

The Industrial Productivity Index™ (IPI) builds on two existing and well-respected productivity frameworks and adapts them to the complexity of modern, global manufacturing. By integrating the principles of the Endogenous Growth Theory, which was recognized with Nobel Prizes in Economics in 2018 and 2025, with the multi-factor lens of Total Factor Productivity, and applying them to the global manufacturing economy, we have a model suited to today's industrial scenario.

While the concept is straightforward, accurately measuring input and output quantities is quite complex. There is no way to directly measure these operational quantities accurately across even a single company, never mind the entire economy. However, there is a way to indirectly measure the changes to these operational quantities through financial data.

To calculate industrial productivity growth in the world of operations, there are three pieces of required financial data:

- Revenue and Cost of Goods Sold (COGS)
- Share of revenue by product categories and share of COGS by input categories
- Producer and Consumer Price Index (CPI) changes for each of these categories

Using financial data, we can use dollars as a standard unit across all output and input categories. Then, when we control for and back out average price changes year-over-year across all categories, all that remains are real-world operational changes to the value-adjusted quantity of outputs and inputs. This approach allows us to measure productivity across industries, geographies, and the end-to-end value chain, providing a more accurate and comparable view of how efficiently companies transform inputs into outputs.

Figure 2 - Industrial Productivity Growth Ratio

The Industrial Productivity Index™ (Cont.)

The IPI metric tracks productivity in approximately 700 publicly traded companies across 10 industry verticals and shows a steady decline for most of the past 21 years. From 2004 to 2016, the decline was 37.0%, averaging an annual decline of over 3%. From 2016 to 2020, the declines began to flatten, with yearly decreases averaging under 1%. Fortunately, the trend finally broke in 2020, and from 2021 to 2022, productivity increased by over 22%.

However, this varies by industry, with each vertical having its own story. For instance, the Aerospace and Defense sector, which had historically lagged in industrial productivity growth, has sharply rebounded since 2020, driven in part by investments in model-based enterprise approaches. It is interesting to note that the vertical has jumped from seventh place in 21-year productivity gains (2004 – 2025) to first in the past five years.

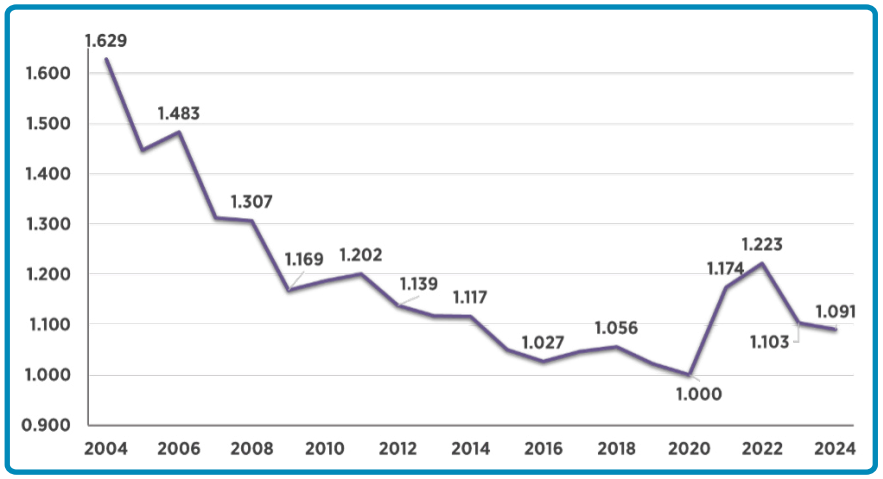

Figure 3 - Industrial Productivity Index™

Meanwhile, High-tech, long the top-performing sector, has recently been overtaken by strong productivity acceleration in discrete manufacturing segments, such as Automotive and Industrial Equipment OEMs. On the batch/hybrid side, Consumer Products and Food and Beverage have fared noticeably worse in the past five years compared to their long-term performance, while Life Sciences and Chemicals have shown meaningful improvement.

It is also important to note that the Materials sector – including a diverse set of companies from aggregates and building materials to composites to metals and mining to pulp and paper and containers - has also slipped from eighth to tenth. However, given its diversity, it cannot be effectively attributed to a single trend.

The Industrial Productivity Index™ (Cont.)

Despite these individual sector-specific trends, the manufacturing industry as a whole has experienced a net positive in productivity gains in the post-COVID economy. However, 2024 proved to be a pivotal year, with manufacturers giving back roughly half of the gains made since 2020. In 2024, we asked, "Does this reversal represent the start of a new industrial productivity paradigm in earnest? Will the AI revolution power companies to never-before-seen levels of efficiency and effectiveness?"

Now, it is clear that the decline from 2022 to 2023 has decelerated but has not ceased; in 2024, the overall decline from the previous two decades continued. It has become increasingly clear that the growth in productivity from 2020 to 2022 was a COVID-related surge, primarily driven by a shift in consumer spending from services to products, which led to increased manufacturing utilization.

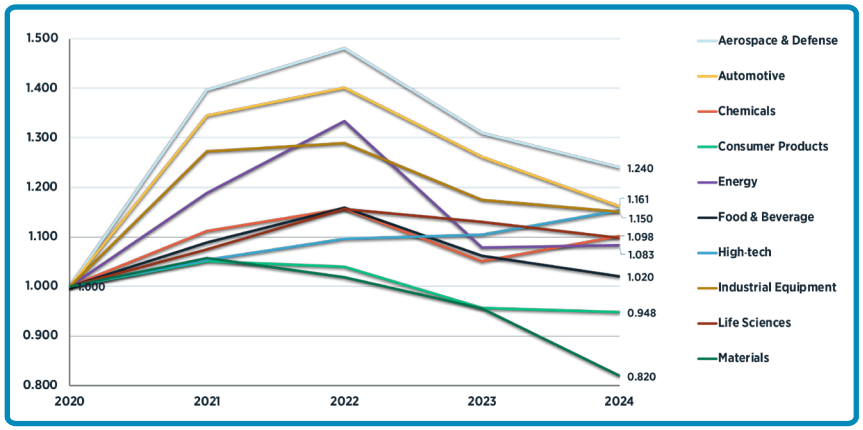

Figure 4 - Industry Trends

The year 2025 has been tumultuous for manufacturers. Industrial companies have now given back more than half of the gains made over the two years preceding 2023. Eighty-four percent of organizations have been negatively impacted by lost experience, while the lack of new job opportunities has caused workers to hold onto their existing jobs. At the same time, the US has experienced a once-in-a-generation set of multi-billion-dollar investments in manufacturing, combined with the uncertainty of repeated shifts in reciprocal tariffs.

The drivers of productivity growth are becoming increasingly apparent. Some of the variation can be attributed to sector-specific conditions influenced by both demand and innovation dynamics. At the same time, the data shows that companies can meaningfully influence their own trajectory through internal, endogenous decisions. Our analysis of publicly available information reveals that a subset of organizations—the World's Most Productive Companies™—are making distinctly different choices than the rest.

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Section 4

The World's Most Productive Companies™

The World's Most Productive Companies™

Introduction

The World's Most Productive Companies™ (WMPCs) represent 10 major industrial sectors intentionally selected to provide a broad, comparative view of how productivity leadership emerges across different production models, asset structures, regulatory environments, and supply networks. While the mechanisms differ, clear patterns of system-level coherence appear across all sectors. The following subsections highlight those patterns and demonstrate them with select companies from this year's list.

