



Building Resilient Manufacturing and AEC Companies

Key Accelerators of Digital ROI and
Actions for C-Suite Leaders

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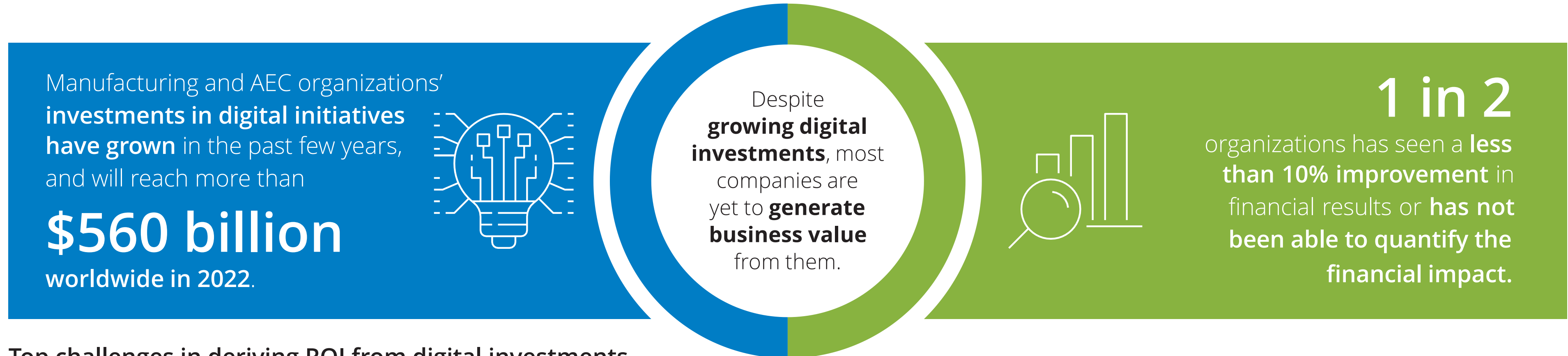
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The Urgency to Generate Business Outcomes

Organizations that want to succeed in an increasingly digital world need to generate business outcomes from digital investments.



Top challenges in deriving ROI from digital investments

Management and leadership orientation is mostly focused on processes and not on business outcomes

42%

The metrics/KPIs that we use don't allow us to adequately quantify business value

30%

We have a siloed standalone budget

28%

We don't have an integrated enterprisewide technology road map

27%

Our technology architecture does not allow for scale and innovation

26%



Leadership and organization



Tech



The **main stumbling blocks** to ROI generation relate to **leadership approach** and **organizational silos**.

