

FEATURE

Digital industrial transformation

Reinventing to win in Industry 4.0

Maximilian Schroeck, Anne Kwan, Jon Kawamura, Cristina Stefanita, and Deepak Sharma

In a shifting market landscape with constant disruption, leveraging automation to optimize production is a challenge. Introducing a series of articles to help guide leaders through digital transformation in an Industry 4.0 age.

Introduction

ARE YOU PREPARED to succeed in the Fourth Industrial Revolution? Accelerating consumer adoption of new technology and technological advances—in broadband networking, cloud-based computing and storage, sensor technology, and more¹—are driving fundamental market shifts and a new wave of digital-driven disruption; value is migrating away from legacy products that are increasingly commoditized to the data that those products generate and the insights that data drives. In parallel, productivity has been plateauing in industrial production.² To effectively optimize production through automation, leaders must look to leverage technology in new ways.

As Internet of Things technology becomes ubiquitous, legacy B2B enterprises should rethink their products and services to thrive in an Industry 4.0 environment or risk being left behind by more nimble, digital-native competitors. This inflection point represents a real opportunity. Many leaders are aware of the need to adapt to the new paradigm of Industry 4.0 but unsure how to make it happen quickly. In a recent survey of 2,000 global C-suite leaders, the top three challenges for shifting

WHAT IS INDUSTRY 4.0?

The term Industry 4.0 encompasses a promise of a new industrial revolution, one that marries advanced manufacturing techniques with the Internet of Things to create manufacturing systems that are not only interconnected but communicate, analyze, and use information to drive further intelligent action back in the physical world.

strategy to meet the demands of Industry 4.0 were lack of vision, too many technology choices, and organizational or geographical silos.³

Over the coming months, in a series of articles, we will be walking through frameworks and approaches that can help you overcome these challenges. Through an effective digital industrial transformation, you can reinvent your business to win in Industry 4.0.

Industry 4.0 and the Industrial Internet of Things

First, let's talk about Industry 4.0, and the Industrial Internet of Things (IIoT) specifically, to set the stage for digital industrial transformation. As previous Deloitte publications have laid out, Industry 4.0 is transforming how organizations run by bringing real-time data and intelligence to operations.⁴ This paradigm shift is transferring value from the physical to the software and from the process or function to the data. For example, a smart thermostat costs dramatically more than a traditional thermostat—and demands far more setup—but offers real data-generated benefits to consumers, including reducing power consumption, improving comfort, and learning to anticipate owners' preferences. Consumers are proving to be willing to pay for data-driven insights, and increasingly, so are businesses.

The Industry 4.0 shift has given rise to numerous IoT-based applications in the industrial space (see figure 1). From inventory planning to predictive maintenance, the IIoT can dramatically enhance operational and capital efficiencies across entire ecosystems.

FIGURE 1

Select Industrial Internet of Things use cases for B2B industrial companies

Allowing sensor data to inform operations technology, such as manufacturing equipment, can unleash a myriad of industrial applications capable of reducing downtime and improving efficiency.

 Data-driven design Learnings from systems or machine operations are fed back into the design of these assets and the underlying components and subsystems. Demonstrated outcome: Cost- and time-optimized design and more predictable operations	 Data as a service On-demand access to relevant, real-time data streams in easy-to-use formats for aggregation and analysis. Demonstrated outcome: Enhanced understanding of customers and operation	 Real-time visibility Live monitoring of assets, production, and operations to proactively identify and resolve issues. Demonstrated outcome: Reduce downtime and improved productivity and output
 Predictive maintenance Real-time machine performance data is correlated with contextual datasets to determine optimal and individualized maintenance cycles. Demonstrated outcome: Substantial economic benefits in both operations and supply chain	 Inventory planning Demand sensing leverages real-time internal, business, and external data to enable more accurate inventory levels and replenishment planning. Demonstrated outcome: A more agile company, optimizing resources and leading to higher return on investment	

Source: Deloitte analysis.

What is digital industrial transformation?

To capitalize on this shift to Industry 4.0 and effectively create and monetize IIoT solutions, enterprises must embed new digital technologies and capabilities in their legacy assets. We refer to this as *digital industrial transformation*.