Across these diverse sectors, productivity leadership emerges from a common pattern: tighter integration of strategy, transformation, operating models, and intelligent supply networks. Whether in asset-intensive process environments or high-velocity discrete manufacturing, the leaders in each sector convert internal capability building into a measurable advantage.

Figure 5 - Top 100: 2025 World's Most Productive Companies™

The World's Most Productive Companies™ (Cont.)

Industries

Aerospace & Defense

Aerospace and Defense organizations operate large-scale engineered systems with stringent performance, certification, and reliability expectations. OEMs, such as Dassault Aviation and Northrop Grumman, integrate complex airframes and mission systems, requiring precise coordination across global supply networks. Tier-1 propulsion and powertrain suppliers, such as GE Aerospace and Rolls-Royce, manage long development cycles with exacting quality and service requirements. Companies, including TransDigm, demonstrate productivity in specialized components where diversity of applications and qualification demands drive operational rigor.

Across the sector, productivity leadership reflects system-integration discipline, engineering knowledge management, and structured supplier orchestration.

Automotive

Automotive companies balance large-scale production, stringent quality expectations, and rapid technological change. Passenger-vehicle manufacturers, such as Toyota, Kia, and Mercedes-Benz, rely on global platform strategies and deeply institutionalized operating models. Electrification leaders like BYD pair vertical integration with high production velocity. Tier-1 suppliers, including Valeo, Cummins, Garrett Motion, and Cooper Standard, deliver engineering-intensive systems under continuous cost, complexity, and launch pressure.

Productivity leadership in the automotive industry is rooted in mature operating systems, synchronized product, process, and supply chain alignment, and disciplined problem-solving routines.

Chemicals

Chemical manufacturers operate asset-intensive continuous processes with demanding safety and environmental requirements. Companies like Linde optimize distributed production networks for reliability, availability, and efficiency. Specialty materials producers, such as Eastman and Chemours, manage complex formulations that serve multiple end markets. High-mix producers, such as Sherwin-Williams, maintain quality consistency across large portfolios and regional networks.

Sector productivity leadership is defined by process stability, variance management, asset utilization, and operational discipline.

Consumer Products

Consumer Products companies face high SKU complexity, shifting consumer demand, branding requirements, and globalized supply chains. Beauty and personal care leaders, such as L'Oréal, Coty, and Haleon, integrate formulation, packaging, and distribution on a global scale. Luxury goods manufacturers like Richemont balance craftsmanship with selective distribution. Companies, such as Mattel and ANTA Sports, operate in design-driven, seasonally influenced product categories.

In this sector, productivity leadership is supported by end-to-end planning, complexity reduction, and tightly coordinated supply-network execution.

The World's Most Productive Companies™ (Cont.)

Energy

Energy companies manage long asset lifecycles, volatile commodity markets, and geographically distributed operations. Vertically integrated firms, such as Chevron and Petrobras, coordinate upstream, midstream, and downstream activities under fluctuating market conditions. Downstream specialists, such as Valero, optimize refining operations for throughput, yield, and reliability.

Productivity leadership emerges from system-level planning, capital discipline, and operational reliability across extended asset bases.

Food & Beverage

Food and Beverage manufacturers balance high-volume production, perishable inventory, ingredient variability, and strict quality requirements. Branded producers, such as General Mills, Danone, Kellanova, and The Hershey Company, integrate product innovation with manufacturing and distribution across global networks. Commodity processors, such as Bunge, manage agricultural volatility, logistics complexity, and global trading dynamics.

Optimized production networks, standardized operating rhythms, and consistency in quality and service characterize productivity leadership in this sector.

High-tech

High-tech manufacturers operate under short innovation cycles, high capital intensity, and complex supply ecosystems. Semiconductor leaders, such as TSMC and GlobalFoundries, maintain world-class process control and technology-transfer discipline. Companies like Canon, IDEXX, and Revvity couple precision engineering with high reliability in instrumentation and measurement categories. Solar manufacturers, such as First Solar, operate specialized continuous processes on a global scale.

Industrial Equipment

Industrial equipment manufacturers produce engineered systems with long service lives, global installed bases, and demanding service models. Heavy-equipment leaders, such as John Deere and CNH Industrial, balance seasonal cycles, complex assemblies, and distributed production networks. Motion, control, and electrification specialists, such as Parker Hannifin, Eaton, and TE Connectivity scale precision manufacturing and application engineering across diverse markets. Industrial conglomerates like Honeywell and Larsen & Toubro operate diversified portfolios supported by standard operating-model foundations.

Productivity leaders excel through platform standardization, engineering and manufacturing alignment, and lifecycle support integration.

The World's Most Productive Companies™ (Cont.)

Life Sciences

Life Sciences companies operate under stringent regulatory requirements and scientific complexity. Biopharmaceutical leaders, such as Lilly and Merck, manage high-value product portfolios through disciplined development-to-commercialization transfer processes. Diversified companies like Johnson & Johnson and Danaher span diagnostics, devices, and therapeutics, integrating quality systems across varied manufacturing environments. Animal health companies, including Zoetis and Vetoquinol, strike a balance between innovation and global production requirements.

Productivity leadership reflects knowledge scalability, strong quality system design, and integration of scientific, regulatory, and operational work.

Materials

Materials companies span upstream extraction, refining, specialty processing, and high-volume discrete operations. Metals and mining firms, such as Alcoa and Freeport-McMoRan, depend on asset reliability, safety performance, and effective capital project execution. Specialty-materials producers, such as DuPont, Kuraray, and Owens Corning, manage chemistry, mechanical properties, and end-market diversity. Pulp and paper producers, such as Suzano, link raw material conditions with continuous process stability.

Productivity leadership in materials is grounded in process control, asset performance, and cost-to-serve optimization across global networks.

Conclusion

Across all 10 sectors, a consistent insight emerges: the most productive companies succeed not because of sector-specific advantages, but because they operate as aligned systems. Strategy, transformation programs, operating models, and intelligent supply networks reinforce each other, rather than counteracting one another.

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Section 5

COO Strategic Imperatives

COO Strategic Imperatives

The widening performance gap between the World's Most Productive Companies™ (WMPCs) and their peers reflects a deeper structural reality: productivity leadership is no longer determined by individual technologies, episodic initiatives, or isolated operational improvements. It is the result of coherent, system-level choices that compound over time. The **COO Strategic Imperatives** provides a practical framework for translating these choices into action. They represent the mechanisms through which COOs convert enterprise intent into operational performance, linking strategy, transformation, operating models, and intelligent supply network architecture into a unified path for growth.

In our research, leaders consistently demonstrate that productivity advantage is built, not found. These organizations do not view transformation as a collection of projects, but rather as an ongoing commitment to building the capabilities that drive endogenous growth and sustained productivity expansion. Their ability to reduce variance, elevate decision quality, and synchronize people, processes, and technologies enables them to outperform even in turbulent market conditions. We summarize this as the COO Strategic Imperatives.