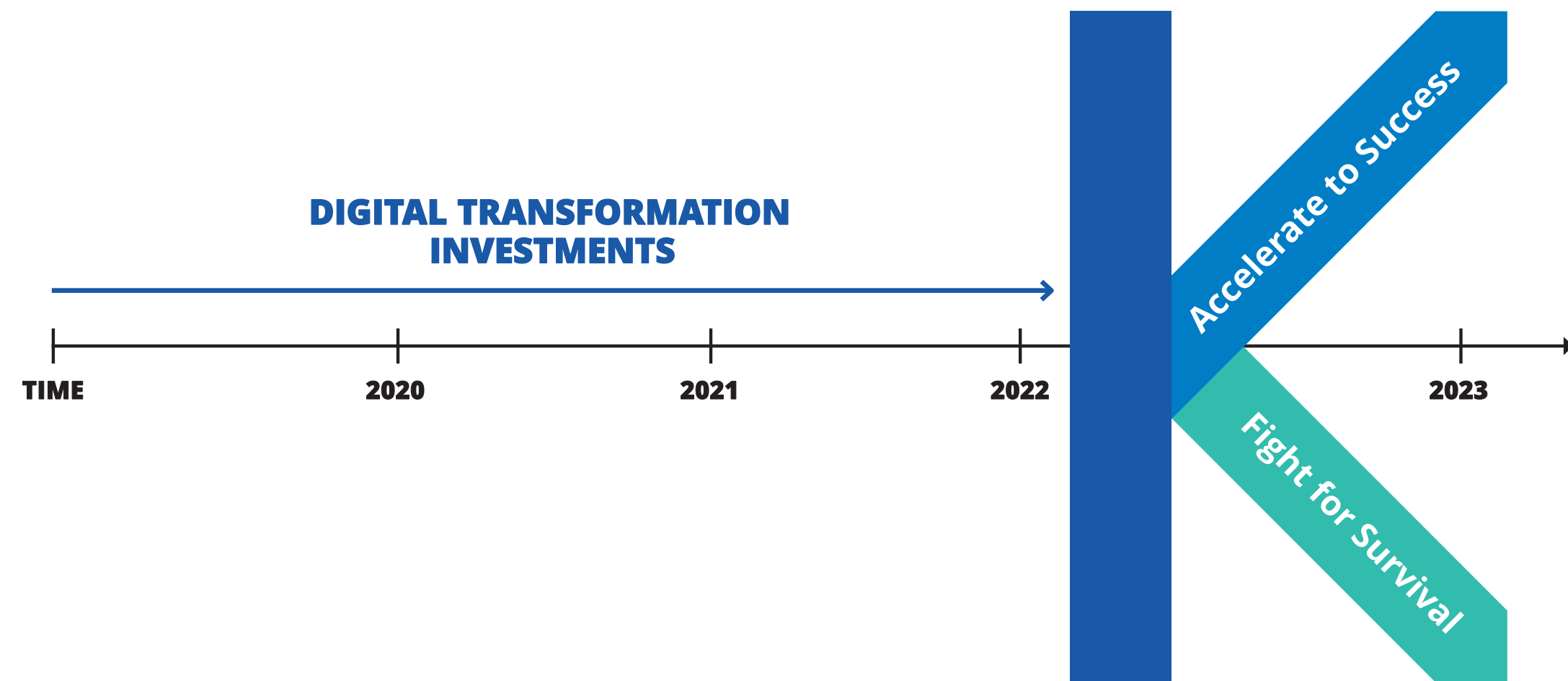
Action and change therefore need to come from the top.

The **C-suite should be at the forefront of change**, and the **CEO needs to take direct responsibility — making digital transformation (DX) an integral part of corporate strategy, setting a common vision, clear targets, and KPIs.**

Business Outcomes Are the Key to Success

Organization leaders are facing a K-shaped choice: accelerate for success or fight for survival. **Accelerating for success will be determined by the ability to achieve successful business outcomes from digital investments. Success in the future will be defined by RoD — return on digital.**

“
The economy continues toward its digital destiny. In 2022, **65% of global GDP will be driven by digitally enabled revenues.** This will be enabled by \$6.8 trillion in direct DX investments for 2020–2023.
”

