Digitalization in industrial products
Harnessing the power of digital
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Technological innovation is rewriting every industry and the way in which human beings manage their lives. In this world, the ever-increasing acceleration of change is one of the few constants.

Digital is effectively disrupting existing business models, products and services enabled by data and technology across the enterprise. The industrial setting is no exception. We see how new technologies are enabling our clients to do things in new exciting ways:

- Internet-enabled sensors collect data around the clock and provide real-time tracking of production.
- Automotive manufacturers use advanced analytics to calibrate driverless cars for self-navigation.
- Machine learning enables predictive maintenance and condition monitoring.
- Automated delivery of parts and subassemblies optimizes production processes.
- Cybersecurity becomes an integral part of all business in order to protect data and gain the trust of customers.

EY clients need help with their digital transformation journey and EY has a strong suite of capabilities to confirm that they are successful. Having a solid understanding of the key issues, trends and opportunities that digital is creating, combined with a holistic approach, gives us unique possibilities to help our clients.

In this spirit, EY invites you to read this report and consider how digital might also be impacting your business, your partners and your customers – opening up new opportunities to achieve adaptation, growth and success in the near and longer-term future.

Sincerely,

Magnus Kuchler  
EY Industrial Products Leader, Nordics

Sven Thurban Cederlöf  
Digital Leader Industrial Products, Nordics

Denmark  Finland  Norway  Sweden
US$3.7 trillion
Potential value that can be realized through digital in factory settings by 2025

US$300 billion
Expected incremental revenue derived from digital by 2020

50 billion
Devices to be connected through the internet by 2020

US$500 billion
Annual global spending on digital by 2020

Source: McKinsey Global Institute, The Internet of Things: Mapping value beyond the hype, June 2015
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Introduction

Data and technology are transforming every aspect of our lives, disrupting the status quo and creating exciting new ways of doing things. The disruption of the industrial products sector is no exception; companies in the field are focusing on how best to leverage digital to derive value and unlock opportunities for further growth and optimization.

We are currently part of a constantly evolving and innovative context that persistently gives us new products and services. As products become increasingly smarter and flexible, new applications emerge based on digitalization. Within the industrial context, an industrial internet, or Industry 4.0, is emerging - the fourth wave of the industrial revolution. In this new phase of development, autonomous factories are becoming reality that effectively reduces economies of scale and enables production of individualized products at a lower cost and with reduced lead times. Products turning “smart” – with the help of sensors collecting data continually, coupled with connectivity – lays the foundation for the changes in the industry.

As technology advances, barriers to entry and commercialization will be eroded. The digital development within business-to-consumer (B2C) is the cause and the changes under way within the business-to-business (B2B) market are the effect that, together, will undoubtedly result in major repercussions across all associated supply chains. Recent data from Forrester\(^1\) suggests that, over the past six-plus months, there has been a distinct uptick in digital investments in industries like industrial products, manufacturing and logistics. Behind this is the need to adopt a more customer-centered strategy to keep up with changes in B2C client expectations.

To deal with this challenge, companies in the sector must develop an exhaustive response. They need to devise a comprehensive digital strategy and rethink their business and operating models to deliver this. Such a strategy must go far beyond mere marketing: it has to be about omnipresent cross-channel connectivity, and it must enable continual engagement with customers, suppliers, employees and investors. It must also incorporate C-level leadership and, most critically, innovation and differentiation through the business and operating models.

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The digitalization within the industrial products sector means that companies are digitalizing their horizontal and vertical value chains. The vertical value chain includes its own operations where the company’s various functions for marketing, sales, product development, purchasing, manufacturing and distribution are linked and integrated via a digital information flow. The horizontal value chain encompasses the external ecosystem and involves suppliers and customers.

Corporations are effectively linking their own organization with that of their customers and partners. However, digitalization also enables new product offers and innovative digital business models where data and information are being commoditized without any direct connection to machines or physical products.

The common denominator for success within the sector is the connection between machines and sensors, interlinking the different actors in the value chain, as well as the ability to analyze large amounts of information so as to make decisions based on quantitative data.

The ability to store, share and analyze vast amounts of data is becoming integral to new disruptive business models. As new cross-industry partnerships emerge, the digital development will affect existing business models.
Furthermore, all companies in the industrial products sector need to understand not only how digitalization is setting new demands on products and services, but also how it is changing the way we communicate with customers. Consequently, industry leaders are redefining their business models, designing new products, services or experiences that deliver the right solution, creating value for the customers and leveraging sales. The digitalization of all industries creates new opportunities and challenges, and the industrial products sector is no exception.