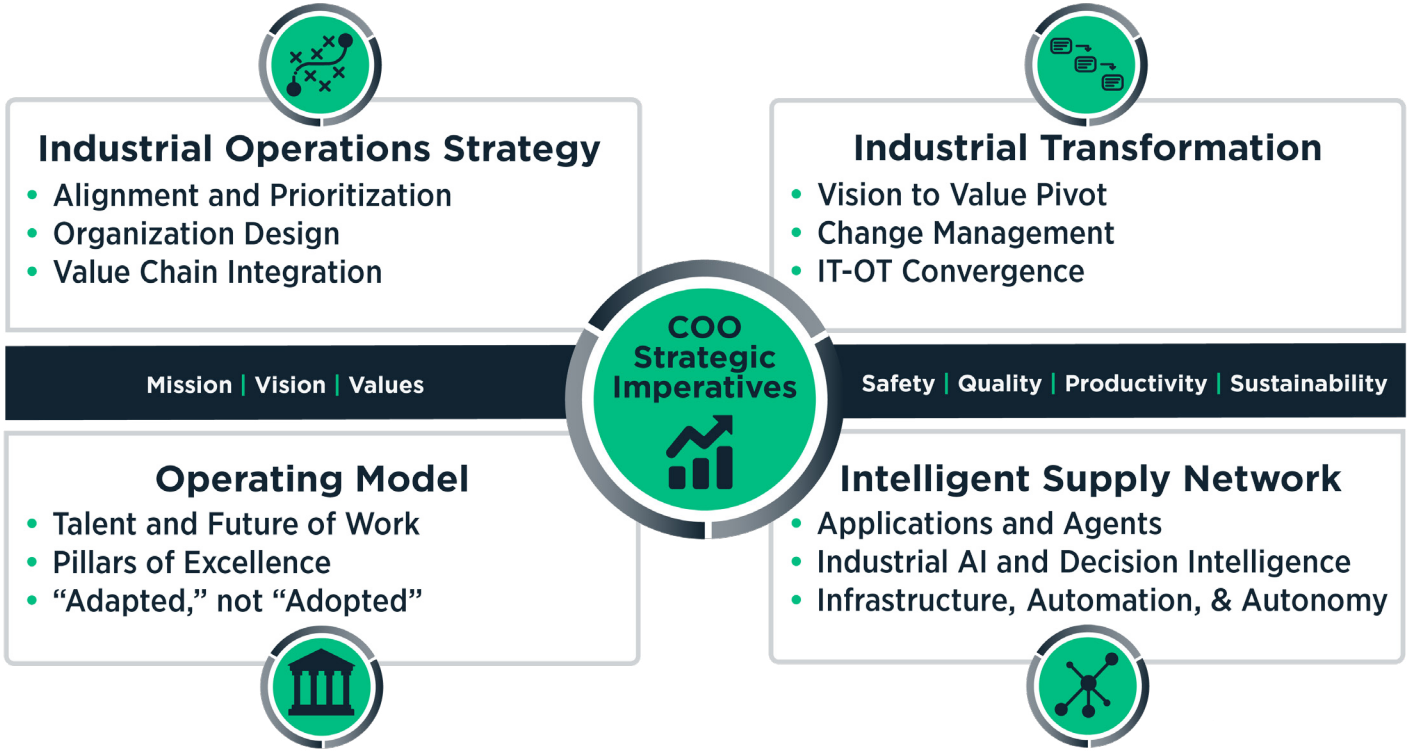

Figure 6 - COO Strategic Imperatives

COO Strategic Imperatives (Cont.)

Industrial Operations Strategy

A high-performing Industrial Operations Strategy extends the enterprise strategy into the operational domain with clarity and intent. It articulates how the organization will create value through its production systems and establishes the priorities that guide investment, capability development, and leadership behavior. In contrast to traditional cost-centric approaches, where operations are optimized for efficiency alone, leaders build strategies that intentionally balance cost, responsiveness, delivered quality, and sustainability.

The WMPCs achieve this by defining direction before defining tools. Their strategies articulate how the company will make things differently, the level of transparency required across supply and demand chains, how the operating model will scale innovation, and how delivered quality will reduce systemic variance.

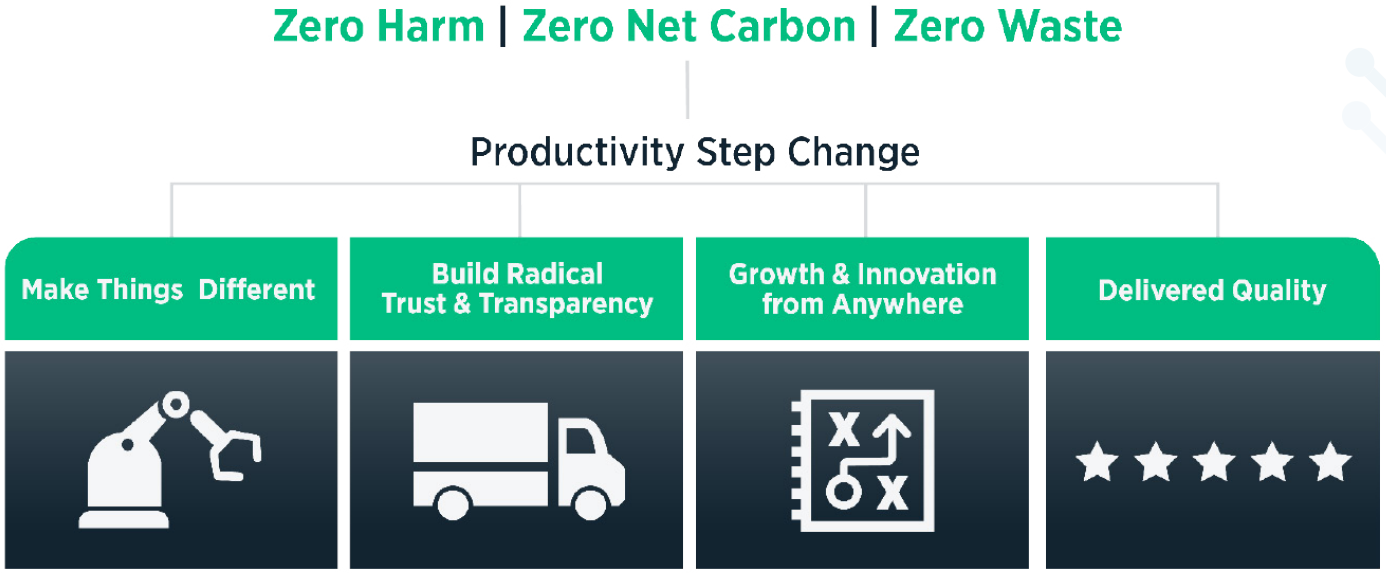

Figure 7 - Productivity Step Change

COO Strategic Imperatives (Cont.)

A case study from Titan International demonstrates how a clear and unifying operations strategy enables superior performance. The company aligned around "One Titan," a framework that encourages transparency, constructive dissent, and cross-functional decision-making. This cultural foundation allowed Titan to fully exploit its unique position as a leading integrated manufacturer of both off-road wheels and tires. By engineering the two together, Titan created the LSW platform, delivering lower inflation pressure, reduced soil compaction, improved traction, and significant customer value.

The innovation succeeded because the organization broke down silos, encouraged open debate, and operated against a shared strategic North Star. Titan shows that cultural alignment and strategic clarity are prerequisites for unlocking differentiated operational innovation.

