

Industrial digital transformation— A look into common success strategies and challenges

White Paper

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Executive summary

This white paper examines the current state of industrial digital transformation, analyzing companies' journey from initial experimentation to successful global scaling. It highlights common obstacles, challenges, best practices, and practical guidance for achieving impactful digital transformation.

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Introduction

Digital transformation has been an increasingly important topic in the industrial and operational technology domain for over a decade, launching initiatives such as Industry 4.0, Made in China 2025, and The Fourth Industrial Revolution.

The industrial market has largely understood and accepted that digital transformation is necessary, but defining what needs to be done and executing the transformation, leading to expected business impact, has proven to be more challenging.

Schneider Electric,[™] as a trusted advisor and technology solution provider for large-scale digital transformations, seeks to understand whether the industrial digital transformation is delivering on its promises for:

- Improved labor efficiency
- Data-based decision-making
- Reduced energy consumption

Based on first-hand feedback from clients, this white paper provides an in-depth look at several examples of the journey to successful industrial digital transformation, including challenges, obstacles, and best practices.

The ‘what’ and ‘why’ of industrial digital transformation

“The basic idea underlying industrial digital transformation is to use data and technology to increase flexibility in production processes, enhance the organization’s ability to address customer needs, and improve competitive positioning.”¹

—Arc Advisory Group

McKinsey & Company expands on this definition, stating that digital transformation “is the fundamental rewiring of how an organization operates. The goal of a digital transformation should be to build a competitive advantage by continuously deploying tech at scale to improve customer experience and lower costs.”²

Building upon these definitions based on our successful transformation journey, Schneider Electric knows that **industrial digital transformation is not a project that starts and ends with a definitive completion; instead, it is an iterative, continuous improvement process brought on by constantly evolving technology.**

The goal of industrial digital transformation is to help drive business transformation. As companies progress from early digitization efforts to full digital transformation, more corporate functions become involved, enabling new ways of operating and increasing the number of key performance indicators (KPIs) that can be impacted.

True transformation is realized when there is a direct, positive effect on top-level business KPIs, such as:

1. Revenue
2. Operational expenditures (OpEx)
3. Environment, social, and governance (ESG) goals

The current state of adoption

A recent [Omdia and Schneider Electric](#) study of 250 global manufacturing and process industries found 94% of respondents believe digital transformation will impact their operations in the next two to three years, and a majority (60%) expect that impact to be considerable.³

However, the same studies show that digital technology adoption is still gaining momentum.

The European Industry report states that 41% of the companies surveyed had not adopted advanced digital technologies. Similarly, the Omdia study shows that while around half of the companies are deploying digital transformation across multiple facilities or business functions, the other half is only just now taking the first steps by introducing pilot projects and small digital transformation implementations (see **Table 1**).⁴

¹ Arc Advisory Group, “Industrial digital transformation challenges.”

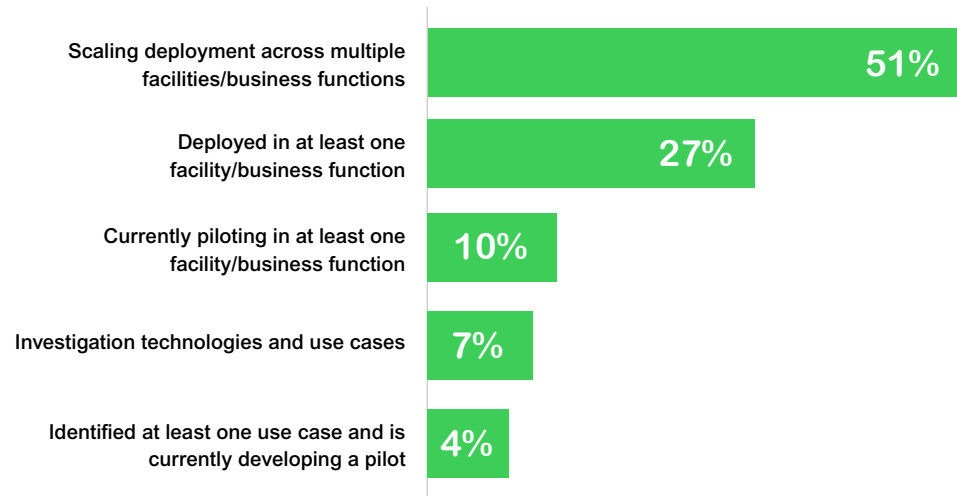
² McKinsey & Company, “What is digital transformation?”

