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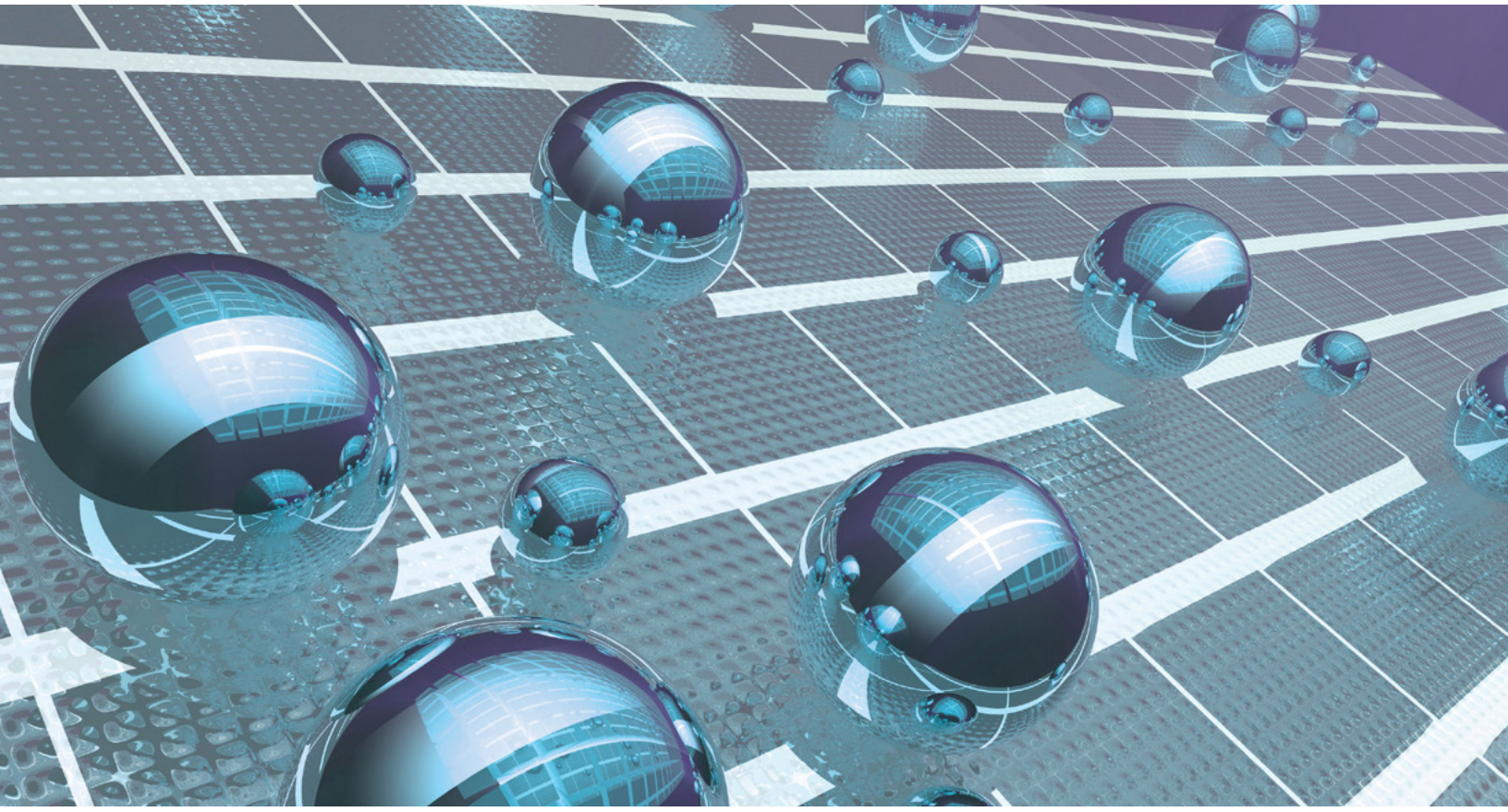
Why industrials should pursue a tech-enabled transformation now

Shifting market dynamics and rising competition compel industrial companies to overhaul their organizations to harness technology.

by Venkat Atluri, Aamer Baig, and Satya Rao



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The most earth-shattering technological breakthroughs are rarely felt all at once. Individual products or innovations may gradually prove their value, spawn other applications, and eventually become part of a broader platform with the potential to reshape business models. As such, incremental progress can suddenly lead to sweeping change that leaves companies scrambling to catch up.