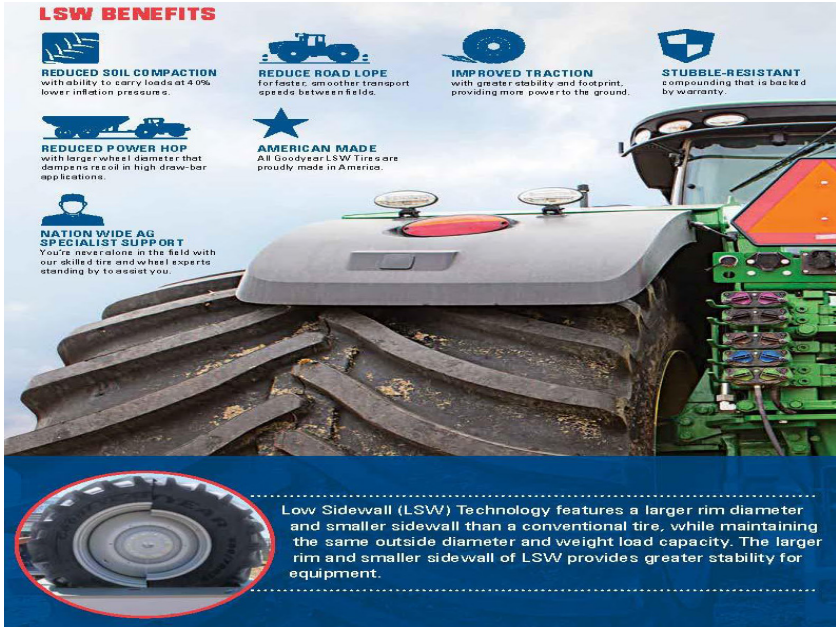

Figure 8 - Improved Performance vs. Dual Tires

Figure 9 - North Star Alignment

COO Strategic Imperatives (Cont.)

Analysis of public information and survey data shows that the WMPCs are 39.4% less likely to primarily make commodity products, 33.8% more likely to share information with suppliers, 49.1% more likely to share information with customers, and 33.5% more likely to have an Industrial Operations Strategy that is aligned with the business strategy.

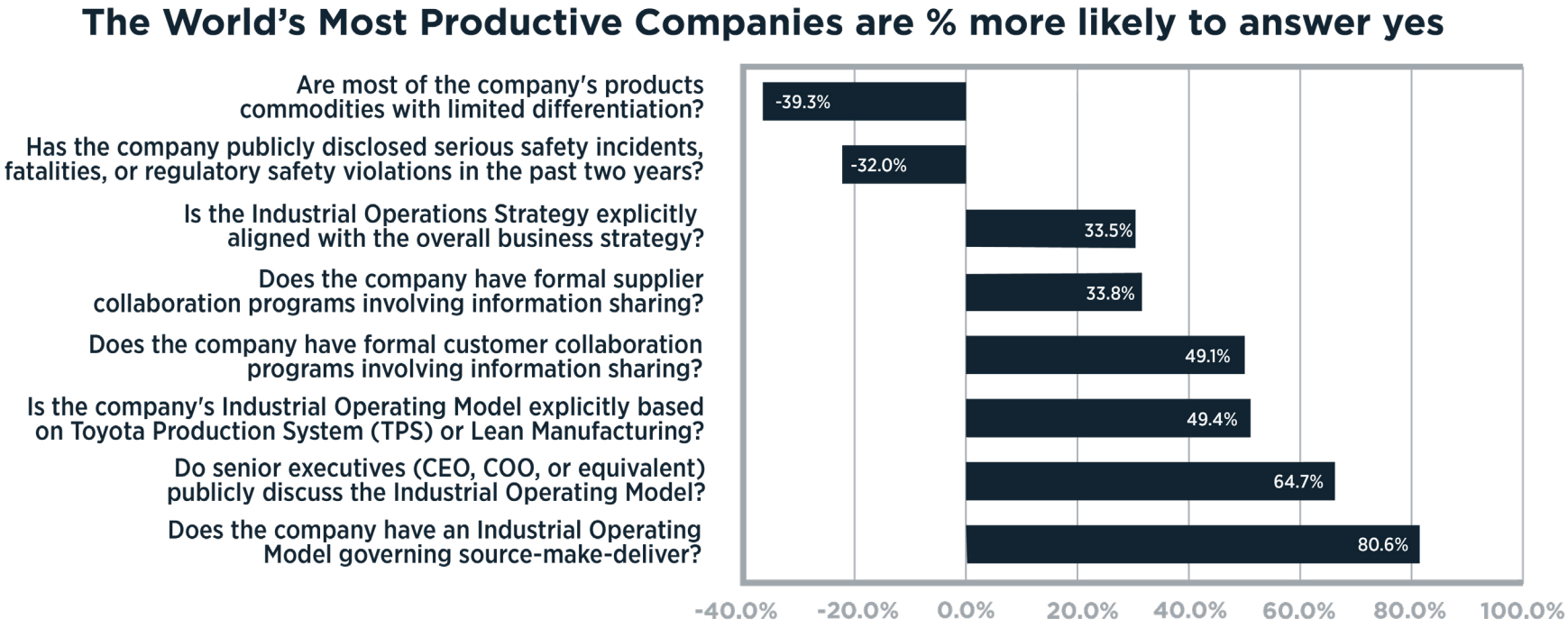

Figure 10 - What the World's Most Productive Companies™ are Doing Differently

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COO Strategic Imperatives (Cont.)

This strategic clarity becomes the foundation upon which transformation programs, operating models, and supply network decisions are executed. Companies that fail to establish this clarity often pursue isolated digital or process initiatives that create activity without impact.

A core component of this imperative is the Operations Strategy Prioritization Framework, which maps enterprise strategic dimensions, innovation, cost, responsiveness, delivered quality, and sustainability to the operational contributors that enable them. This framework enables COOs to translate enterprise ambitions into operational priorities, ensuring that the organization selects improvement pathways that reinforce its competitive advantage rather than defaulting to cost-centric thinking. Leaders use this framework to determine where operations should differentiate, where they should standardize, and where their investments will have the greatest strategic return.

Enterprise Strategy Dimension	Competitive Advantage	Customer Value Proposition	Key Operations Contributor
Innovation	First to market	Desirable and innovative products	New product introduction and time to volume
Cost	Industry leading margins	Lowest prices in the product-category	Efficient, low-cost infrastructure
Responsiveness	Customer intimacy	The product each customer wants when they want it	Capacity and flexibility, Integrated business planning
Delivered Quality	Brand integrity	Customer-experienced quality and reliability	Process capability and risk management
Experienced Sustainability	Lowest environmental impact	Alignment with customer values	Sourcing/Consumption, low emissions and waste, recycling

Figure 11 - Strategy Prioritization

COO Strategic Imperatives (Cont.)

Industrial Transformation

Industrial Transformation is the mechanism through which strategy becomes reality. It is not a digital initiative, nor a technology program, but a coordinated rethinking of how the organization works across people, processes, and technology. Leaders recognize that technology is a tool, not an end in itself, and therefore structure their transformation around business value rather than experimentation.

Our research shows that successful transformations start with clear business objectives, progress through well-defined strategic initiatives, and culminate in an operational architecture that enables scalability. Leaders develop architectures that simplify integration, break down silos, and create the data foundation required for advanced analytics and AI-enabled decision-making. Importantly, they focus not only on pilots but on embedding solutions across the network. This shift, from proving to scaling, is where most organizations stall, and where leaders accelerate.

