THE REMAKING OF INDUSTRIES:
INDUSTRIAL EQUIPMENT
MANUFACTURING GROWTH WITH DIGITAL INNOVATION
DO ENTIRE INDUSTRIES NEED TO BE REMADE?

While executives may not want to hear it, the answer is yes. Companies that continue to operate within the usual guardrails, as challenging as that can be, will eventually find themselves in deep trouble. The reason? Broad but powerful forces are acting upon industries and making not just minor but radical change imperative.

We know this because we’ve been researching industry reinvention for the past several years. We’ve looked at the big picture, the macro environment of new technologies, societal pressures, customer demands, and business ecosystems. And we’ve examined the performance, strategies, and innovation approaches of thousands of companies during this period.
MECHANICAL SHOCK
The six forces driving change in the industrial equipment industry

In 2019, we engaged in a new study, talking to more than 1,300 executives in 14 industries and 17 countries. We looked at industry reinvention through the lens of six forces bearing down on companies.

01 The always-on, hyperconnected customer’s search for personalized industrial equipment products and experiences, e.g. intelligent equipment and services.

02 The growing imperative for higher productivity by way of targeted investments in growth levers such as technology, e.g. industrial robotics.

03 The challenge of digital disruption, which is blurring the boundaries of the industrial equipment industry due to the introduction of digital technologies, e.g. blockchain.

04 The drumbeat to “go green” and implement circular material management and greenfield plant design.

05 An evolution of business ecosystems, where established companies must work with, not against, startups, competitors and customers to enable new services like predictive maintenance.

06 And the politics of economics, in which long-held views on trade and internationalism are strongly challenged resulting in new regulations, e.g. digital trade compliance.

These forces don’t exist in a vacuum; they collide in ways that increase their power and keep companies scrambling to keep up.

What we’ve sought to answer through our research and analysis is how companies should respond.

How do you build for tomorrow without risking all that you do today? How do you make the right investment choices, across what may be an older but still-strong core business, alongside a new core that has lots of running room left and new businesses that are taking shape but face great uncertainty?

In several industry-focused reports, we explain how leading companies are stepping up to the challenge. These companies are in fact at the forefront of remaking their industry.

We analyzed the industrial equipment industry and the various trends redefining customer demand for industrial equipment and platforms. Those who successfully navigate the changing landscape stand to cement their place as leaders.
Intelligent equipment and services, advanced analytics, remote monitoring, and predictive maintenance. These technology-driven trends are redefining customer demand for industrial equipment and platforms. And supply chains are reeling from volatile prices of raw materials, shortages of skilled workers and uncertainties of global trade wars.

Clearly, industrial equipment companies are under enormous stress today. While most are fighting back, only a small group of innovative companies are distinguishing themselves in this disruptive era. We call them the Industrial Equipment Champions. This report explores what sets them apart.
Tech transforms the playing field

How technology is changing customer preferences

Industrial equipment companies are facing unprecedented challenges today. Customer engagement no longer hangs on competitive prices and diligent maintenance.

Technology is creating discerning customers; they want smart, pay-per-use industrial equipment they can operate remotely from an office rather than an underground mine or a drilling rig. It shouldn’t come as a surprise then, that they prefer to crunch data to figure out how to optimize operations or when to repair equipment before any breakdowns, saving on unplanned downtime.

On the supply side, industrial equipment manufacturers are hamstrung by volatile prices of raw materials, an acute shortage of skilled engineers and factory workers, and looming uncertainties of global trade wars.

What do you get from the collision of these forces? A kaleidoscope of new value propositions. (See Figure 1)
Figure 1: Industrial equipment industry—new value propositions

While industrial equipment companies are facing unprecedented economic and social pressures, they can tackle those by exploiting new value propositions to capture 21st century market opportunities.
Industrial equipment manufacturers are merely scratching the surface of these new value propositions. And all these efforts to please the customer are not cheap.

It is therefore no surprise to see that the industrial equipment companies interviewed for our survey are making the most innovation investments in design and engineering. (See Figure 2)
To make good on these new value propositions, industrial equipment companies must digitally reimagine the products and services they offer. Not only must they innovate to create value across key business functions, but also scale their proof of concepts (POCs) and ensure higher returns on digital investments (RODI).

Too few companies are accomplishing that. Out of the 138 industrial equipment companies with annual revenues in excess of $1 billion we studied, only 28 percent are successfully scaling more than half their POCs and earning higher than average RODIs. We call them the Industrial Equipment Champions.