The same holds true for the rate at which entire sectors embrace technological advancements. Some industries incorporate cutting-edge technologies in response to disruption—think the digital transformation of entertainment and media. The FAANG (Facebook, Amazon, Apple, Netflix, and Google) and BAT (Baidu, Alibaba, and Tencent) companies, for example, are regularly resetting the bar for how businesses engage with their customers and suppliers. Their influence on the business landscape and consumers often carries over to other industries.

As these trends sweep across the business landscape, the industrial sector finds itself on the cusp of unprecedented upheaval. Periods of intense change often magnify the importance of placing the right strategic bets. A tech-enabled transformation can equip industrial companies to increase revenues, expand margins, and pursue new revenue streams with different business models. Organizations that move aggressively and develop comprehensive strategies for integrating technology into their operations will maximize their odds of capturing the value at stake. By contrast, companies that choose to sit on the sidelines are essentially ceding their competitive advantage.

Changing dynamics in industrials

Three factors—a changing workforce, faster-moving ecosystems of customers and suppliers, and digital disrupters—are reshaping the industrial sector.

A changing workforce

Evolving workforce expectations and increased automation are changing not only the demographics of the workforce but also the ways in which industrial organizations must adjust their efforts in attracting, retaining, and developing talent.

By 2020, millennials will account for 50 percent of the US workforce, rising to 75 percent globally by 2025.[1] This generation of workers differs from previous cohorts in several ways. Millennials gravitate to jobs supported by digital tools rather than numerous manual tasks. They also actively seek to learn and grow on the job and aren't shy about jumping to a new company in search of advancement. According to Gallup, 21 percent of millennial workers have switched jobs in the past 12 months, and 60 percent are open to new job opportunities.[2]

To remain competitive with other sectors, industrial companies must embrace technology and replace manual tasks with more thought-provoking, challenging roles. Consider, for example, a financial controller in an industrial company. Today, the controller might spend 60 to 70 percent of the workday stitching together reports from different data sources for business partners. If these tasks were automated, the controller could evolve to become a strategic thought partner for the business.

At the same time, automation, data, and connectivity are changing the nature of work: McKinsey research found that a significant amount of retail activity can be automated using technology. And the total number of connected devices is predicted to rise from fewer than 27 billion in 2019 to more than 75 billion in 2025.[3] The volume of data generated by

[1] Peter Economy, "The (millennial) workplace of the future is almost here—these three things are about to change big time," *Inc.*, January 15, 2019, inc.com.
[2] *How millennials want to work and live*, Gallup, 2016, gallup.com.
[3] Statista, "Internet of things (IoT) connected devices installed base worldwide from 2015 to 2025 (in billions)," accessed on July 11, 2019, statista.com.

these devices, already exploding in recent years, will continue on this trajectory.

The impact of technology on all facets of the industrial sector, from the shop floor to distribution centers, means that most jobs will evolve and require more tech-savvy employees.

Faster-moving ecosystems of customers and suppliers

To date, industrials have lagged behind other sectors, such as retail and banking, in their ability to integrate digital technologies into operations. In retail, Walmart has invested in a range of technologies: from autonomous cleaning robots that free up workers' time to virtual-reality headsets used in training associates. And a number of retailers have at least partially digitalized their stores, increasing visibility and personalization.

Likewise, banking is undergoing its own transformation, fueled by the digitalization and integration of processes and tools to make employees more productive. One global bank developed a new digital onboarding tool for online customers, rolling out a modified version to more than 4,000 sales advisers in branches. The bank's investments in intensive coaching and frontline training supported frontline adoption, resulting in a 25 percent increase in the productivity of its sales advisers.