³ Omdia and Schneider Electric, “Taking control of industrial digital transformation.”

⁴ Ibid.

Table 1

How study respondents described the current state of their digital transformation journey



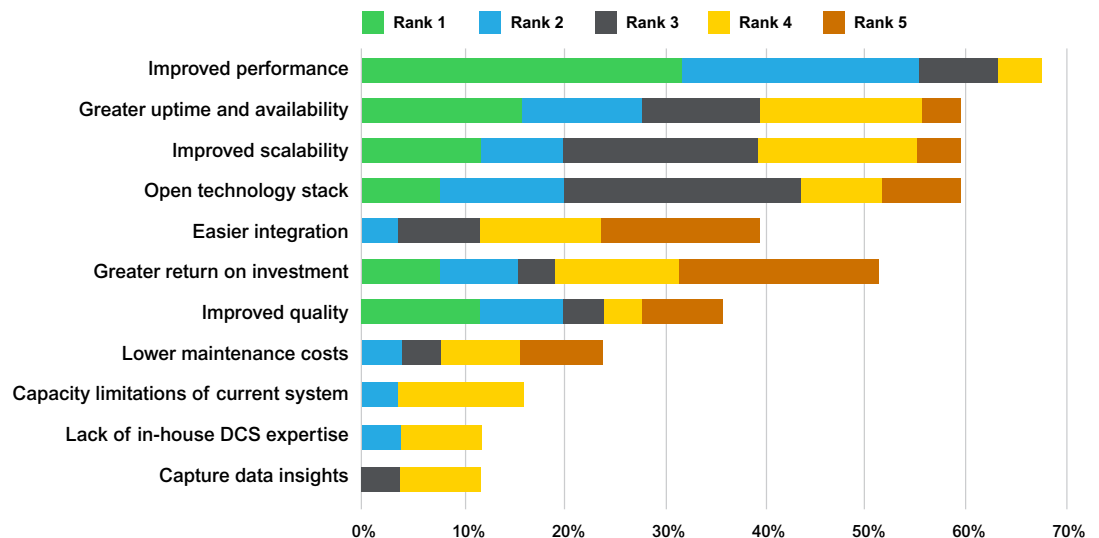
Successful industrial digital transformation can lead to competitive, resilient, and profitable business models. In fact, Arc Advisory Group found that profitability as a percentage of revenue among companies successful in industrial digital transformation varied from 9.4 to 44%. For over half of those companies, it was above 18%.⁵

But what is driving these companies to take action?

Based on the study, improved performance, greater uptime, return on investment (ROI), scalability, and quality were the biggest motivators for implementing digital transformation technologies, as shown in **Table 2**.⁶

Table 2

The most important influencers (ranked 1-5) for implementing control system digital transformation technologies