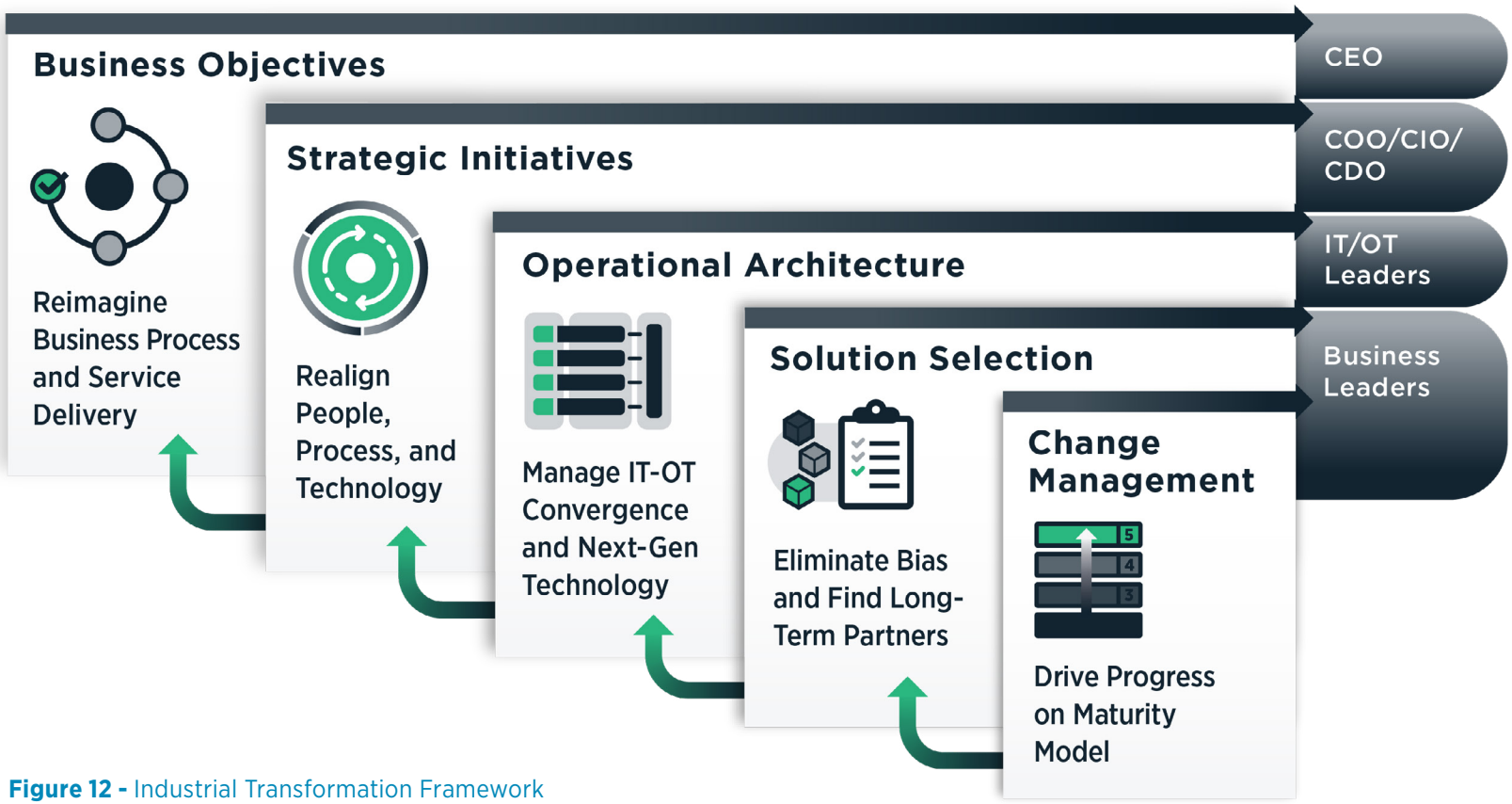

Figure 12 - Industrial Transformation Framework

COO Strategic Imperatives (Cont.)

A case study from Eaton illustrates how large-scale industrial transformation succeeds when advanced technology, digital systems, and process modernization are integrated into a coherent operating vision. Their program focuses on upgrading production systems, embedding data-driven decision-making, and creating a unified digital backbone across global operations. Eaton's transformation is not incremental; it is a coordinated reinvention of how work is planned, executed, monitored, and improved.

By modernizing automation, digitizing workflows, and strengthening real-time visibility, Eaton has shifted from traditional operational practices to a highly connected, responsive, and scalable manufacturing environment. The case demonstrates that transformation requires long-term commitment, enterprise alignment, and a clear view of how digital capabilities reshape competitiveness.

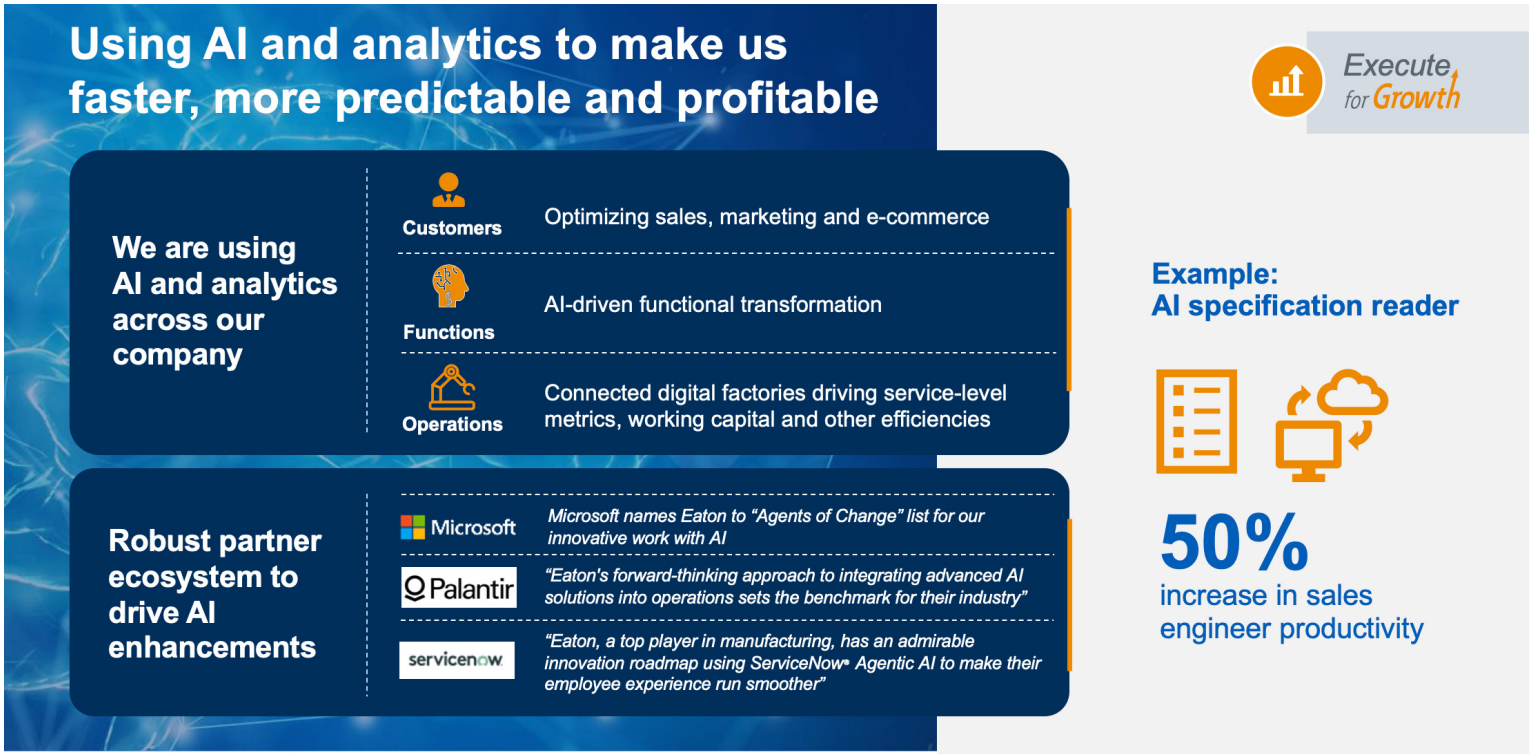

Figure 13 - Eaton's transformation integrates AI and analytics across customers, functions, and operations to create a faster, more predictable, and value-focused industrial system—not just new tools, but a fundamentally modernized way of running the business.