Even industrial-adjacent sectors have been quicker on the uptake. This pattern matters because as companies integrate digital technologies into their operations, they will prefer to engage and partner with innovative organizations. In the mining industry (a downstream customer of mining equipment), mines are increasingly conducting maintenance as needed rather than on a fixed schedule. One company used sensors and machine learning to implement predictive maintenance in 20-ton heat exchangers. The model was able to predict when the exchangers would fail, so the frequency of repair visits adapted from once every 70 days to once every 160 to 200 days. And with dozens of heat exchangers across the operation, the cost savings have been substantial.[4]

In the logistics industry (a downstream customer of the commercial vehicle industry), leading shippers and carriers have incorporated digital and analytics into demand forecasts and route optimization. These technologies have enabled some shippers to trim inventories by up to 75 percent and warehousing costs by 15 to 30 percent—all while increasing labor efficiencies as much as 80 percent. Similarly, third-party logistics companies have deployed connectivity and analytics to enhance routing, resulting in efficiencies of up to 25 percent.[5]

These adjacent industries are the immediate customers of industrial players and expect a certain level of technological maturity in their transactions. For example, more sophisticated components (such as smart hydraulic valves) can increase the accuracy of predicting failures in large downstream equipment in mines and oil rigs. Or companies could innovate their transactions with industrials by engaging through online and e-commerce channels—even increasing traditional sales and distributor relationships. This trend increases the urgency for industrial companies to pursue a tech-enabled transformation.

Digital disrupters

Since the industrial sector is capital intensive and relies on R&D, companies may believe they are insulated from the incursion of digital attackers—that notion is misplaced. Amazon's B2B business, for example, reached $10 billion in revenues in 2018. The reason is that Amazon has one advantage over its competitors: an ability to offer a greater variety of products than incumbent B2B companies.

[4] "Behind the mining productivity upswing: Technology-enabled transformation," September 2018, McKinsey.com.
[5] Aisha Chottani, Greg Hastings, John Murnane, and Florian Neuhaus, "Distraction or disruption? Autonomous trucks gain ground in US logistics," December 2018, McKinsey.com.

A tech-enabled transformation can equip industrial companies to increase revenues, expand margins, and pursue new revenue streams with different business models.

Fast-moving tech start-ups have also begun to enter advanced sectors such as logistics and pharmaceuticals, in some cases striking partnerships with established companies. For example, Fast Radius, which offers 3-D printing on demand, has teamed up with UPS on the global expansion of its production capabilities. The company's vision is to offer a 24-hour turnaround on the production and shipping of parts, allowing manufacturers to take advantage of a virtual inventory.[6]

As such experiments gain momentum, industrial customers expect an increasing level of customization and digital engagement, so companies must reimagine their existing operating models and supply chains. When done right, these efforts could lead to new-business creation. In automotive retail, for example, customer preferences are quickly shifting in the used-car purchasing journey: 64 percent of buyers want extensive vehicle data, online photos, and search tools; and 59 percent want end-to-end online purchase capabilities. In response, new market entrants such as Carvana, Fair, and Vroom are disrupting the market.[7]

Further complicating these three changing dynamics, industrial companies have seen their growth and profitability stagnate in recent years. McKinsey research found that the sector's performance largely flatlined from 2011 to 2015, a trajectory that has held true in the subsequent years.[8] The likelihood of an economic slowdown could further ratchet up the urgency for industrials to embrace technology to achieve the next horizon of growth and profitability.

Tech enablement can change the trajectory of industrial companies

In "The trillion-dollar opportunity for the industrial sector: How to extract full value from technology," our research identified five domains where companies can apply technology to boost productivity and margins (Exhibit 1).[9] A well-coordinated, tech-enabled transformation in these domains could potentially generate $1 trillion in additional revenues and increase total returns to shareholders by 9 to 22 percent.