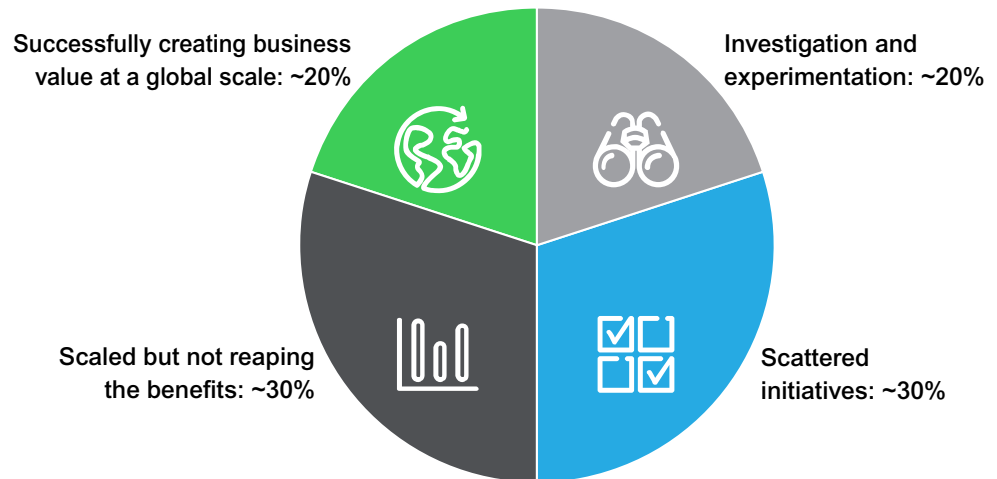
⁵ Arc Advisory Group, "ARC Industrial Digital Transformation Top 25 Report."

⁶ Omdia and Schneider Electric, "Taking control of industrial digital transformation."

Industrial digital transformation stages and common challenges

Despite its importance, succeeding in industrial digital transformation can be challenging. To overcome the challenges, it helps to understand their root causes and where companies struggle in their progression.

From beginners polishing their digital strategy to trailblazers reaping the benefits globally, companies identify themselves across a spectrum:⁷



Stage 1 Investigation and experimentation

Although most companies have defined a digital operation strategy and have entered the implementation phase, **roughly 20% still need help in the investigation and experimentation phase.**⁸ In interviewing these companies, the following themes emerged as reasons for their delay:

- Gap in organizational and skill readiness.** Some companies lack in-house digital technology and/or corporate transformation expertise. They express a need for talented professionals in data analytics, augmented and virtual reality (AR/VR), informational and operational technology (IT/OT) infrastructure planning, and cybersecurity. While these roles might exist at a corporate level, the local talent to implement and execute a digital transformation was lacking, creating a need for significant external support.
- Lack of coordination and shared vision.** Unfortunately, visions do not always align across departments, and operational leaders sometimes lack involvement. The Arc Industrial Digital Transformation Snapshot data (**Figure 1**) shows that chief information officers (CIOs) and IT departments play a more influential role than chief operating officers (COOs), operations managers, or plant managers.⁹ This can lead to a discrepancy between the corporate vision and the reality of implementing industrial digital transformation in production and supply chains.

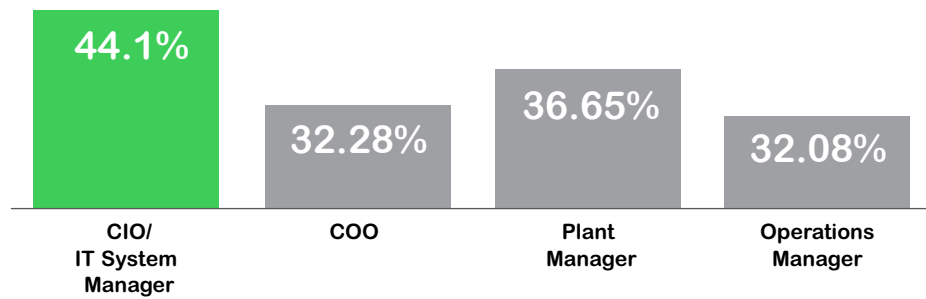
⁷ Ibid.

⁸ Ibid.

⁹ Arc Advisory Group, "Industrial Digital Transformation Snapshot."

Figure 1

Industrial digital transformation influence by business role



- **Insufficient commitment.** The tempting comfort of continuing “business-as-usual” can lead to avoiding or lacking commitment to digital transformation. This can leave businesses in the pilot or experimentation phase out of fear of the discomfort and learning curve of change.