COO Strategic Imperatives (Cont.)

A defining feature of leadership in Industrial Transformation is the pivot to value. Many organizations stall in the experimentation phase, producing isolated pilots or lighthouse plants that demonstrate potential but fail to generate enterprise impact. Leaders move beyond experimentation by establishing a disciplined value pathway: they define the outcomes required by the strategy, architect solutions that can scale, and embed them into the operating model. The pivot to value marks the transition from proving to scaling, where transformation produces measurable improvements in throughput, quality, responsiveness, and asset efficiency.

Our research has shown that certain behaviors allow companies to transition through the phases on the path to an embedded transformation. For example, we observe that a highly visible Chief Digital Officer can be beneficial in the early phases to create momentum, but that business process owners are more successful in the later phases.

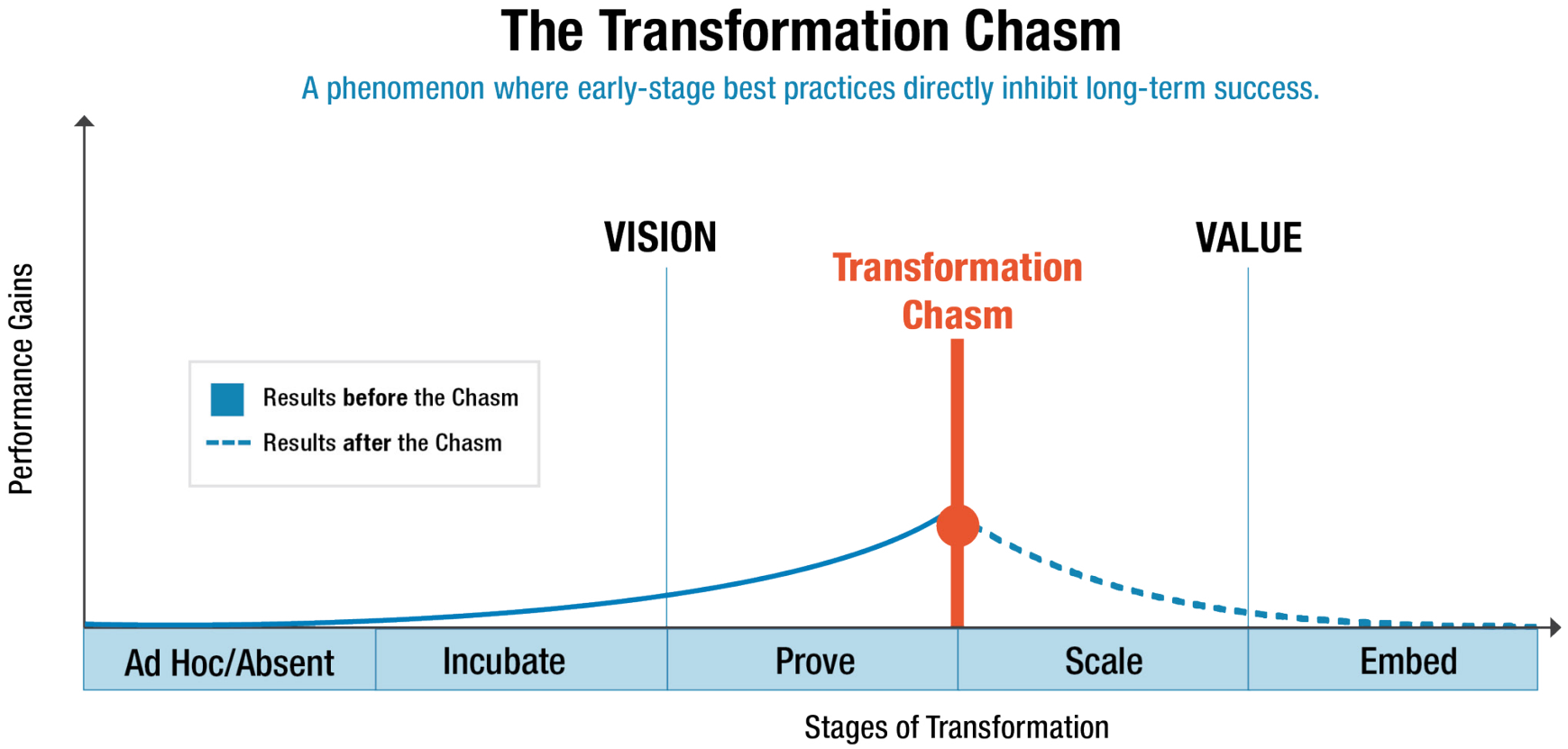

Figure 14 - The Transformation Chasm by LNS Research

COO Strategic Imperatives (Cont.)

Operating Model

The operating model defines the way work gets done. It is the connective tissue between strategy and execution, shaping the behaviors, decisions, and workflows that determine daily performance. A strong operating model is rooted in principles, values, goals, strengths, and strategic intent, and manifests through consistent, repeatable practices.

Figure 15 - The Operating Model by LNS Research

COO Strategic Imperatives (Cont.)

The Apogee Enterprises case study provides a textbook example of operating model redesign. After years of operating as a collection of independent businesses, the company unified under the name "One Apogee" and developed the Apogee Management System (AMS) as the core of its operating model. AMS embeds continuous improvement talent directly into the business, prioritizing "results first" execution, and supports cultural expectations centered on servant leadership, business acumen, and active listening. Apogee's operating model changes enabled significant cost improvements, better execution, higher ROIC, and improved margin performance—outcomes that would have been impossible without coordinated processes, talent alignment, and standardized management practices. The Apogee story highlights how operating models must be deliberately designed, consistently reinforced, and scaled across diverse business units.

Figure 16 - Apogee Enterprise's strategy, built on the Apogee Management System (AMS), focuses on aligning execution and portfolio decisions to unlock profitable growth through a strong operating model.

COO Strategic Imperatives (Cont.)

Our research shows that the WMPCs are 80.6% more likely to have an industrial operating model that covers source, make, and deliver, and 49.4% more likely to have their operating model based on the Toyota Production System (TPS).

An operating model is not a single function or set of practices. It is a framework that defines how work gets done at a company. It spans five (or more) interdependent elements:

- Leadership
- Culture
- Respect for People
- Value Generation Principles
- Operational Excellence

LNS Research's data shows that a strong and specialized operating model is at the core of safe, productive, and sustainable operations, resulting in the production of high-quality products. In recent discussions with The COO Council, it was agreed that the operating model is at the core of a productive organization. In contrast to the Industrial Operations Strategy, which outlines what to do, the operating model implements it.