1. **New disruptive business models**
   - Moving from stand-alone product sales to bundling of products and services and consequently increasing perceived end-client values significantly
   - New business models that center around customer experience and address the changing demand of customers
   - Higher demand on operational efficiency through the use of data and predictive analysis

**Mitigating strategies**
- Consider new business models where products are turned into product-service hybrids
- Address real-time and emergent customer needs in a predictive manner by fine-tuning the way value is created and captured
- Develop an ecosystem around products and services jointly with partners and use data for data mining and predictive modeling

2. **Workforce lacks vital skills**
   - Retiring workforce creates a talent gap in manufacturing.
   - Manufacturers struggle to recruit workers with the right mix of technical and problem-solving skills.
   - While employers are in a great need of skilled talent, the next generation sees more attractive career development opportunities in other industries.

**Mitigating strategies**
- Training and apprenticeships can strengthen workforce skills.
- New roles, incentives, benefits and career paths must be created to recruit and retain next generation workforce.
- Employers must adopt workplace flexibility and build global teams.

3. **Competition and global operations bring data management challenges**
   - Vast amounts of data can be generated – and gathered – through the implementation of industrial internet of things (IIoT) systems. If manufacturers do not have adequate experience or resources to analyze this data, they may fall behind competitors who move more quickly.
   - Data gathered and stored through IIoT systems must be maintained in compliance with privacy laws. These laws change frequently with the emergence of new risks.

**Mitigating strategies**
- When there are conflicts in regulation between countries, manufacturers with global operations can face compliance challenges as data moves from one jurisdiction to another.

4. **Predictive maintenance (PM) can reduce service opportunities**
   - PM can create a decline in hardware and service sales because of:
     - Fewer equipment replacements
     - Reduced sales of spare parts
   - Manufacturers who provide regular services under a long-term agreement contract, or provide interval-driven services, are exposed to higher risks as customers using PM can preempt breakdowns and buy services only when needed.

**Mitigating strategies**
- Scope-of-service offerings can be broadened by bundling different products and services (e.g., sensors, measuring devices and associated electrical equipment).
- Bundling of software offerings can differentiate players from competitors who are more focused on products.

5. **Cyber attacks leave systems vulnerable**
   - Sensors and equipment, such as industrial control systems used by manufacturers to implement IIoT, are vulnerable to cyber attacks.
   - Since machines and industrial systems rarely go offline for security updates, risk of cyber attacks is high.

**Mitigating strategies**
- Cyber threat intelligence strategies are needed to protect equipment and customers.
- Manufacturers traditionally focused on hardware will need to develop competency in cybersecurity, either organically or through mergers and acquisitions.
Our take on digital

EY has established five distinct digital offerings reflecting the holistic set of challenges that digital creates for clients within the industrial products sector.

At EY, we combine our deep commercial experience with digital insight that comes from 50 years of working with pioneering digital disruptors, as well as helping the world’s leading companies navigate the digital landscape.

We have been on our own journey through that landscape, successfully building digital capability into every facet of our business. So we know how to work with our clients to explore new possibilities, innovate to create their vision, use analytics to make informed decisions and deliver value while managing risk.

But our competence doesn't stop there. In order to guide you through technological, legal, regulatory and tax ramifications related to digital, we offer an extensive set of services aimed at helping you to execute transformation and providing you with the essential cybersecurity knowledge to protect your organization. So that you achieve the necessary business agility, we address these challenges on three levels.

EY has five distinct digital offerings reflecting the holistic set of challenges that digital creates for our clients

<table>
<thead>
<tr>
<th>Digital confidence</th>
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<tr>
<td>Grow, optimize and protect digital</td>
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<td>Digital enterprise strategy</td>
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<tr>
<td>We can help clients design and deliver a new and expanded strategy, business model and operating model that is fit for purpose in a digital world, along with a clear road map and benefits case.</td>
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<td>Digital incubation and innovation</td>
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<td>We can help clients establish an innovation portfolio approach to activate and manage innovation, driving their business model, processes, products, services and experience innovation.</td>
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<td>Digital risk, cyber, governance and audit confidence</td>
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<tr>
<td>We help clients take stock of their existing digital spend and assets, identify risks and design and deliver an operating model for digital to comply with regulation and build trust.</td>
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Digital capital agenda
Create: we create a digital strategy, define the concept and design the products, services or experiences that deliver the right approaches and capture economic value.

Incubate: we incubate recommended approaches through prototyping, i.e., test and validate initiatives and “de-risked” investments through small-scale experimentation. We also evaluate teaming opportunities.

Activate: we activate recommended approaches on a commercial scale to help you capture economic value for your business, while continually monitoring progress and adapting to improve value.
What differentiates EY from the competition?

Like our other services and capabilities, our digital positioning also differs from that of our competitors.

- **Business-first, issue-based, sector-focused approach**
  We offer you a business-first approach that brings together our vast industry knowledge and experience as well as wide-ranging skills across different competence areas, using digital as the lens through which we address your most pressing issues.