Stage 2 Scattered initiatives

Companies in this stage have successfully executed local, regional, or business-unit-wide industrial digital transformation pilot projects. Still, it remains a bottom-up initiative that hasn’t been implemented company-wide at a corporate level.

Our experience suggests about a quarter of clients are stuck in this situation, as confirmed by the Omdia study.¹⁰

Improving the governance around digital transformation projects, determining how far across the organization the application should extend, and defining which projects to scale can help to keep progress going.

Further, templating technology and integration processes can facilitate global scaling and move business impact to the next level. Some scaling obstacles can include:

- **Poor use case selection.** A digital transformation use case or application may be chosen to address local or regional issues but never considered for corporate scaling. For example, highly customized predictive quality and augmented reality solutions may be implemented at one site but are not rolled out at every site due to the high engineering effort.
- **Missing or slow corporate guidance and standardization.** Sometimes, regional initiatives proceed independently without corporate advice or guidance, leading to non-standardized approaches. For example, an initiative may be tested and deployed locally to assess the application’s profit and loss before corporate guidance is in place. Roughly 40% of the companies surveyed believe their headquarters has not provided clear messaging and visibility on digital transformation objectives, established cross-functional collaboration, or standardized equipment or IT/OT infrastructure.¹¹

¹⁰Omdia and Schneider Electric, “Taking control of industrial digital transformation.”

¹¹Ibid.

- Doubts about digital technologies.** Mismatched priorities and a lack of strategic alignment can result in choosing the wrong technology for implementation. The rationale behind technology decisions must be carefully considered, and corporate guidelines should be given to avoid wasting time and resources on non-promising technologies.

Stage 3 Scaled but not reaping the benefits

Companies in this stage have scaled digital technologies globally but have yet to achieve the expected business impacts. Despite successfully piloting and managing a global rollout of the technology, they could still fail the ultimate test of digital transformation success—achieving business impact through improved KPIs.

Despite successful global technology scaling, many companies still seek the expected payback.

About 25–31% of those surveyed in the McKinsey study reported seeing only 35% of the estimated financial benefits of digital transformation (see **Figure 2**), and the vast majority (>90%) did not achieve full realization of the “promised” value.¹²

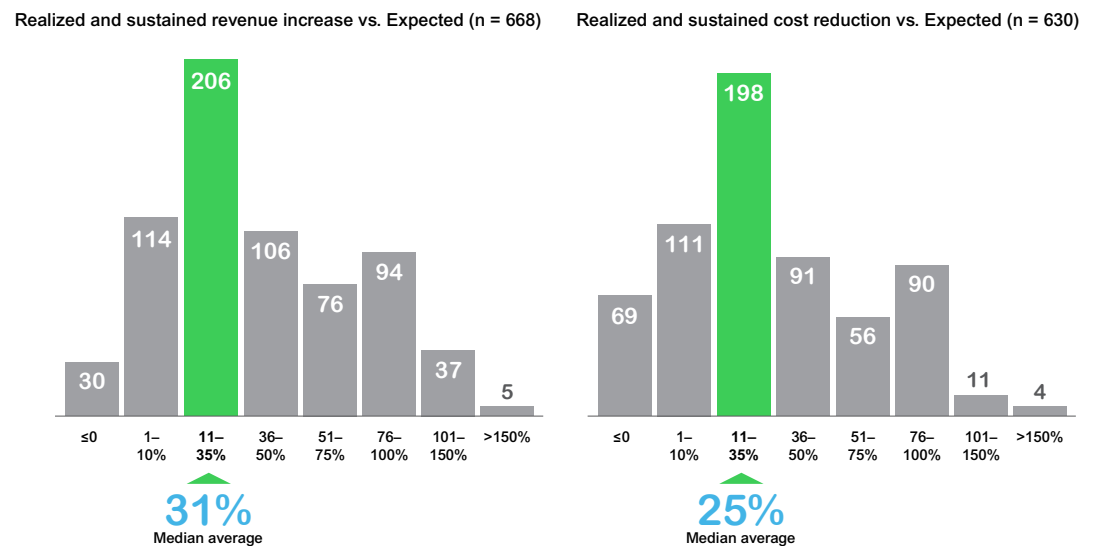


Figure 2

Reported share of realized and sustained revenue increase/cost reduction vs. expected