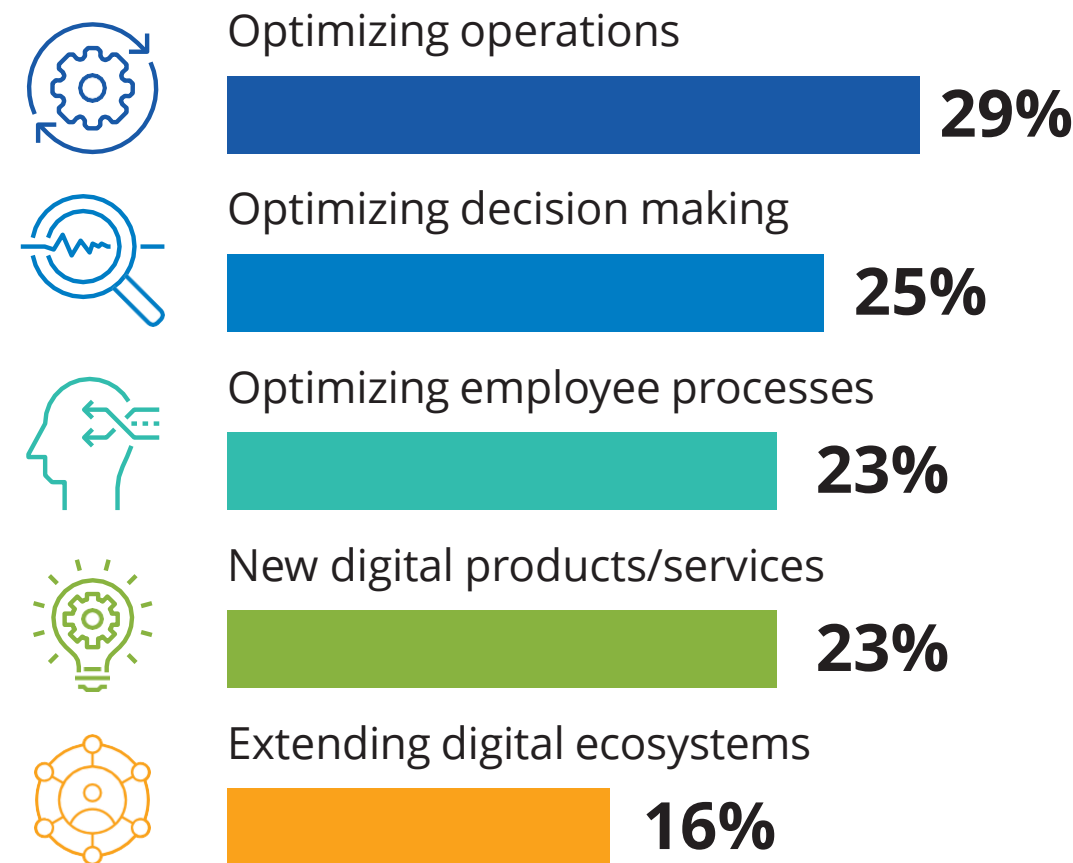


Leaders across all industries will need to continue to ramp up tech investments to outpace competitors and capitalize on changed market conditions. Understanding where the organization is on its DX path is one requirement, but being able to translate digital investments into business outcomes is the key. The first step is to understand the accelerators of digital ROI.

Five Accelerators of Digital ROI

C-suite leaders must focus on five key accelerators of digital ROI. This will enable them to build the horizons of a successful technology road map, reap the benefits of tech-based investments, and succeed as a tech-enabled business. IDC research identified the top 5 investments that have generated the greatest ROI from digital programs or initiatives and can drive organizations to the upslope of the K-curve.

Top 5 ROI areas



Optimized operations

Connecting and streamlining different organizational operations to develop resilient decision making and unify data.

Data-led decision making

Managing, combining, and extracting value from huge amounts of data to enable insight-based actions.

People-first strategy

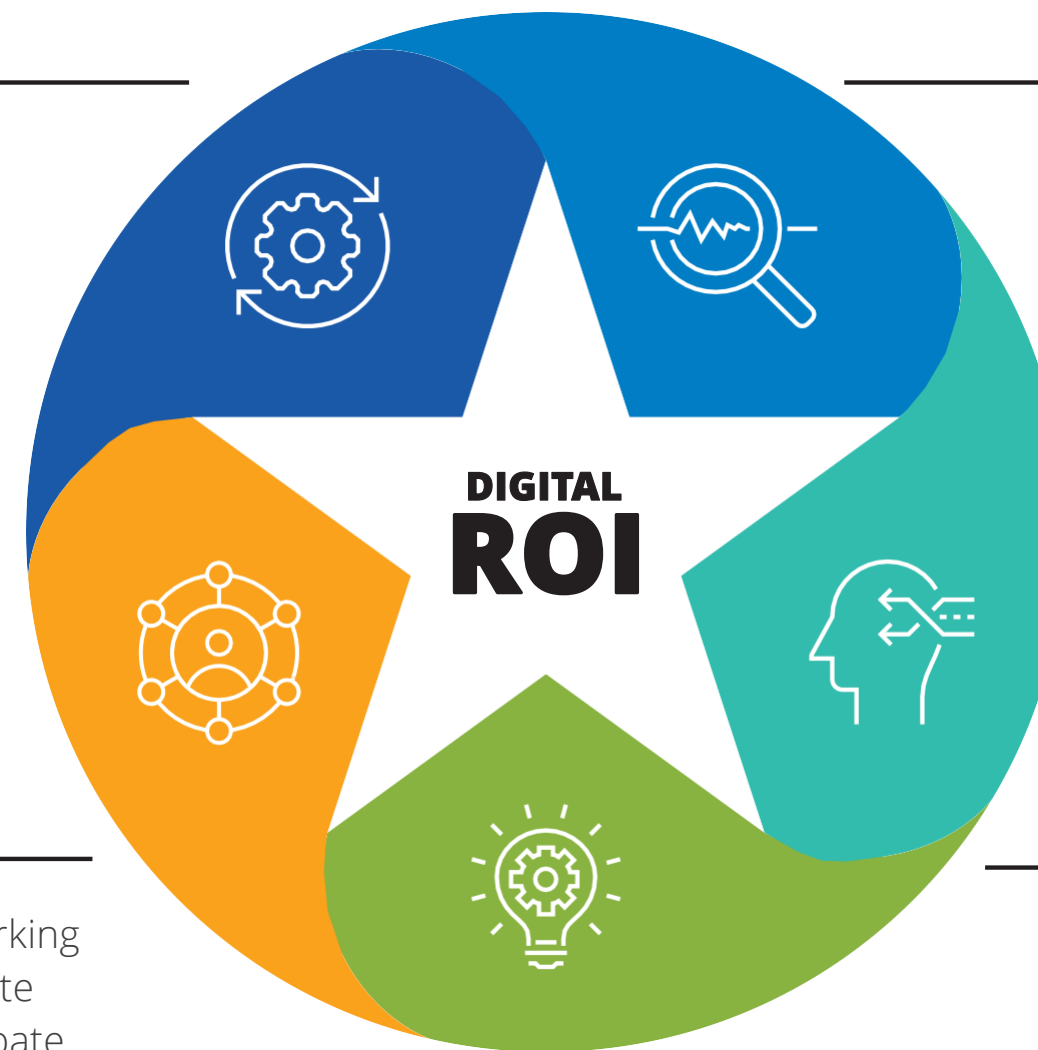
Automation of processes to free people's time, enable them to innovate, and develop new digital skills.

