



# Business model transformation: The next stage of Industry 4.0

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# Foreword



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## Industrial transformation is a theme that has led to tremendous changes in the manufacturing landscape in recent years.

Business model transformation is the next logical step on the road toward digital transformation. KPMG firms' have taken individual technologies that have led to major improvements in the operations of parts of their business. Based on these successes, it is now time to take a broader approach and apply an array of technologies to change the way an entire company does business.

An example of business model transformation is to re-imagine the company as a service provider as well as manufacturer. This can help enable it to develop new revenue streams along the entire life cycle of a product. By doing so, the firm can develop a deeper, richer relationship with its clients, and for a continuous length of time.

As a result, the relationship becomes less transactional and more mutually beneficial. Industrial manufacturers should be able to engage their customers in innovation projects that can lead to better products and more profits for the end-user as well as the producer.

Achieving this, however, is a long and complex process in which all parts of the operations, from research and development to after-sales service need to be re-examined and put back together in new, more profitable ways.

As soon as one part of the operation is changed, executives will likely find that other parts must be restructured, as well. And this is only one example of business model transformation. There are many others, some of them included in this report.

As this report shows, KPMG firms have engaged with many clients all over the world to chart a path toward business model transformation.

Please read this report and let us know if you would like to discuss your issues in more detail.

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# A new dimension of enterprise improvement

Industrial manufacturers are entering a new stage in the journey of digital transformation that is greater in scope and complexity than before. The next objective is business model transformation, which, for many companies, entails a change, not of a single factory or product, but an entire operating system, from R&D and procurement to customer experience. How should manufacturers tackle this next stage of Industry 4.0 and what opportunities are likely to emerge if they do so successfully?

The answers could lead to higher productivity, more nimble product development and a bigger market share, but if the transformation program is not conducted comprehensively and thoughtfully, the result could lead to different results.

It is no exaggeration to say that the future of the company is at stake. Manufacturers will likely find it increasingly hard to ignore the need for business model transformation, because many of their competitors are taking the bull by the horns. Doing nothing is not an option, but doing something without a carefully thought-out plan is not a good option, either. Manufacturing executives need a map to navigate with and this report is intended to guide them on their journey.

The report begins by analyzing the main drivers of business model transformation and the different approaches to the design and implementation of far-reaching operational changes. It describes the need to accelerate the process and not wait for technologies to mature, because competitors are likely to move ahead. No one size of transformation fits all, of course, and manufacturers will likely face a wide range of challenges to success. One lesson, though, is to align the choice of technologies to the business objectives, not the other way round. Measuring the expected benefits of transformation is going to make it easier to obtain the buy-in of executives and, again, there are many KPIs of success.

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**To reach the next stage for the Industry 4.0 vision, manufacturing companies must drive the transformation of their business models. Digital transformation affects every business unit and operational process and requires end-to-end systems to manage the entire product lifecycle.”**

**Ulrich Ackermann**

Country Leader  
KPMG in Germany



# Examples of business model transformation include:



Building up  
completely new data  
infrastructures



Radical change in  
sales approaches  
from price per piece  
to as-a-service  
models



Breaking up silos in  
the company and, for  
example, narrowing  
the gap between  
product development  
and marketing/sales



Re-defining CRM and  
service processes to  
develop a continuous  
customer  
relationship





# Transformation at the crossroads

Business model transformation is occurring at the confluence of two trends:

- the maturation of a range of i4.0 technologies that are taking manufacturers to a new level of digital connectivity. These include 5G private telecommunication networks, artificial intelligence (AI), the Internet of Things (IoT) and edge computing.
- a change in the demands of customers, as they expect a deeper and more sustained experience with their manufacturing suppliers, from the beginning to the end of each product cycle.

The first trend enables companies, for example, to monitor, process and analyze vast amounts of data that are generated both internally and externally in their ecosystems. They can then extract business benefits from the data analysis that can be deployed across the value chain.

The second trend, involving the customer, is part of that value chain. “Clients’ expectations are changing radically; they are used to the sort of interface that software leaders provide its users with and they want a similar quality of interaction with a manufacturer,” says Vinodkumar Ramachandran, Global Head of Industry 4.0, KPMG in India.