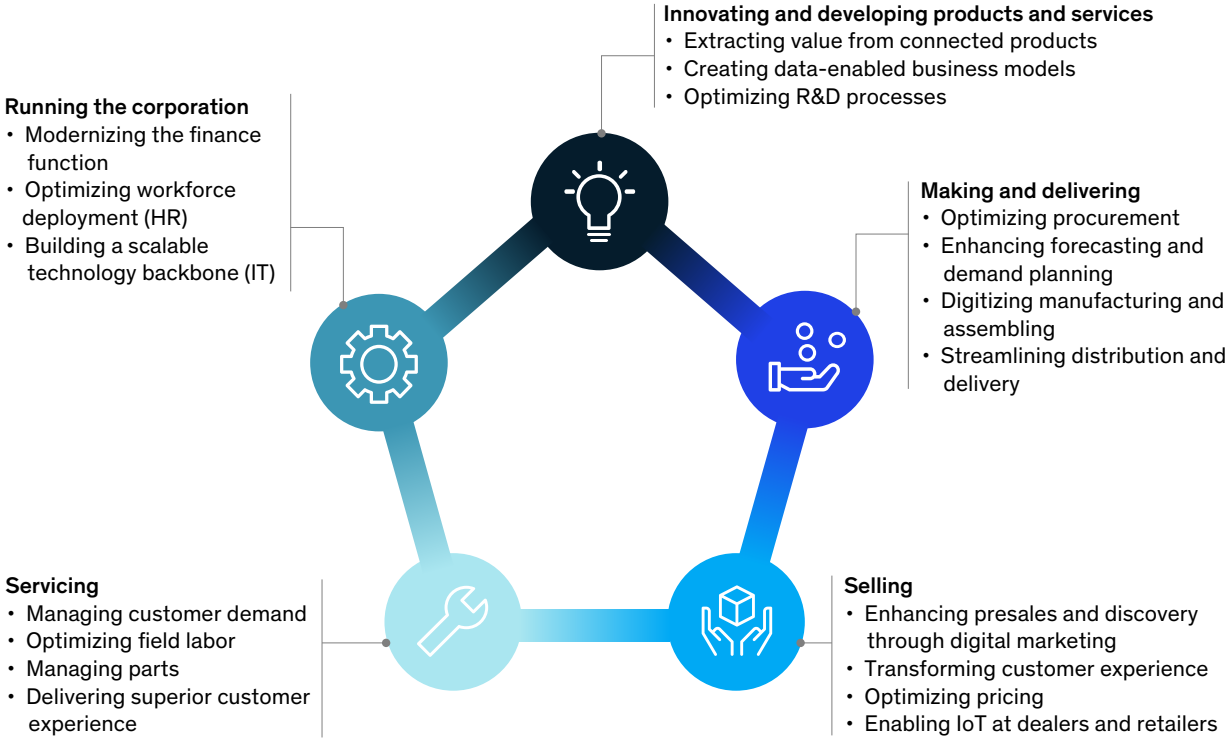
A transformation of these five domains generates value in two areas:

— *Revenue growth.* Industrial companies have typically lagged behind their peers in using technology to improve sales and customer engagement. A tech-enabled transformation provides functions with greater access to data, analytics, and digital tools—enhancements that can also open up opportunities for new business models that move beyond selling components and products. A tech-enabled transformation can help companies capture a greater share of

[6] Tia Vialva, "Interview: Fast Radius raises $48m to accelerate industrial AM in Series B led by UPS," *3D Printing Industry*, April 4, 2019, 3dprintingindustry.com.
[7] Ben Ellencweig, Sam Ezratty, Dan Fleming, and Itai Miller, "Used cars, new platforms: Accelerating sales in a digitally disrupted market," June 2019, McKinsey.com.
[8] Richard Jones, Felix Recht, Nick Santhanam, Xiaoran Tong, and Shekhar Varanasi, "What's ahead for industrials," March 2017, McKinsey.com.
[9] Venkat Atluri, Saloni Sahni, and Satya Rao, "The trillion-dollar opportunity for the industrial sector: How to extract full value from technology," November 2018, McKinsey.com.

Exhibit 1

A tech-enabled transformation in industrials can generate value across five domains.



service revenue, which can raise profitability, particularly for industrials companies that are struggling with high labor costs.

— *Margin expansion.* Companies that harness technology can increase margins significantly through improved productivity in areas such as manufacturing, distribution, R&D, and back-office functions. For example, an analytics-based approach to pricing can inform pricing decisions and help companies apply more sophisticated pricing approaches.

The time to move is now

In pursuit of this $1 trillion opportunity, we believe three segments of companies will emerge: aggressive investors with comprehensive strategies and playbooks; companies that invest in isolated or piecemeal projects, with no clear integrated strategy regarding technology; and passive participants.

Investments in technology will be needed to generate this value (for an examination of the impact of a tech-enabled transformation on the different segments of industrial companies, see sidebar, "Sector snapshot: Where the value lies"). In the past, industrial companies have often made expensive bets on technology projects that yielded limited payback and dampened the enthusiasm among executives for ambitious tech-based strategies. Companies will need to shed this mind-set to make progress.