As with most fundamental shifts, this change is easier to execute in theory than in practice. Standing up a digital industrial operation involves fundamental shifts across all aspects of business. Specifically, to create value throughout the customer life cycle, an organization must reorient its business model from linear to always-on. For example, customer service in traditional business

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models begins once a customer reaches out with an issue for resolution; in digital industrial models, services teams may remotely track usage and performance, predicting when there might be an issue and proactively reaching out to the customer to resolve it, reducing downtime (see figure 2).

This demands a major shift in mindset as well as processes, and the challenge gets more complex when companies try to balance their legacy businesses with emerging offerings and newer business models.

This realization may be the reason why, in recent Deloitte global surveys, 94 percent of executives in industrial companies see digital transformation as a top strategic priority⁵—but only 14 percent are highly confident that their organizations are ready to fully harness the changes associated with IIoT/Industry 4.0.⁶

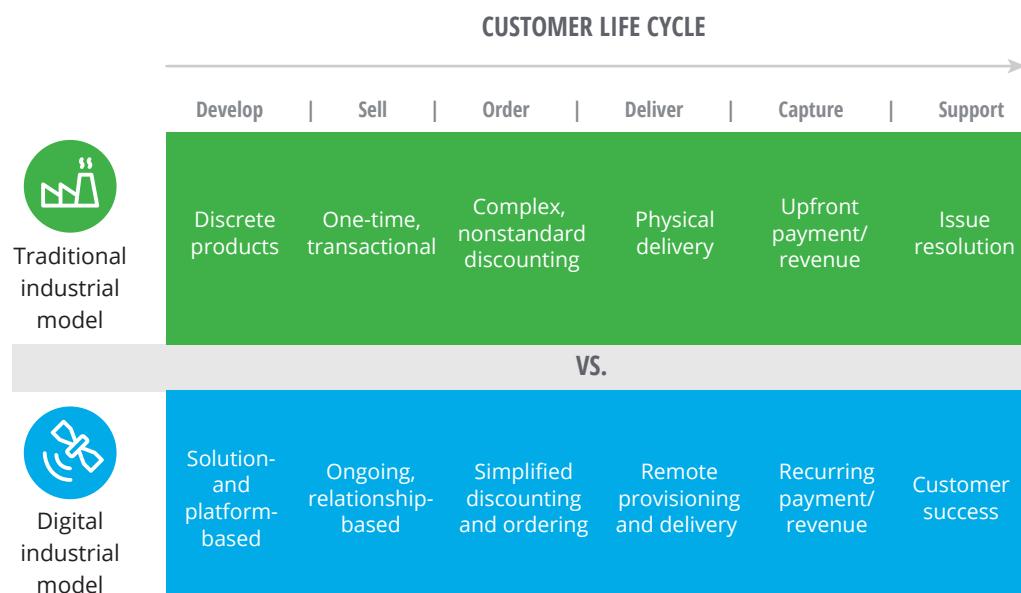
Embarking on the digital industrial transformation journey

Deloitte has collaborated with several high-tech and industrial companies to help drive their digital industrial transformation agendas. Most have focused on retooling their own operations, introducing advanced analytics into products. For example, one rail freight operator implemented IoT telematics solutions to develop an in-vehicle monitoring system, spanning more than 1,500 vehicles scattered across 30 locations. From analyzing the data gathered through this monitoring system, the company was able to realize over 10 percent reduction in fleet costs through fuel economy, idling reduction, and improved purchase habits. Furthermore, its safety incidents and breaches fell by over 90 percent.⁷

FIGURE 2

Traditional versus digital industrial business models

Traditional industrial business models are designed to sell one-off hardware products—whether a server, a piece of manufacturing equipment, or a train—while digital industrial business models have been retooled to sell hardware as a service.



Source: Deloitte analysis.

However, some industrial manufacturing leaders see bigger market opportunities and have taken more ambitious perspectives, looking to pivot their business model to help others adapt to Industry 4.0 and expand their own product portfolio to offer IIoT solutions. For example, Hitachi Vantara embarked on a multiyear transformation from a hardware-focused business to an as-a-service business, enabling enterprises to embed IIoT in their existing operations.⁸

Whether retooling internal operations or transforming your business to play in the IIoT market, effective shifts to digital industrial business models

should be grounded in five guiding questions (see figure 3).⁹

Together, the answers to these questions help guide the direction of the transformation and align leaders to a shared vision for the future. All are needed to bring digital industrial transformation to fruition.