Manufacturers with the necessary technologies and organizational skills can develop this relationship with their customers and grow market share and profits as a result. They are building ecosystems of suppliers and customers connected to their solutions and services. Business partners in the ecosystem, such as suppliers, are often collaborating with manufacturers to create innovative products. At the same time, manufacturers are enabling the seamless integration of a more customer-centric range of services, such as financing, long-term servicing, and a range of selling options. And they can deliver a higher level of service at lower cost, thanks to cloud infrastructure.

“Previously manufacturers tended to change only a single aspect of their business model, but now there are many disruptive elements that can alter the way the entire company works,” says Jörg Schwarz, Director, Consulting, KPMG in Germany. “A producer of motors for cars and forklifts, for example, is shifting to digitized motors that deliver data and so it must think about its products in a new way, as a data platform that can share information with the customer. Now, it can have a long-lasting client relationship and many interactions, whereas before there were only one or two points of contact.”

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# Designing a new business model

The way that companies transform their business models will likely vary depending on a range of factors. It depends on what stage of development the company has reached. If it is starting off on the journey, it is likely to take the first few steps incrementally, by getting employees used to the technological requirements of i4.0. A cultural transformation is required, because workers and managers will likely have to do things differently, often radically so. Then, once a company reaches a later stage of maturity, it should plan how to scale up to an enterprise level. Having gained confidence from the success of use cases, it is likely to invest in the changes needed to create entirely new revenue models. "That's when transformation happens," says Ramachandran.

The design and plan of a new business model must start with a thorough assessment of where the enterprise is today and the development of a detailed picture of where the company intends to go. "You take all the elements of your business and try to separate them and then put them back together in a new way," says Schwarz.

A real-world example from a client of KPMG in the US is a global milk-product manufacturer that realized it could no longer compete by producing centrally and then

shipping it around the world in refrigerated containers; it must decentralize its operations to cut costs and sell closer to its markets. So, instead of centralizing production, it decided to ship milk powder to 50 factories around the world where it would be converted into downstream dairy products that are more closely suited to local tastes.

To do so requires, first, a sophisticated, central monitoring system to control the quality of many factories and, second, a decentralized framework with a complex logistical ecosystem. Without data analytics, IoT, cloud infrastructure, and other technologies, it is exceedingly difficult to achieve a higher level of automation and centralized control of quality across geographical regions.

The company that emerges from this restructuring will likely be very different from the old one. The decentralized business model requires a smaller workforce at the center and quality controls that work globally in real-time. This entails a holistic, enterprise-wide approach to transformation, involving all major business functions and operating units. The entire enterprise is going to have to work smoothly and collaboratively to help make business model transformation a success.

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# A push into digital services

**KPMG in the US helped a global manufacturer developed an broad, connected approach to its business, by defining the strategy, business model, financial case, and transition plan for a far-reaching digital services initiative.**



## Challenge:

Research of the company's customers indicated a strong desire for smarter services and frictionless interactions. The client's competitors had established a lead in the development of connected products, digital platforms, and digital service offerings. The company told investors it was strongly committed to the growth of digital services, but it lacked a clear path to achieving its goal.



## How KPMG in the US helped:

Reviewed the entire business model and service offerings of the organization. KPMG in the US evaluated the financial results of the field service business and developed a growth plan based on external benchmarks, as well as a roadmap for implementation. It also benchmarked the service models of more than 20 competitors.



## Outcomes:

KPMG in the US helped the client's global service organization:

- Develop a strategy and operating model design for digital services that boosted annual services revenue growth rate by 20 percent.
- Define automation and operating model efficiencies that reduced operating expenses for digital services by approximately 15 percent.
- Identify over 50 key performance gaps and develop a roadmap for closing them.
- Gain the buy-in of the CFO, the executive committee, and business unit leaders across products and regions.





# Going faster, harnessing technology

This new stage of transformation is not only wider in scope and more complex, but it is also happening faster than previous stages of i4.0.

According to KPMG International's 2022 Global CEO Outlook Survey<sup>1</sup>, 78 percent of CEOs say, "We need to be quicker to invest in digital opportunities." They are right to think this way. To gain a competitive edge in business model transformation, companies should expect to move faster, or they may miss the opportunities of creating a more integrated and nimble enterprise.

Fortunately, the new technologies enable companies to move rapidly. An automotive OEM, for example, has developed a direct-to-consumer connected framework for lead and sales management, using open-source and low-code/no-code analytics platforms in just half a year. In the following six months, it is being deployed across multiple countries, thanks to the company's cloud infrastructure and a robust global data platform. In this way, it can scale up faster and gain first-mover advantage.