Innovation at scale

Accelerating DX to compress time to value is the foundation for delivering innovation at scale.

Digital ecosystems

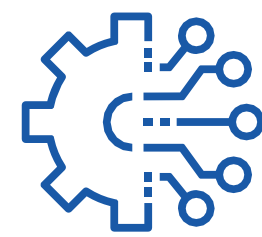
Enabling networks of organizations working together as peers to deliver value, create resilience, foster innovation, and anticipate threats and opportunities.





Optimized Operations

Optimized operations are the launchpad for further transformation and innovation, and to address sustainability and improved time to market, for example. Get this element right and rapid decision making can translate into action — quickly and holistically.



In **29%** of companies worldwide, the **operations function** leads the DX process.

One in two organizations has a reactive approach to operations and can pivot operational resources and processes only when a problem arises.

Operational excellence requires a **proactive** and **agile** approach that will prepare the business for future shocks. This ranges from having full visibility into partners' operations and supply chain, to remote and predictive maintenance, to process automation and operational analytics. For example, **digital twins** are essential for agile and resilient operations, enabling scenario modeling and failure prediction, while optimizing entire product and building life cycles for cost reduction and risk mitigation.

“ By 2023, 40% of manufacturers will combine their **shop floor digital twin** with real-time signal transponder data, leading to a **30% reduction in production throughput time** **”**

Key Industry Use Cases

Manufacturing

- Advanced digital simulation
- Augmented and predictive maintenance
- Real-time operations planning

AEC

- Advanced digital simulation
- Autonomic operations
- Asset performance management

Action Items for Leaders

- ✓ Foster collaboration between IT and operations to take inventory of the physical and digital asset portfolio. This includes taking stock of legacy OT, IT solutions, and physical processes and assets that may not be digitized yet.
- ✓ Exploit operations automation to reduce working capital and increase liquidity.
- ✓ Leverage analytics at the edge, coupled with digital twins, to simulate the impact of a variety of scenarios and best responses.



Data-Led Decision Making

Data is only valuable if it can be translated into action. Very few organizations, however, have truly moved beyond collecting data to combining and sorting data sets to create tangible business value from that data. Based on IDC's Global DataSphere study, less than 3% of the data currently created is analyzed to affect enterprise intelligence. Future value and success rests on this ability. Drawing a data-centric business model is becoming increasingly crucial to stay ahead of uncertainty and quickly respond to changes.



180ZB of data will be created, captured, copied, and consumed in 2025. Data created over the next five years will exceed by 2.5x the amount created in the past 10.