A good operating model empowers the organization to identify issues and opportunities, analyze them, and make decisions that are aligned with its intent, quickly and at the right place in the value stream.

The WMPCs tend to have an operating model derived from the Toyota Production System, adapted to meet the organization's specific needs. The simplicity of the TPS, in combination with its focus on respect for people, standardized work, continuous improvement, and visual management, is an attractive characteristic for many organizations.

Organizations that copy and paste operating models tend to fail, as the operating model often does not align with the enterprise strategy.

COO Strategic Imperatives (Cont.)

Intelligent Supply Network

An Intelligent Supply Network (ISN) is a set of established and future-looking technologies that, when deployed in an information-sharing architecture, enable a successful implementation of a company's Industrial Operations Strategy across all its production plants.

Industrial software does not exist in isolation; it needs to share information with the rest of the organization, but there are challenges:

- It is connected to plant-level assets, which have longer life cycles than the software and unique operational characteristics and maintenance needs.
- It is connected to business systems that implement rigorous, long-term processes and provide horizontal integration across the supply chain.
- Internally, it needs to integrate the applications (Advanced Industrial Analytics, Digital Performance Excellence, EHS execution, manufacturing execution, quality execution, Asset Performance Management, and Software Defined Automation) and autonomous agents that consume and produce information.
- It needs to serve multiple user personas that perform critical tasks in the value chains.

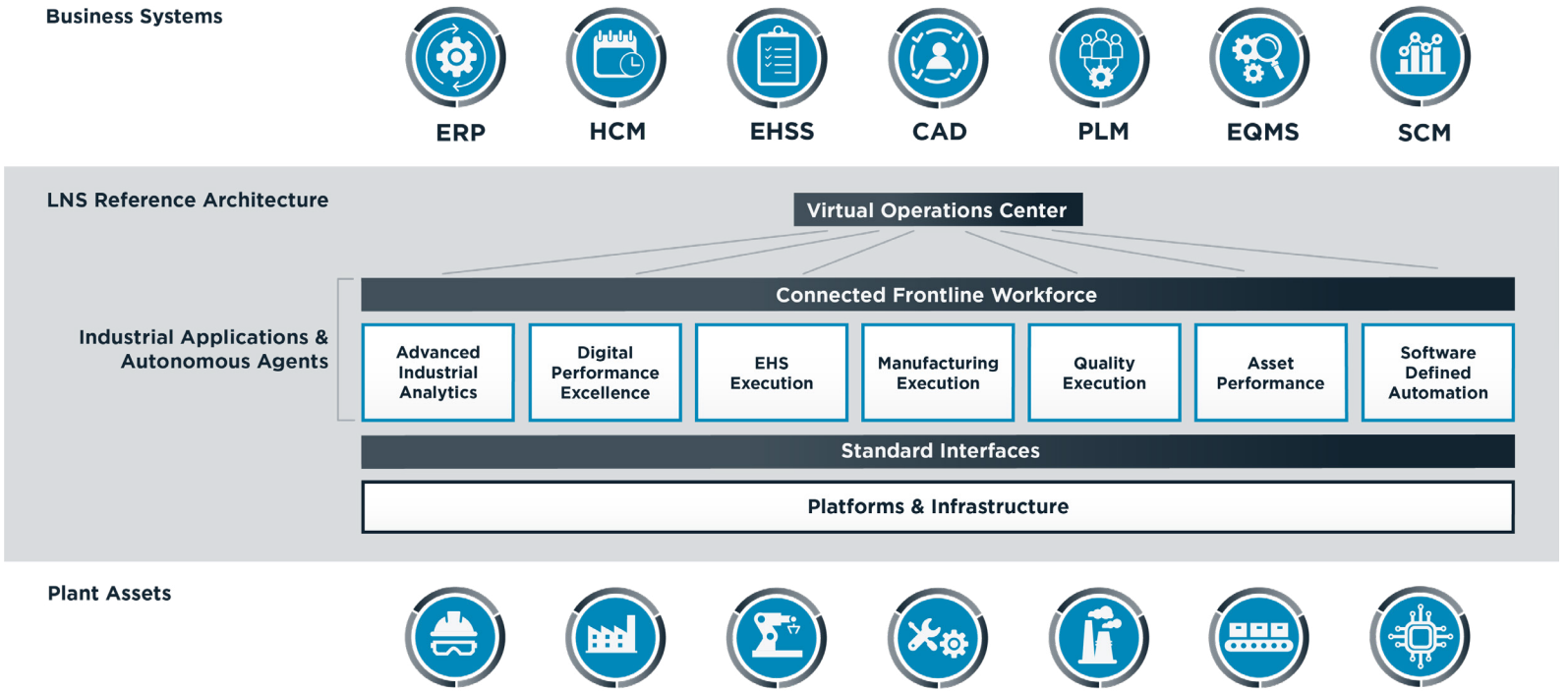

Figure 17 - Intelligent Supply Network Software

COO Strategic Imperatives (Cont.)

The Owens Corning case study is an example of a modern, data-enabled, end-to-end intelligent supply network. The company has built capabilities that integrate forecasting, scheduling, material flow, and customer delivery into a cohesive system. Their approach strengthens network visibility, reduces volatility, and improves reliability for both internal operations and customers.

By treating planning, production, and logistics as an interconnected system, OC increases responsiveness to demand shifts, stabilizes supply, and optimizes asset utilization. This is an Intelligent Supply Network: digitally informed, customer-connected, and designed to balance performance across the entire value chain.