To implement such a rapid transition, 5G private networks and edge computing are extremely important and are often implemented together. Edge computing can handle massive amounts of data at minimal levels of latency, to provide instant insights at the factory floor, rather than having to send the data to the cloud. This enables, for example, machine operators to work remotely on equipment thousands of miles away in

real-time. Manufacturing operations can be continuously monitored in the same way. "When customers are changing their behavior or markets are trending in a different direction, by observing real-time actions, companies can adjust to customize their operations to the needs of the ecosystem," says Mun-Gu Park, Partner, Digital Transformation Center of Excellence, KPMG in South Korea.

Park highlights another trend that is driving business model transformation: skills shortages. These are not likely to be fully alleviated any time soon and so operations need to adapt to cope with the difficulty of hiring skilled personnel. "To integrate and apply technologies seamlessly, you should to prepare for a new kind of data architecture, such as the asset administration shell (AAS), in which machines communicate with each other to deal with manufacturing problems that need to be solved, say, on the factory floor," Park says. The use of AAS and digital twins, which mirror physical operations to forecast and optimize production processes, is expected to grow rapidly. Machine-to-machine communications may eventually free up human resources and redeploy workers to more productive activities in the factory. An example is vehicle-to-everything driving, where information from sensors and other sources travels via high-bandwidth, low-latency, high-reliability links, paving the way to fully autonomous driving.

<sup>1</sup> KPMG 2022 CEO Outlook: Growth strategies in turbulent times, October 2022



# Challenges to overcome

Companies face several key difficulties in transforming their business models. These need to be overcome if organizations are to succeed in changing the way they operate: change management.

Corporate leaders must begin early to build a skills capability across the organization; every employee needs to be digitally aware and able to use the requisite technologies in their work. The mindset to operate the new business model will likely be quite different from the old one, involving a shift from the production of goods to the additional provision of services. “This is something senior management must anticipate so they can design a process of change among the workforce,” says Schwarz.

Business model transformation is a major change for many organizations that needs to be approached in a very methodical way, based on business-value objectives. “Organizations have been seen leaping

straight to a technology-driven transformation, but they neglect the need to align employee objectives with the business aims of the new operating model. This approach results in enterprises not realizing the full benefit of these transformations and potentially creating unsatisfied employees, shareholders, and customers,” says Greg Corlis, Principal, Emerging Technologies, KPMG in the US.

He adds, “Many employees are unclear about the potential benefits of i4.0 technologies and of the ways in which they may make their jobs easier. As a result, they often fear that technology will replace them. They need to be shown the opportunities arising from the innovative technologies to learn new skills and take on new responsibilities.”

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Manufacturers will likely need to change their organizational structure to create a new business model. They should create a cross-functional team separate from the existing framework to design the new model and then develop a proof of concept before going enterprise-wide. They can then test what is known as a minimum viable product on a selection of customers, deploying it in a more agile way without disrupting the normal operations of the rest of the organization.

“Even large OEMs are taking a fresh approach to business model transformation by avoiding large, siloed systems and instead creating very lean, horizontally connected enterprise approaches,” says Ramachandran. “They can then deploy the new operating model using less expensive, open-source platforms.”

Under-funding and lack of executive leadership buy-in are two related barriers to success. An automotive manufacturer, for example, was looking to transform its factory operations, but internal stakeholders in the different plants were not in alignment and could not agree on a best path forward. This resulted in a fragmented transformation that did not achieve the company’s business objectives.

“It is essential that a large-scale transformation is championed at a senior level, so that siloes can be broken down and the operating units and back-office functions can all work in alignment to make transformation a success,” says Corlis.





# Shift to subscription model

**KPMG in the US helped a \$3 billion manufacturer identify the changes needed to transform its operating model and enable a transition to a subscription model for its equipment and service sales.**



## Challenge:

The client was seeking to transform from an equipment/hardware supplier to a solution/digital service supplier. The client realized that current capabilities and practices were not fit-for-purpose and launched an effort to assess gaps and opportunities in areas that included: bundling of services and pricing strategy, contract types and renewal processes, flexibility of contract and service terms, billing frequency, sales, and commissions calculations on subscription services.