- **Holistic approach**
  Our comprehensive approach to digital extends well beyond innovation, strategy and technology to include digital risk, cybersecurity and tax, legal accounting and transactions considerations. Our competitors’ digital insight often fails to cover many of these aspects.

- **Data-driven insights**
  Thanks to our data-driven insights and global experience, we can help you use digital to deliver true business transformation.

- **Recognized leadership**
  As globally recognized leaders in risk management and information security, we have a fundamental understanding of the intersection of business, risk and digital.

- **Technology-agnostic**
  Because we are technology-agnostic, we are able to tackle your real-world issues with services that are business-driven and digitally enabled. We know how business works and how to deliver a pragmatic approach from concept to implementation. We are independent, and can thus provide the right recommendation, regardless of vendor or platform. This means our consultants are deeply experienced in the latest tools and techniques, and have the freedom to make use of the best technology.

Why choose EY?

- We represent 80% of publicly-traded, Silicon Valley-based companies.
- Rather than taking a siloed approach to digital, our digital professionals work across our competence areas and within all industries.
- We crowdsourced subject matter resources. This means that our practitioners in the field can bring the skills and experience of other subject matter resources in the cloud, and thereby harness the minds of many to help you achieve your goals.
- We crowdsourced approaches by connecting large organizations with start-ups to accelerate innovation and achieve growth objectives.
- For faster innovation, we offer an incubator spin cycle that allows creation and adaptation to happen simultaneously with experience modeling and incubating. Through the process, we capture the failures and successes from each pilot to test, refine and continually improve your next new thing.
- We are a leader in digital security, with state-of-the-art facilities and leading-class security professionals with the skills and knowledge to identify and manage the complex risks digital technologies create.
- We continue to make strategic acquisitions that strengthen our core offerings. In this way, we are always equipped to help our clients to realize the full potential of their digital journey and make a successful digital delivery.
- We foster a network of innovation through our Strategic Growth Markets Global Center for Entrepreneurship and Innovation. At the center, we host various events, programs and innovations roundtables and share real-world insights through our TrepTalk guest speaker series.
EY approach adapted to your situation

We can help our clients design and deliver a new strategy, business model and operating model, fit for purpose in a digital world, along with a clear road map and benefits case.

The digitalization of the industrial products sector creates new opportunities for decreased costs and new revenue streams. Opportunities will not only manifest themselves as new products – they also apply to existing products. Warehousing and products will be affected as more data is captured, bringing the production closer to the customer.

In the digital era, business models need to be more collaborative, agile and customer-centric in order to derive value from digital. As value chains become more fragmented, the role of product designers, physical product suppliers and interfaces with the customer will change. This, in turn, will lower entry barriers for new players, leading to increased competition, even in niche products. Interdisciplinary collaboration (customer, supplier and partners) will be crucial for increasing innovation while reducing time to market.

As digital technologies such as radio frequency identification (RFID), 3D printing and autonomous networks become an integral part of production processes, companies must adjust their pricing strategies, sales processes and distribution models. Selling products and services requires a new set of skills, increasing the pressure on organizational structure and the management of operations.

We can help clients to address these challenges in order to grow, optimize and protect their businesses. We work successfully with industry leaders in their digital journey – together, we deliver better outcomes and long-lasting results, from strategy to execution.

Key questions to assess your enterprise strategy in the digital era:

- In this digital world, is your business strategy relevant for social business and smart, connected enterprise?
- Are you tapping into additional revenue streams that are now possible through proliferation of digital technologies?
- If you are not actively investing in digital, what portion of your business is at risk?
- In this digital world, how do you satisfy your unimagined customer?
- Should you back up your cloud?

We can help you:

- Develop a digital vision and road map to achieve business objectives
- Build a digital ecosystem
- Identify and capitalize on digital opportunities and mitigate threats
- Build consensus among key stakeholders on digital vision
- Design an operating model fit for purpose in a digital world
# Digital visioning for the world's largest two-wheeler manufacturer

**The challenge:**

The client wanted to carve out a best-in-class digital vision: to be a digital leader across the company’s initiatives by fulfilling its customers’ needs and aspirations for mobility, setting benchmarks in technology, providing an engaging environment for its people so that the staff can fulfill their true potential, focusing on value creation and sustaining a relationship with its partners.

The company had multiple digital assets but lacked uniformity, adoption and a bigger picture. Moreover, the client’s previous digital engagement was not defined, integrated or measurable enough to provide a differentiated user experience.