From a steel and machine company in the early 19th Century, Schneider Electric has transformed into an energy management and automation digital solutions giant—on the back of digital innovation. Its EcoStruxure™, for example, is an IoT-enabled digitized platform that supports emerging industry standards with an open development platform and an extensive ecosystem of partners.

Today, EcoStruxure™ is utilized by a whole host of industrial customers for efficiency gains and operation savings. For energy managers who previously ran through trial and error or past experience, this platform eases their job by providing real-time monitoring via sensors, cloud analytics, and predictive maintenance to repair equipment before any breakdown.

Schneider Electric has been able to successfully scale EcoStruxure™, deploying at more than 480,000 sites.

Schneider Electric is among a small group of companies earning higher RODIs. Most others—almost three quarters of the companies in our research—earn an RODI lower than the industry average (12.3 percent), irrespective of how much they scale. This implies that simply scaling more doesn’t guarantee success.

“Artificial intelligence can only be built on a bedrock of big data analytics. As soon as non-intelligent products are rendered smart and connected; their value profile changes.”

—Eric Schaeffer, Senior Managing Director, Global Products Industry X.0 Lead, Accenture

Equip everything with innovation
Reimagine offerings to realize higher RODI
The new manufacturer mindsets

Industrial Equipment Champions employ three distinct mindsets

A closer look at the Industrial Equipment Champions underscores the importance of how you scale POCs over how many POCs you scale. These leaders view innovation and the associated costs differently, spending more time and money than their peers to design and build differentiated products.

They have the courage to scale new digital innovation at the right pace so that they neither miss the moment nor overreach themselves. It is their progressive mindsets that allow them to pivot their organization to new value propositions and earn higher returns on digital investments.

We distilled three distinct mindsets:
Industrial Equipment Champions consider innovation spending as investment and show strong commitment to it.

More than a third (36 percent) of Industrial Equipment Champions invested over $500 million each in digital innovation from 2016 through 2018. In comparison, only 19 percent of the other companies spent that much. All told, the Champions transition to as-a-service companies by spending more to better integrate operational technologies, install faster data networks, enhance AI-powered analytics and use advanced visualization tools.

A closer look reveals that they specifically focus on the design and engineering function. In the past three years, they spent 25 percent more time on reviewing designs. They also spent 53 percent more time on new product development. In comparison, the other companies cut design review cycle time by 20 percent and new product development cycle lead time by 43 percent.

That Industrial Equipment Champions spend more time and money on designing and developing new products would have appeared counterproductive in the past. But not anymore. That’s because they see the metrics in a different light.

They understand the benefit of coupling conventional hardware with new software to create smart, intelligent equipment and services.

Consider Caterpillar and its road paving machine. While the paver still needs three machine operators, it is now fitted with as many as 12 computers and a host of sensors and telematics. AI-enabled, on-board intelligence and connectivity allow operators to track all kinds of performance data in real-time.

This forms the foundation for its CatConnect services—granular insight into equipment performance for predictive maintenance, data on fuel burn rates, and health and safety information for operational safety. What’s more, Caterpillar is already using such operational data to simulate equipment performance for improving design and product development.

To keep up with advanced design and engineering, Industrial Equipment Champions also spend more on converting raw materials into finished products. They spent 57 percent more in conversion costs, as compared with a 0.5 percent cut by others. Their manufacturing cycle time also increased by 68 percent while others saw a decline of 37 percent.
Industrial Equipment Champions achieve tangible and timely returns on their investments.

In comparison, others that view digital innovation as a cost rarely expect returns, let alone achieve them.

Industrial Equipment Champions make sure that digital investments made toward improving design, engineering and production achieve viable returns. Our study shows they increased design win rates—the ratio of designs successfully scaled up into full production to overall designs created—by 7 percent between 2016 and 2018. In comparison, others saw a decline of 0.1 percent in this critical metric. Industrial Equipment Champions pay more attention to reliability, clocking an 8 percent improvement in MTBF, or mean time between failure of an equipment. Others saw a 20 percent decline.

The Champions also aim to improve their operations and production processes. They improved both overall equipment effectiveness and first-pass yield—the number of good units with no rework or scrap coming out of an individual process—by about 8 percent and 7 percent respectively. Others, in contrast, saw reductions of 1 percent each on both metrics.