¹²McKinsey & Company, “Three new mandates for capturing a digital transformation’s full value.”

Companies flawlessly executed digital transformation at scale but diminished their payback by focusing on only part of the lifecycle of a use case, from identification and scoping to implementation and continuous improvement.¹³ This could be caused by:

- **Miscoordination between stakeholders.** A top-down approach may be misaligned with bottom-up requirements. For example, if the day-to-day operation, quality, and maintenance departments are not consulted in defining use cases, they won't benefit from the corporate-defined and deployed solutions. The technology solution users in these departments must be seen as important voices and included in technology discussions to ensure the delivery of expected outcomes.
- **Lack of proper performance tracking.** Companies can only accurately see and track improvement with appropriate performance measurement systems. These must be accounted for as part of the digital transformation deployment so stakeholders can reflect upon the solutions' impact and encourage further technological advancement.

Stage 4 Successfully creating business value at a global scale

Successful digital transformation is driven by methods and people, not just technologies. They allow an industrial company to deploy at scale and replicate the same use cases across multiple lines and sites with high standardization and confidence.

"If the objectives have clearly been stated and shared, and the deployed use cases have been validated during the pilot phase, there cannot be any surprises, but only good ones! [...] I am very confident about what we are doing at Nexans. We quickly saw early results. I don't pretend that we found the one and only recipe for success, but it can clearly be duplicated and inspire other industries."

—Nexans, COO

Case study | Nexans

As a world-leading cable manufacturer, Nexans partnered with Schneider Electric on its industrial digital transformation over the past three years. By 2025, this transformation will have been deployed at 45 sites across 16 countries, with significant associated operational improvements and an ROI of less than three years.

Nexans' program followed the framework below to help them achieve a successful transformation:

- Provide support directly from the executive level
- Define use cases based on business value
- Launch pilots at two sites simultaneously to rapidly validate business cases
- Define the digital core model to foster global scalability
- Assign global technical authorities in key technologies for continuous local use case ideation and financial justification
- Create strong governance and provide support for change management
- Select technology partners for implementation after rigorous review and comparison

[Learn more](#)

¹³Omdia and Schneider Electric, "Taking control of industrial digital transformation."

Case study | Schneider Electric

Schneider Electric has successfully deployed this approach across its own 200 smart factories and distribution centers using Schneider Electric and [AVEVA](#) products and solutions.

Three of these sites (in France, India, and the U.S.) have been recognized by the [World Economic Forum](#) for their exemplary industrial digital transformations, earning their coveted Sustainability Lighthouse status.

Most recently, the Hyderabad, India Sustainability Lighthouse site achieved:



59% in energy consumption



61% in CO₂ emissions



57% in water consumption



64% in normalized waste generation

Additionally, Schneider Electric's Global Supply Chain has held the No. 1 position in the Gartner Top 25 Supply Chain rankings for two consecutive years since 2023.

Four principles for a successful digital transformation



Principle 1
Align Corporate
and Sites behind
one vision and
one strategy



Principle 2
Build a dedicated
team with the
right skill set to
deploy at scale



Principle 3
Standardize, but
retain flexibility



Principle 4
Define a
governance to
safeguard and
maintain
the pace

Principle 1 Align corporate and sites behind one vision and strategy

A successful industrial digital transformation requires aligned perceptions and expectations before starting any use case investigation. While this may sound obvious, corporate and site teams often have different visions for industrial performance and future direction. Building consensus and prioritizing goals should always be the first step.