Tech-enabled companies will be better positioned to lock in customers through improved products and

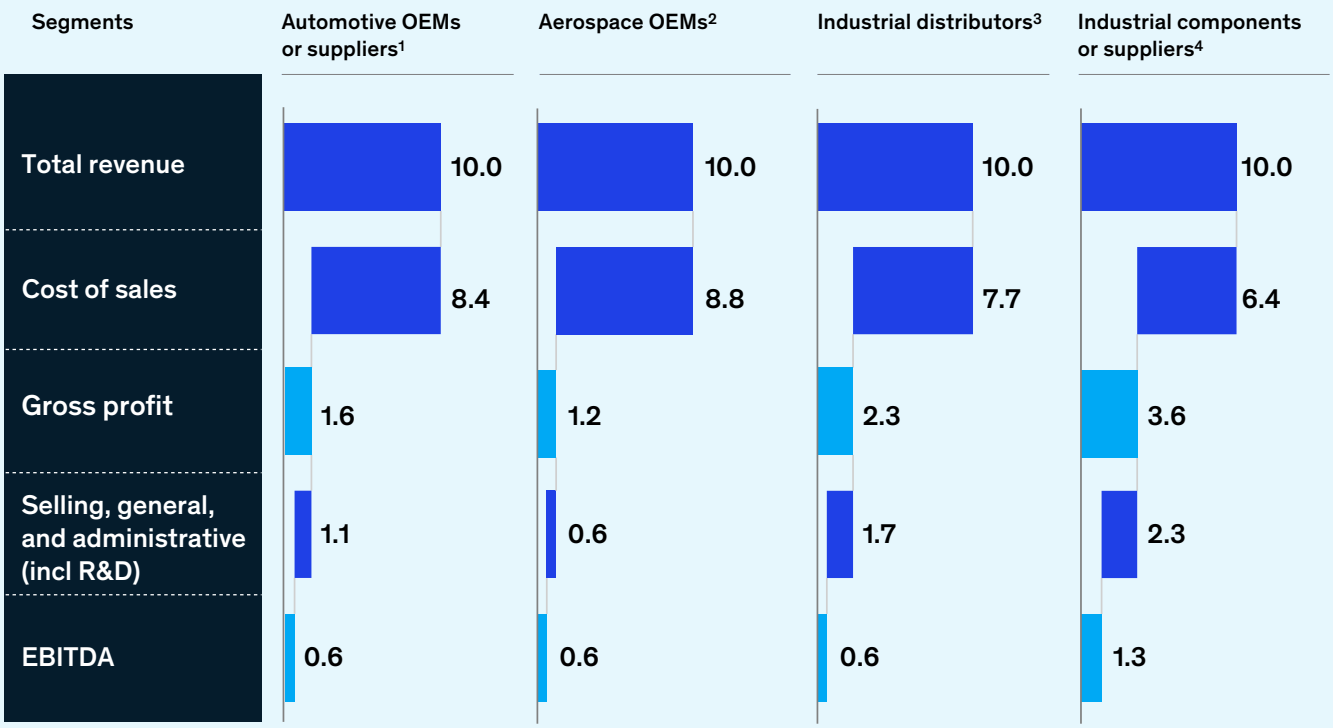
Sector snapshot: Where the value lies

The industrial sector consists of four segments, each with its own structure for revenues, costs, and potential value (Exhibit A). The impact of a tech-enabled transformation and where value can be generated or destroyed will vary accordingly.

Exhibit A

Profitability and cost structure vary across four industrial archetypes.

Annual revenues and profit for representative $10 billion company across segments
$ billion