## How KPMG in the US helped:

Conducted more than 10 discovery sessions in all the company's operating regions to assess the organization's readiness to adopt a subscription model for its business. Met with stakeholders representing various areas of the business, including Customer Service, Quote to Install, Install to Cash, and Subscription/Project Management. Performed a maturity and capability assessment based on 30 leading practices and benchmarks. Identified more than 30 gaps across 11 functional areas. Defined 29 initiatives and created a prioritized roadmap.



## Outcomes:

KPMG in the US helped the client's global service organization:

- Identify gaps across the broad operating model that the client needed to address to adopt a subscription business model.
- Develop a roadmap for implementation incorporating over 29 initiatives addressing functional, technology, and change management maturity building, capability improvement, and transformation needs.

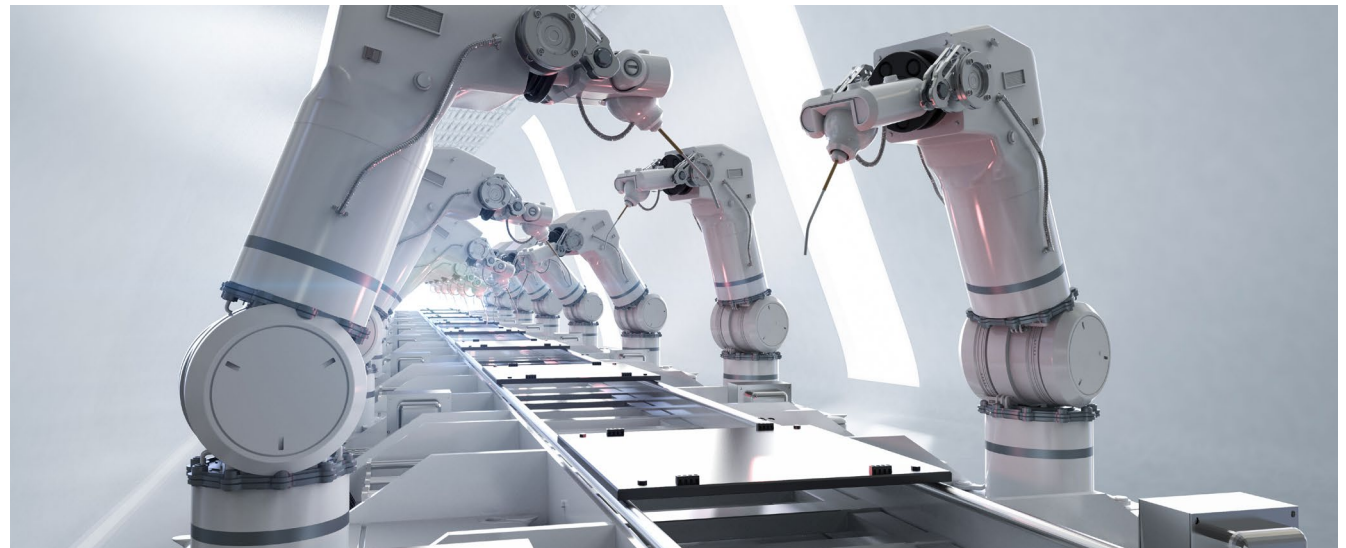


# Aligning technology to ecosystems

It is very important to consider afresh what technologies are needed when planning a change in business model, such as using low-code/no-code open-source platforms that are highly scalable and connected.

One way to align technology is to consider the role of the ecosystem in the business model, from the perspective of the consumer and the supplier, and then choose technologies that can enable and enhance these relationships. In the former case, the customer experience is the most critical aspect of seamlessly providing products and services through the manufacturer's entire business lifecycle. Now, OEMs are involving clients in the design of the customer experience and in providing feedback on the development of a minimum viable product. By this method, the manufacturer can make changes, prior to full production.

As for OEMs' suppliers and other types of business partner, innovations are occurring increasingly in collaboration with Tier-1, Tier-2, and even Tier-3 producers. This provides participating companies with an opportunity to share the cost and fill skills gaps. An OEM may devote only a handful of employees to creating a novel minimum viable product, but if they work with, say, eight ecosystem partners, they might be able to leverage 300 workers in all. "This is about as lean as it is possible to be," says Ramachandran. The sort of technologies needed for such collaboration include 5G private networks, edge computing, digital twins, as well as virtual reality and 3D printing.