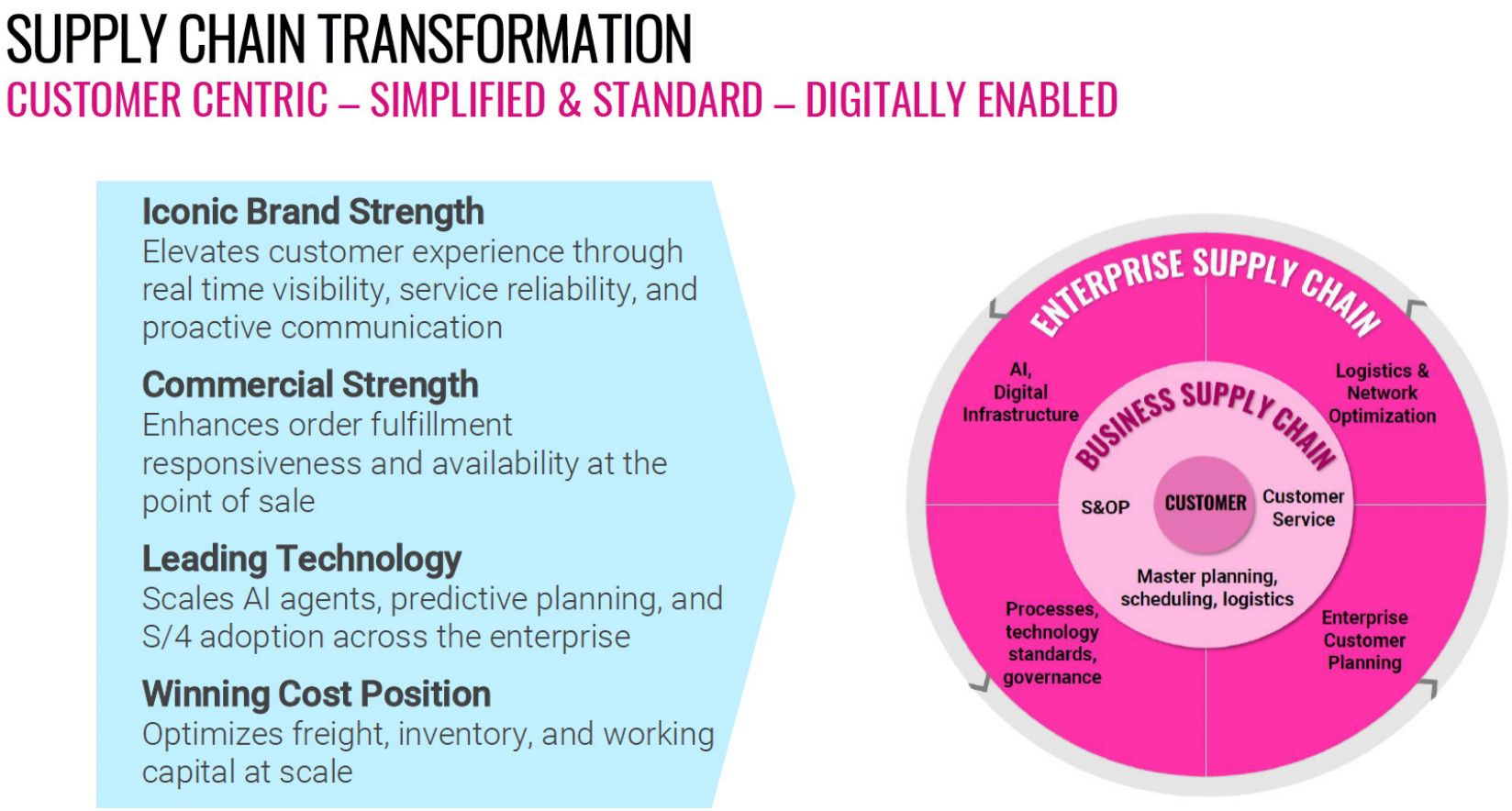

Figure 18 - Owens Corning is building a customer-centric intelligent supply network that unifies planning, logistics, service, and digital infrastructure into a simplified, standardized, end-to-end system.

COO Strategic Imperatives (Cont.)

The Intelligent Supply Network architecture achieves the following:

1. It enables strong standardization at the business level, where it is easy and possible to standardize.
2. It creates an abstraction or translation layer between the diverse manufacturing resources across many production processes, equipment vendors, and technology ages without the need to rip and replace.
3. It creates a contextualized data layer for live and historical data across all plant assets, applications, AI-agents, and business systems.
4. It removes the unnecessary barriers caused by the layers in the Purdue model (also known as the ISA 95 model) and focuses on interoperability.
5. It proposes a common user experience for the Connected Frontline Workforce.
6. It enables communication outside the walls of the company, up and down the supply and demand value streams.
7. It allows scarce subject matter experts to support operations anywhere while providing insights into the whole manufacturing network.

One of the key elements of the architecture is that it is flexible, vendor-agnostic, and future-proof.

COO Strategic Imperatives (Cont.)

External Economic Evidence Supporting the Imperatives

National studies of Total Factor Productivity (TFP) from the NIST and the U.S. Bureau of Labor Statistics indicate a long-term decline in industrial productivity, even during periods of rising automation and capital spending. Within this overall decline, however, a small cohort of companies consistently expands TFP. Their performance aligns with the WMPCs and reinforces a critical point: structural capability choices, rather than market conditions, explain long-term productivity leadership.

Endogenous Growth Theory provides additional validation. It demonstrates that durable performance advantages arise from internal capability building, including industrial know-how, human capital development, and process-focused innovation. Our research reveals that productivity leaders integrate these capabilities directly into their operating models, transformation programs, and intelligent supply network architectures, thereby creating a compounding advantage over time.

Together, TFP and Endogenous Growth Theory confirm the foundation of the COO Strategic Imperatives: productivity leadership is engineered through coherent systems of people, processes, and technology. These external findings reinforce that the Imperatives are not theoretical constructs; they reflect the real mechanisms driving long-term outperformance.

Bringing it All Together

When the four COO Strategic Imperatives operate in alignment, they create a unified system for generating sustainable competitive advantage. Strategy sets the direction for how the organization will win. Transformation provides the mechanism for converting that intent into scalable change. The operating model embeds the behaviors and routines required for consistency, safety, and quality. The intelligent supply network delivers the information architecture needed to orchestrate performance across the enterprise.

The World's Most Productive Companies™ outperform not because of isolated improvements but because these elements reinforce one another. Their choices strengthen internal capabilities, which expand productivity over time, reduce variance, elevate decision quality, and enable people and technology to work in concert. This system-driven approach enables leaders to compound results across multiple cycles, markets, and varying operating conditions.

For COOs, the takeaway is clear: long-term productivity leadership is a deliberate and engineered outcome. By aligning strategy, transformation, operating model, and supply network decisions, organizations build the conditions that produce superior performance year after year.

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Section 6

Failure Indicators and Steps to Success

Failure Indicators and Steps to Success

Failure Indicators

Why Many Transformation Efforts Stall

Too many industrial firms launch productivity initiatives that never reach scale or impact. Based on benchmarking across hundreds of manufacturers, the following patterns consistently predict failure:

- Siloed Execution: Initiatives are fragmented across plants or functions with no common model or shared KPIs.
- Technology-first Mentality: Digital tools are deployed without aligning operating disciplines, leading to complexity without control.
- Short-term Firefighting: Leaders chase quarter-by-quarter savings without building enduring capability or institutional learning.
- Disconnected Strategy: There's a gap between executive intent and frontline behavior; teams are unclear on what transformation means in practice.
- Change Fatigue: After years of pilot projects and reorganizations, the organization is exhausted and skeptical of the next big idea.
- Invisible Value Streams: Without clear visibility into end-to-end performance, from source to delivery, leaders can't manage what they can't see.

These indicators often masquerade as activity but produce little advantage. Firms on this path may experience localized success, but they rarely sustain or scale it.

Failure Indicators and Steps to Success (Cont.)

Steps to Success

How the World's Most Productive Companies Win

The top performers in the Industrial Productivity Index (the World's Most Productive Companies™) demonstrate a consistent pattern: they don't just work harder, they work differently. The following steps separate them from the rest:

- **Anchor in Strategy:** They define a clear, leadership-owned vision for productivity linked directly to growth, profitability, and customer outcomes.
- **Build an Operating Model, Not Just Projects:** Instead of standalone programs, they embed a system of behaviors, tools, and metrics into daily work across all sites and functions.
- **Drive End-to-End Alignment:** From sourcing to delivery, they harmonize processes and incentives across the entire value stream, not just within departments.
- **Prioritize Lean Over Lift-and-Shift Tech:** Many start with lean principles to reduce friction and then layer digital selectively where it multiplies human and process capability.
- **Invest in People and Culture:** They recognize that transformation is not only technical, but it also requires clear governance, talent development, and frontline empowerment.
- **Measure What Matters:** Rather than chasing vanity metrics, WMPCs focus on throughput, quality, cost-to-serve, and time-to-value, outcomes that reinforce strategy.

Together, these steps form a flywheel: strategic clarity creates operational focus, which accelerates results, builds momentum, and sustains change.

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Benchmarking the Journey of the World's 100 Most Productive Companies™

The COO Playbook for Aligning Strategy, Industrial AI, and Operating Models for Profitable Growth

2025 Annual Report and Industrial Productivity Index™ Results

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