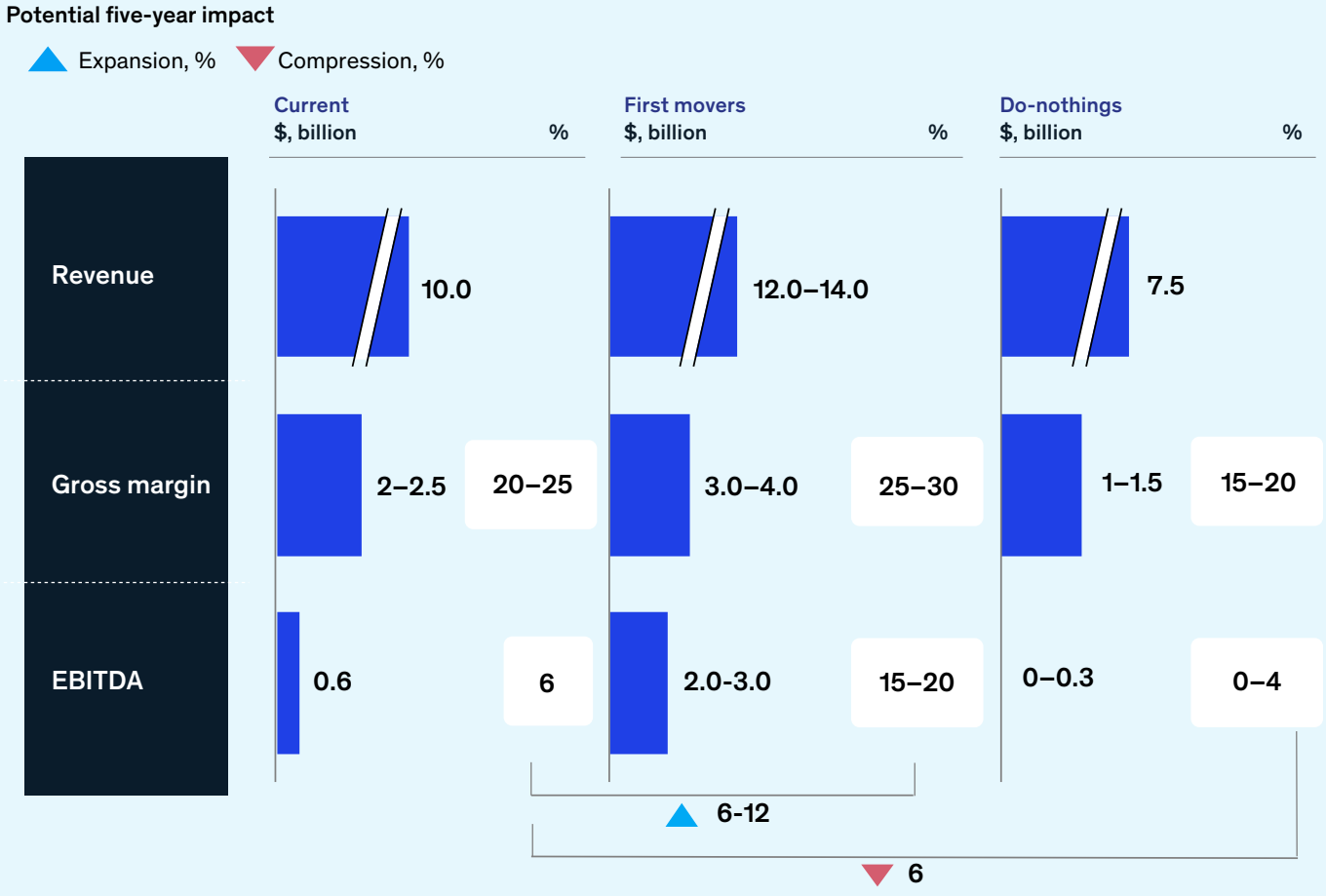


[1] Major automotive OEMs and component-supplier players ranging from $50 billion to $200 billion in revenue.
[2] Major aerospace OEM players ranging from $10 billion to $100 billion in revenue.
[3] Major industrial-distributor players ranging from $2 billion to $15 billion in revenue.
[4] Major component-supplier and manufacturing players ranging from $2 billion to $30 billion in revenue.

The divergent trajectories of companies that actively pursue a tech-enabled transformation—compared with those taking a wait-and-see approach—reinforce the need for bold action. Passive participants will see their productivity and competitiveness fall across the board, which we believe will lead to significant profitability loss in the long term. At industrial distribution companies, for example, technological first movers will see their revenues, margins, and profits improve significantly (Exhibit B). In contrast, companies that sit on the sidelines will see their profitability (and their competitiveness) eroded. The time to act is now.

Exhibit B

Analysis of industrial distribution companies highlights the impact of a tech-enabled transformation.



services and could gain substantial advantages in their ability to attract talent and motivate their workforce. They might also have the option of partnering with disrupters and innovators in their industry.