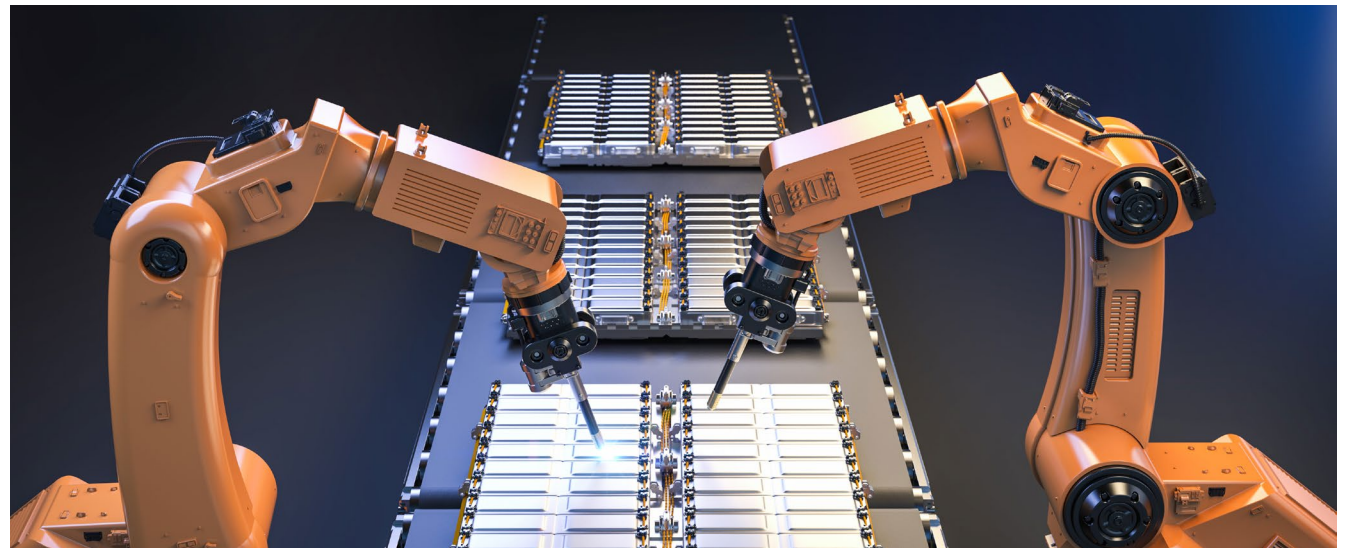


# Measuring the potential benefits

Business model transformation changes many parts of the organization. If done right, a large-scale transformation can have a significant impact on many facets, including cost optimization/reduction, increased inventory efficiency, and flow controls on the factory floor. It may lead to increased insights into what customers are demanding and improved overall employee satisfaction, including a safer work environment.

Based on improvements observed at client engagements, there are a wide range of potential benefits that can be measured, including:

- 1 Revenue derived from services, both in absolute terms and as a share of total revenue
- 2 Within services, the share of revenue derived from digital channels and from subscriptions
- 3 Operating costs
- 4 Different ways to monetize data (such as information about the car-driving experience)
- 5 The number of tasks that can be reduced as a result of transformation
- 6 Number of customers served per salesperson.





# Key takeaways

Business model transformation is hard for most organizations. Leadership often takes a top-down approach to drive these changes and does not consider the employees they are impacting as a result. By taking a more transparent and open approach leveraging employees' insights, the company can dramatically influence the impact of these changes and the value they bring to the organization.

Enterprises need to clearly define the business outcomes or value drivers they are seeking to achieve through this transformation. If they are clearly defined, it is easier than it would be otherwise to choose from a suite of technologies that can help the organization to achieve those outcomes.

Business and technology leadership need to work hand in hand to drive a successful transformation program.

If it becomes portrayed as an us-versus-them transition and the IT function is considered simply as a cost center, the transformation is more likely to fail. It needs to be a partnership between the business and the technologists in the organization and that each is seen as equal contributors to the result.

Collaboration is key to the success of these transformations, so do not forget to partner with customers and suppliers. Nobody has all the answers. Also, include the rank-and-file workforce in the design and implementation process, by seeking the input of a cross-section of employees. Their feedback is likely to produce insights that the leadership might miss, and it can help ensure the success of business model transformation across the entire enterprise.

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