From predictive maintenance to digital twin or real-time supply chain monitoring and real-time financial forecasting, the **potential impact of AI and data analytics** in manufacturing and AEC industries is **significant. It is growing exponentially**, fed by the real-time continuum of data, including edge to network, IoT to mobile devices, and internal enterprise systems to supply chain. In 2021, 42% of WW organizations increased their planned budget on AI and machine learning.

Leaders need to move from data acquisition to data-enabled actionable insights that lead to business outcomes. This will require a **corporatewide data strategy** and substantial changes in terms of processes, skill sets, and talent. The C-suite needs to promote a data-led culture, encouraging data-driven decision making at all levels of the organization.



In 2022, 25% of G2000 firms will deploy technologies imbued with **data manipulation** and **visualization** capabilities, driving collaborative productivity.



Key Industry Use Cases

Manufacturing

- Autonomic/robotic operations
- Augmented and predictive maintenance
- Digital twins

AEC

- Robotic construction
- Asset instrumentation
- Intelligent project management

Action Items for Leaders

- ✓ Set up a clear data strategy and outline data management activities, roles, and responsibilities. Make sure all necessary stakeholders are involved and have access to the relevant data.
- ✓ Build a strong data architecture, using cloud infrastructure to support data, analytics, AI, and other enterprise intelligence initiatives — the most important factors for enterprise resilience.
- ✓ Leverage real-time data and AI to trigger decision making at all levels and to unlock new forms of design and innovation.
- ✓ Use off-the-shelf AI solutions to improve time to impact.



People-First Strategy

Successful DX and business value creation can only happen if leadership and organizations are also transformed. Designing an organization structure that places people first, and is aligned to digital ambitions from the start, is a central feature of this success.



62% of enterprises admit they are **not sufficiently prepared** to support the dynamic and changing skills development of their employees.

Leading organizations leverage digital technologies to ensure that their staff remain safe and secure but also productive and engaged. To do this, they need to make sure that:

- Employees can **seamlessly access critical resources** and **collaborate effectively** from any device, anytime, anywhere with a consistently productive experience
- Factories and sites are **smart, safe, secure, and sustainable**
- **Automation and augmentation** (data analytics, AI, robotics) support employee task, process, and decision making
- Visibility into existing skills profiles and company needs feeds a talent development pipeline including paths for **upskilling and reskilling**

“ By 2023 companies will **reduce onsite personnel by 30%**, utilizing machine vision and AR/VR to scale offsite expertise to onsite, delivering engineering and maintenance support from anywhere. **”**

Key Industry Use Cases

Manufacturing

- Remote team enablement
- Interconnected collaborative workspace
- Adaptive workforce planning

AEC

- Digital architecture design and modeling
- Digital engineering
- Asset performance management
- Intelligent building occupancy and usage management

Action Items for Leaders

- ✓ Investigate the degree of automation and augmentation supporting employee task, process, and decision making. Is it optimized? Are there inefficiencies and risks that can be eliminated?
- ✓ Target reskilling. Automation enables employees to focus on value-added tasks and activities, increasing their personal satisfaction and benefiting the organization. Be prepared to support this transition.
- ✓ Start executing on employee engagement by gathering their feedback and responding to changing employee needs.



Innovation at Scale

Virtually all leaders (91%) feel under pressure to deliver innovation. Those who successfully innovate will accelerate up the K-curve; those that do not will struggle. **Innovation is a priority** for **48% of manufacturing and AEC companies**, but **fear of failure**, focus on **running existing business**, and **lack of skills** are the **three top challenges** that limit their ability to innovate products/services or business models.



Falkbuilt and Sprung Structures partnered to design and manufacture emergency facilities to help hospitals treat the surge in COVID-19 patients in **as little as two weeks**.

Innovation is not simply a function of developing good ideas; it also requires the organization to have an innovation culture, which arises from a combination of leadership and business purpose.

This process must be continuous. It must deliver across the organization and extend to the ecosystem. Scaling innovation requires a systematic approach to charting out a **digital use case road map**, prioritizing those business initiatives enabled by technology that bring the biggest ROI improvement.

This includes **AI-augmented design techniques**, having a **central repository** for scaling existing standardized and modular elements, and delivering **new customer journeys** in weeks rather than months.