Principle 2 Build a dedicated team with the skill set to deploy at scale

The success of a digital transformation program depends primarily on the people who will deliver it. From the outset, a digital transformation group leader is essential; someone who knows where to find the right expertise and has guaranteed direct access to work with that talent. The expertise doesn't necessarily have to be in-house—partners can help bridge the gap when internal resources are unavailable.

In Schneider Electric's Industrial Digital Transformation teams, we provide such resources to customers and ensure knowledge transfer to the internal teams takes place. Cascading the program to local sites with the local heads of digital transformation is the next crucial step.

Principle 3 Standardize the core and fundamentals while retaining flexibility

Only mitigated initiatives will lead to groundbreaking progress or success. Therefore, creating a replicable core model should be the priority when picking and designing the use cases that will enable you to improve your business performance. Deployment conditions also need to be standardized, focusing most notably on connectivity and data models—which can be problematic if not managed carefully.

It is equally important to allow flexibility in calculating each site's business case. More than rigid standardization can deprive sites of the flexibility needed to deliver value, which is the ultimate goal of digital transformation.

Principle 4 Define a governance that will safeguard the transformation and maintain the momentum

There are numerous reasons a digital transformation may need to be paused, but in most cases, it will never regain its initial momentum. Both global and local governance will help keep the program moving and aid in maintaining alignment. In addition, securing the right sponsorship, upskilling the organization, defining the right reporting models, and building an escalation path will ensure your digital transformation achieves every outcome it promised.

Conclusion

The digital transformation journey is ongoing due to the rapid pace of technological advancements in digital tools like artificial intelligence (AI) and machine learning (ML). There is no clear end date for companies seeking to leverage the benefits of the data-driven era, and for others, there's a genuine risk of falling behind.

Industrial digital transformation requires a strategic approach, continuous improvement, and strong alignment between corporate objectives and operational realities.

Companies that are successful in this transformation can drive significant business value improvements. As the digital landscape continues to evolve, the principles and best practices outlined in this paper can guide industrial companies seeking to take the next step in their digital transformation journey.

Last but not least, competent and experienced digital partners must be emphasized more throughout this journey toward success. Advisors like Schneider Electric, who have gained successful experience and possess the world's leading digital technologies, can be the best catalysts to help corporations accelerate their industrial digital transformation and avoid detours or pitfalls along the journey.



About the authors

Manisha Bose is a Consultant at Schneider Electric for its Industrial Digital Transformation consulting and deployment services. With 7+ years of industry experience, she has worked in multiple roles in Digital Transformation and Supply Chain Consulting, Presales Strategy Design & Planning, Business Intelligence Development, Financial Modeling, and Market Research, amongst others. Manisha has expertise with customers across diverse sectors such as Consumer Packaged Goods, Chemicals, Discrete Manufacturing, High Tech, Electronics, Semiconductors, etc. She holds a Bachelor's degree in Electronics & Communications Engineering and an MBA with double majors in Operations Management and Marketing Management.

Jean-Baptiste Fischer supports the global deployment of Schneider Electric Industrial Digital Transformation offer. He notably tailored the Industrial Digital Transformation approach per segment, leveraging the significant segment expertise within Schneider Electric. Jean-Baptiste joined Schneider Electric as part of the Industrial Automation strategy team and contributed to defining and launching the Industrial Digital Transformation Services activity. Prior to joining SE, Jean-Baptiste spent five years in Strategy Consulting, where he covered industries from diverse sectors.

Yu Huang is the principal consultant for Industrial Digital Transformation consulting and deployment service at Schneider Electric. He has derived abundant digital technology and manufacturing expertise through 14+ years of working in engineering and operation. Furthermore, throughout years of consulting engagement in industrial digital strategy and operational excellence, he has been a trusted advisor to many leading corporations for their digital transformation.