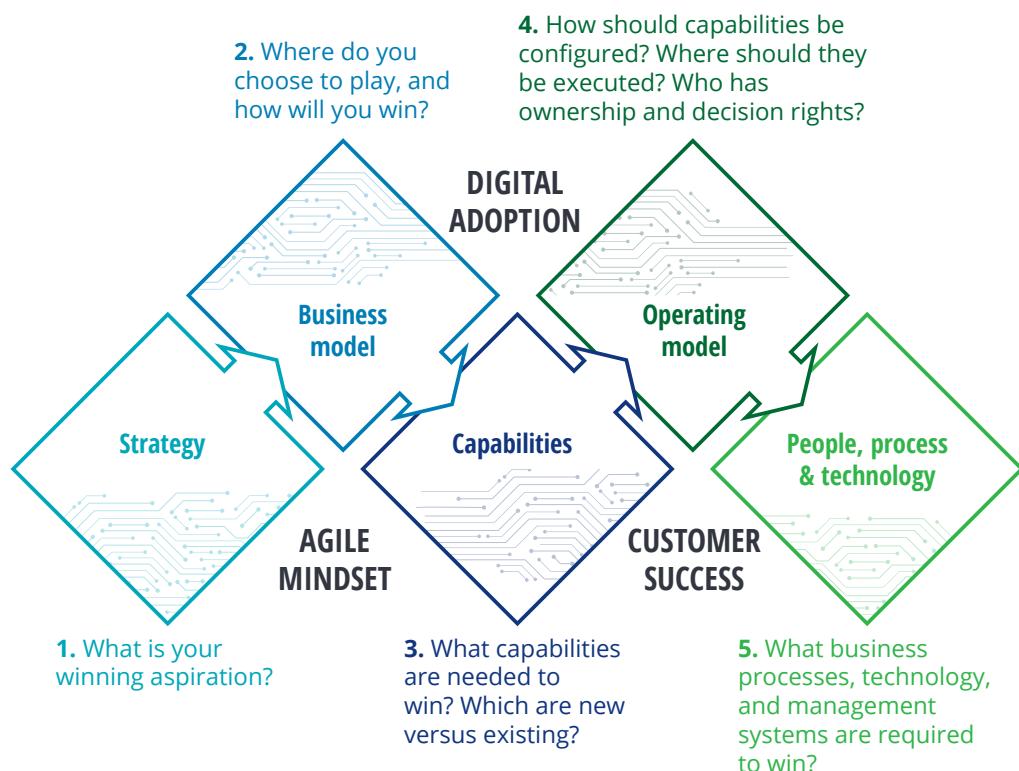
DIGITAL INDUSTRIAL TRANSFORMATION IN ACTION: HITACHI VANTARA

In early 2017, Hitachi Vantara—then known as Hitachi Data Systems, a US\$4 billion, California-based subsidiary of Hitachi Ltd.—saw startups

FIGURE 3

Digital industrial transformation framework

Digital industrial transformation begins with strategy, which is carried through to redesigning talent models, transforming processes, and retooling technology. Leaders screen each decision to confirm that it will contribute to agility, promote digital adoption, and deliver value to customers.



Sources: Deloitte analysis.

beginning to overwhelm traditional data storage market leaders. These software-oriented companies were finding new ways to gather, analyze, and apply customer and operations data—data that Hitachi Vantara had helped its clients manage and protect for decades. Hitachi executives concluded it was time to act.

Combining the data center infrastructure of Hitachi Data Systems, the data software expertise of Hitachi Insight Group, and analytics from its Pentaho division, Hitachi Vantara made its official debut in September 2017. Leaders defined a clear **strategy and business model**, aiming to help customers collect and manage information—and then turn that data into meaningful insights, using a combination of operational and information technology expertise. Within these guardrails, leaders then embarked on rethinking the enterprise **operating model**, focused on redefining the **capabilities** that sales, services, and product needed in order to transition from a hardware-oriented business to a software and services-focused model. In parallel, they began to reimagine what

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— *Brian Householder,
CEO, Hitachi Vantara*

was key to differentiation and realized that technical prowess was not enough to win in Industry 4.0.