By 2022, 55% of organizations will have expanded resiliency plans to future-proof their business, improving profitability, innovation rates, and cost efficiencies by more than 20% compared to their peers.

Key Industry Use Cases

Manufacturing

- Generative design
- Additive manufacturing
- Digital customer journey

AEC

- Generative design
- Specialized tool printing
- Augmented virtual experience

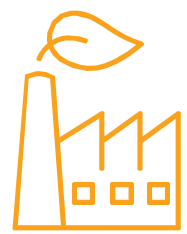
Action Items for Leaders

- ✓ Develop key metrics (KPIs) tied to use cases. Frequently monitor and communicate KPIs and value realization to relevant stakeholders (e.g., head of procurement, head of finance).
- ✓ Explore new ways and interfaces to engage with your customers, from omni-channel to virtual experiences.
- ✓ Encourage internal and external collaboration as part of your innovation efforts, driving changes in the company's culture and employee mindset.



Digital Ecosystems

Leaders can no longer view their organization in isolation. Future success comes from being part of an industry ecosystem that works collectively and under a set of shared ideals and objectives. Organizations are not the center of the ecosystem, but part of it. The future of **industry ecosystems is open, dynamic, and shared.**



60% of worldwide organizations identify **industry ecosystems** as a key priority technology investment in the **next two years** to ensure long-term resilience and success.

Organizations must consider their ecosystem as an expansive set of building blocks — a collective approach to deliver better values, outcomes, and experiences to individuals. Supply chain models themselves need to **pivot from linear to networked**, as distributed supplier networks help reduce risk and unplanned disruption. This requires **shared operations and processes**, as well as access to **data** and wider **intelligence**.

Ecosystems can add value in multiple ways: fostering **R&D** initiatives, **sharing operational capabilities**, sharing **data and information**, and developing **new digital products and services**. Currently, 45% of WW manufacturers participate in industry clouds and 26% host marketplaces to enable third-party commercial transactions.

“ In 2022, industry ecosystems will see a **40% greater innovation rate** of new digital and physical products/services brought to market compared with traditional innovation approaches. **”**

Key Industry Use Cases



Manufacturing

- Digital marketplace enablement
- Open product innovation
- Supply chain orchestration

AEC

- Digital project delivery
- Common data environment
- Supply chain safety and compliance
- Product and component traceability



Action Items for Leaders

- ✓ Focus on achieving trust in the ecosystem by sharing strategic goals among business partners, understanding mutual interdependence, and being open.
- ✓ Make a strategic choice to be either an orchestrator or participant of the ecosystems you are joining or creating.
- ✓ Make sure the purpose, benefits, and monetization models are clear and defined from the beginning.
- ✓ Establish a secure approach for ecosystem data exchange and orchestration to protect IP and value creation.

Leadership Actions

Collaboration across the leadership team is central to delivering transformational outcomes, business value, and ROI. With over half of all IT budgets now in the hands of the business functions, individual objectives run the risk of “fighting” against the common good. Agenda items must be viewed in the context of wider outcomes. Each function must understand the goals of all the others.

Operations leader

Focus on digital resilience: the combination of IT and business. Operations must become shock-proof, and ready to capture efficiency and automation opportunities. Build process optimization to free up time and automate actions, enabling people to be more creative in their work.

Sales and marketing leader

Focus on data and ecosystem pillars. Unlock new customer engagement scenarios and develop an omni-channel experience. Make data value extraction a central watchword and unlock the power of existing and ecosystem data.

Human capital leader

Target new types of skills and profiles (data scientists, distributed ledger specialists, AI/ML specialists). Understand that reskilling existing employees will be fundamental to successful and continuous transformation.



Technology leader

Enable a solid digital platform and work with other business leaders on a joint digital road map. Become the enabler of change and ensure a cohesive digital strategy led by the business outcomes and value creation already outlined.

Finance leader

Work on tech-enabled, real-time finance tracking and consolidated view of costs, data, and resources across multiple projects for adaptive planning. Take early involvement in key investment decisions, rather than getting involved toward sign-off.

Security/risk leader

Together with the broader C-suite, develop new trust metrics that go beyond privacy and security to include employee experience, sustainability, and diversity. Take control of data value, but also communicate the individual roles of the wider C-suite in making this happen.

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