Companies that implement a comprehensive approach will be well positioned to substantially increase revenues, margins, and profit (Exhibit 2). Although the opportunities to capture value will differ by segment, the overall impact will be dramatic. Companies in the broader industrials segment could raise revenues and margins by as much as 4 and 7 percent, respectively. Such improvements would translate to an increase in earnings before interest, taxes, depreciation, and amortization of up to 9 percent.

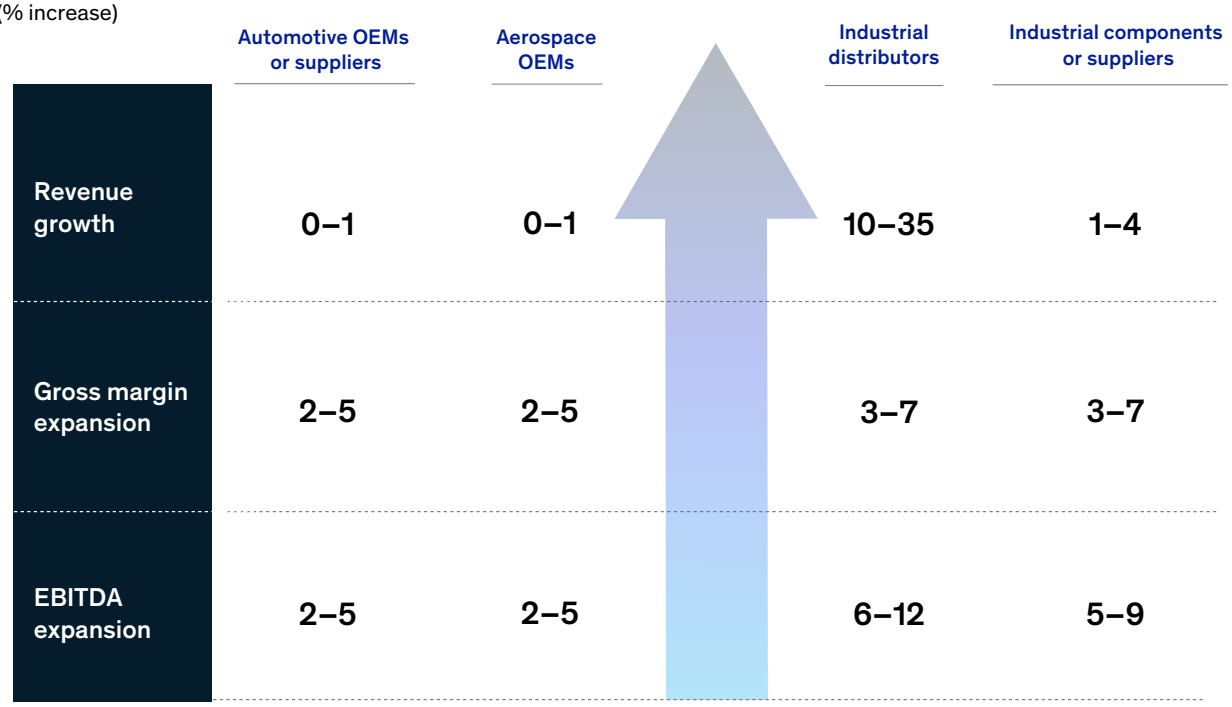
Why companies need a comprehensive playbook

Although a tech-enabled transformation can generate tremendous value for industrial companies, it is also incredibly complex. New technologies are just one part of the equation. Companies must also change every facet of their operations—from their

Exhibit 2

Industrial companies that undertake a comprehensive tech-enabled transformation can reap significant value.

Representative impact for companies undergoing a comprehensive tech-enabled transformation across archetypes[1]
(% increase)



[1] Impact shown is representative for each company archetype, based on McKinsey experience; actual impact will vary based on company financials and starting position.

processes to their people to their culture and mind-sets. Our research and firsthand experience in helping companies achieve tech-enabled transformations have led to the production of a standard playbook to guide the journey.

The transformation playbook consists of two phases—assess, then build and implement—supported by four enablers: capabilities and talent, technology and data, performance infrastructure, and organization mind-sets and behaviors.

By following the playbook in a coordinated way, companies can make rapid progress and sustain the improvements from a transformation.

The path forward will require industrial companies to reimagine their operations with tech at the center. Organizations that undertake a comprehensive tech-enabled transformation will be not only more profitable but also more efficient, responsive, and resilient. Now is the time to get started.

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