Ultimately, they shifted emphasis from standalone products to customer experience, customer success, and vertical-specific solutions. Hitachi Vantara also retooled underlying business **processes**—ranging from pricing and billing to demand planning and product development—in order to enable the new model and fuel the transformation. Last, leaders implemented a robust set of metrics with a



rigorous approach to monitoring the success of the transformation.¹⁰

“Data is potentially a company’s biggest asset—if it can monetize it,” says Brian Householder, CEO of Hitachi Vantara. “Data holds the key to new revenue streams, better customer experiences, improved market insights, and lower costs of doing business. This new corporate structure and offering combine operational technology and information technology expertise to get at data’s true potential.”¹¹ Within this new paradigm, Hitachi Vantara has already begun to see results, with its IoT solutions helping to increase one global manufacturer’s yield by over 90 percent.¹²

What’s coming next

Whether piloting IIoT in your own business or reinventing your entire business to help others adapt to Industry 4.0, it is critical to start with a clear strategy, set up the organization for success,

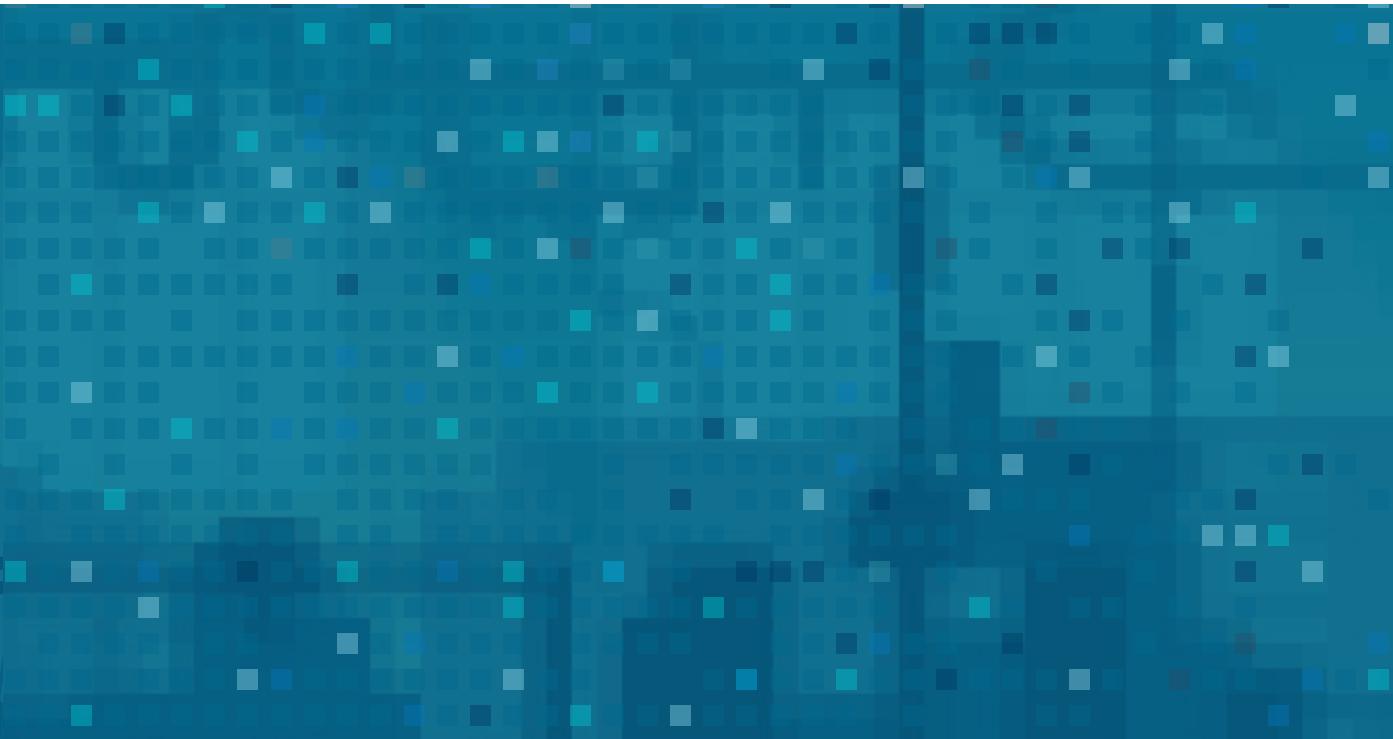
and continuously monitor results to determine how best to correct course. Over the coming months, our series will touch on the most important aspects of a digital industrial transformation, including:

Strategy. How do you create a vision for the future while balancing the needs of the legacy business?

Operating model. How should you rethink an enterprise’s operations to succeed in Industry 4.0?

Product. How can you accelerate new product development in emerging areas of technology?

Standing up digital capabilities without a corresponding realignment of strategy and operations may well lead to organizational confusion and lackluster results; executing both will help determine the winners in Industry 4.0.



Endnotes

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10. Baar, "Hitachi Vantara transforms for a data-driven future."
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About the authors

Maximilian Schroeck | mschroeck@deloitte.com

Maximilian Schroeck is a principal in the Technology, Media & Telecommunications practice of Deloitte Consulting LLP. He has more than 25 years of experience leading organizations in private equity, corporate development, and new business development. Focused on the high-technology sector, Schroeck advises clients on growth, portfolio optimization, and transformational strategies. He is based in San Jose, California. Connect with Schroeck on LinkedIn at www.linkedin.com/in/maximilian-schroeck-0891571/.

Anne Kwan | annkwan@deloitte.com

Anne Kwan is a leader in Deloitte's Technology, Media & Telecommunications practice. She advises clients, evolving their growth strategies with new flexible consumption-as-a-service business models. Her recent engagements include the design and launch of new Internet of Things businesses. Kwan has more than 18 years of technology industry and management consulting experience. She is based in San Francisco. Connect with Kwan on LinkedIn at www.linkedin.com/in/annekwan/.

Jon Kawamura | jkawamura@deloitte.com

Jon Kawamura is a managing director in Deloitte's Technology Strategy and Architecture practice. He has more than 20 years of experience leading IT and operational projects across multiple industries with a recent focus on serving high-tech clients. Kawamura is based in San Francisco. Connect with him on LinkedIn at www.linkedin.com/in/jonkawamura/.

Cristina Stefanita | cstefanita@deloitte.com

Cristina Stefanita is a senior manager in Monitor Deloitte's Technology, Media & Telecommunications practice with more than a dozen years of experience in go-to-market strategy and operations, specializing in advising technology and telecom clients. She is based in San Francisco. Connect with Stefanita on LinkedIn at www.linkedin.com/in/cristinastefanita/.

Deepak Sharma | deepaksharma8@deloitte.com

Deepak Sharma is a senior manager in Monitor Deloitte's Technology, Media & Telecommunications practice with more than 16 years of experience in customer transformations, focusing on advising clients as their business model shifts to as-a-service and the associated customer engagement models needed for them. He is based in San Francisco. Connect with Sharma on LinkedIn at www.linkedin.com/in/deepaksharma/.

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Industry leadership

Maximilian Schroeck

Principal | Deloitte Consulting LLP

+1 408 704 4158 | mschroeck@deloitte.com

Maximilian Schroeck is a principal in the Technology, Media & Telecommunications practice of Deloitte Consulting LLP. He has more than 25 years of experience leading organizations in private equity, corporate development, and new business development.

Anne Kwan

Managing director | Deloitte Consulting LLP

+1 415 783 6379 | annkwan@deloitte.com

Anne Kwan is a leader in Deloitte's Technology, Media & Telecommunications practice. She advises clients on evolving their growth strategies with new flexible consumption-as-a-service business models.

Jon Kawamura

Managing director | Deloitte Consulting LLP

+1 415 419 4735 | jkawamura@deloitte.com

Jon Kawamura is a managing director in Deloitte's Technology Strategy and Architecture practice, with more than 20 years of experience leading IT and operational projects across multiple industries.

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