Take Schneider Electric’s newly built Smart Factory in Lexington, Kentucky. Launched in June 2019, the factory is equipped with an immersive experience tool called EcoStruxure Augmented Operator Advisor. Operators on the factory floor can scan QR codes printed on machines with their smartphones or tablets to get real-time information on operational status, condition and maintenance requirements. It has helped reduce time to repair critical equipment by about 20 percent.

For Industrial Equipment Champions, the returns don’t just stop at more design wins or capacity utilization. They also earn higher financial returns. On average, they earned an RODI of 24.4 percent from 2016 through 2018, our study shows. That’s three times higher than the 7.6 percent earned by others.

“Digital reinvention starts with conviction. Only those businesses that drive the data-driven stake in the ground—investing in ecosystem strategies to acquire, process and secure data—will be able to unlock maximum value.”

Jean Cabanes, Managing Director, Global Industrial Lead, Accenture
Most companies continue to work and collaborate in conventional ways to avoid racking up costs. Champions make unique, differentiated investments in growth levers to enhance productivity and agility.

Figure 4: Five growth levers
Targeted investments enhance productivity and agility

We identified five levers that organizations use to scale digital innovation—skills, platforms, technology, partnerships and leadership. We found Industrial Equipment Champions use these growth levers in new ways. (See Figure 4)

Take partnerships, for instance. Industrial Equipment Champions engage with peers to boost complementary competencies, unlike others who keep their distance—viewing peers as competitors. ABB and Kawasaki, both leading global players in industrial automation and robotics, share knowledge and jointly promote collaborative automation such as Cobots, dual-arm collaborative robots.

Industrial Equipment Champions also partner with technology companies to extend collaborations beyond typical engagements such as IT hardware supply, ERP software implementation or tech support. Doosan Heavy Industries & Construction joined forces with SAP SE to leverage the latter’s Leonardo platform to improve equipment design. The partnership helps Doosan reduce power generation breakdowns and enhance plant efficiency.
Conclusion

Tomorrow’s manufacturers

The critical question today is how business can simultaneously prepare for unprecedented social, political, environmental and technological challenges—both imminent and distant.

The answer is not easy.

What we have learned in our research is that only a handful of companies are taking on the disruptive forces, making dynamic decisions and successfully remaking industries. We call them the Champions.

The Industrial Equipment Champions understand that digital technology is creating more discerning customers who want connected products that don’t pollute, save time and are easy to use.

But Champions also know how to create these products. They rely on digital technology to build smart factories, nimble supply chains, and responsive distribution networks. Most important, they successfully scale digital innovation and earn a higher return on those investments.

But the truth is such successes are rare.

Our research shows three mindsets work best in concert to help any company that wants to become a Champion. First, view digital innovation as an investment that needs thoughtful allocation, not a cost that ought to be cut. Second, set timely and robust expectations on return on digital investments. Third, invest in five in-house levers to scale digital innovation—skills, platforms, technology, partnerships and leadership.

The payoff from adopting these mindsets can be substantial, and help any company answer this simple question: Will you move beyond the usual guardrails and remake your business to successfully face off the forces before they take you down?
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Acknowledgements

Florian Heinrichs, Julia Bierwirth, Matthias Wahrendorff

The authors would also like to thank David Light, Gargi Chakrabarty
and Paul Barbagallo of Accenture Research for their significant
writing contributions and editorial guidance on this report.
Research Methodology

We surveyed 138 executives from industrial equipment companies with annual revenues in excess of $1 billion, across 13 countries. In our survey, companies were asked to report how much they spent on scaling digital innovations and the returns they achieved on those investments, over the period 2016-18.

The consistent and clean survey data set was utilized to arrive at the set of Champions. We defined “Champions” as companies that were scaling more than 50 percent of their digital proof of concepts and achieving a return on digital investment (RODI) higher than the average RODI being clocked by their industry peers and higher than their industry-level ROIC. The rest—whom we called “Others”—were companies which were achieving a RODI lower than the average RODI being clocked by their industry peers, as well as, their industry-level ROIC, irrespective of their scaling efforts.

Thereafter, specific questions in the survey were utilized to examine the impact of digital on certain key performance metrics across various organizational functions. Lastly, key differences and drivers that generate higher digital ROI for Champions were compared to other companies to understand the difference in approaches and strategies between these two sets of companies.

Appendix

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