**What we did:**

- Studied the key two-wheeler customer profile in both the national and international marketplace, as well as their adoption and usage of digital technologies
- Studied two competing national and two international brands to identify how they are leveraging digital technologies
- Carved out a digital heat map across the customer life cycle and identified in detail the areas with opportunities for automotive manufacturers in the digital space
- Assessed the client’s digital maturity across the customer life cycle
- Introduced cross-industry digital best practices and established their relevance for the automotive sector

**Result:**

- Identified best-in-class digital experiences across industries and their relevance to the automotive sector
- Identified digital maturity of the sector and the maturity of the client’s own digital assets and engagements
- Generated a forward-looking vision for the client to deploy in order to create a valued relationship with their technologically intelligent prospects and customer base
- Identified the enablers for delivering a well-rounded ecosystem (including dealerships) to implement the digital vision

# Digital presence strategy for a diversified manufacturer

**The challenge:**

The client had a diversified set of traditional manufacturing businesses that spanned corporate, trade and consumer interests, so they faced a true digital challenge. The client lacked a digital culture and direct e-commerce to measure success, and had a large number of different web and mobile properties with very different brands and designs but virtually no measurement infrastructure.

We were asked to create a customer-focused, data-driven digital presence and a virtuous cycle of continual improvement for the client.

**What we did:**

We created a comprehensive analytics program that drove intelligent design decisions across all major properties:

- Implemented analytics and tag management across 40 to 50 separate domains
- Created a sophisticated success framework based on the integration of behavioral (analytics) data and before-after voice-of-the-customer (VoC) data to measure the true incremental lift of digital experiences
- Rigorously measured actual dollar values and key behaviors indicative of online success
- Drove digital marketing optimization via actual measured performance of lift
- Created a disciplined cycle of site analysis, testing recommendations and creative implementation

**Result:**

- Improved key use cases by as much as 50% over a two-year period
- Created universal agreement on the actual value of key web activities, resulting in substantial changes in brand and digital focus
- Realized US$10m in revenue based on site changes, along with a 65%–75% increase in successful event engagement
Digital incubation and innovation

EY approach adapted to your situation
We help clients establish an innovation portfolio approach to activate and manage innovation, driving their business model, processes, products, services and experience innovation.

In the last decade, the industrial products sector has undergone revolutionary changes in the way companies operate on all levels. New digitally enabled business models have made some industries obsolete and turned many more completely upside down, yet have at the same time allowed for entirely new ones to emerge. New ways are being discovered to provide customers and users with more utility at a lower cost, which challenges and improves established value propositions. Altogether, companies are able to improve their bottom line by increasing efficiency through digital innovations.

With ever-increasing technological development, the demand for shorter innovation cycles becomes a reality. As devices such as sensors and processing and communication chipsets become cheaper, more and more products are becoming connected. This enables new ways of interconnecting data in production environments, and makes way for new innovations and start-ups within the industry.

Companies in the industrial products sector are starting to build ecosystems where both customers and partners play an integral part in the development of new products and services. Industry leaders are teaming up with software partners to extend their services and their ability to innovate. Given the amount of data being collected through smart devices and sensors, an abundance of data can be shared within the ecosystem, all increasing the bottom line.

While a single idea in the hands of the right person can be extremely powerful, it takes a special set of skills to harness the innovative potential of a whole company and its ecosystem and to create new digitally enabled opportunities continually. This is the case, especially in traditional industries such as manufacturing, where companies tend to draw their competitive advantage from sources other than innovations. In order to facilitate and strive for excellence within innovation, we have set up a market-leading research and innovation lab in London that provides insight into how we can optimize the processes of our clients.

Key questions to assess your incubation and innovation capability in the digital era:

• How can you turn your analogue corporation into a digital incubator?
• How can you give old assets a new life by making them useful in a digital world?
• What is the better path to success: digital incubation or to go about it alone?
• Are you meeting your customers in their digital world, or waiting for them within four walls?
• How many ideas make it across the chasm?
• How can digital incubation hatch your next innovation?
• Are you creating your future, or reacting to your competitors?

We can help you:

• Establish an innovation portfolio approach
• Activate and manage innovation
• Gain agility in innovation processes
• Help build product, service, experience and business model innovation
**Helping a government and public sector (GPS) body develop a framework that enables member states to help entrepreneurs build companies designed for a digital world**

**The challenge:**
A GPS body was concerned about the impact digital technologies and disruptions may have across its member states. In particular, the client was worried about the impact digital would have on employment opportunities within small and medium-sized enterprises that employ the majority of people across the European Union.

**What we did:**
For the past two years, we have been working with the GPS body on a research program to define a policy framework that can be consistently implemented across the states to encourage:

- Digital entrepreneurship and innovation so that all start-ups, not just technology start-ups, can think in a more digital way, thereby creating both new business and employment
- The right conditions to drive digital transformation of small and medium-sized companies

To achieve this, we brought together skilled practitioners from across our global organization — from digital, innovation and technology to entrepreneurship and industry resources that focus on policy-making.

Working closely with the body, our team researched the major technology themes occurring in the market, such as mobile, cloud computing and social media trends. This included hosting focus groups and workshops with entrepreneurs and small businesses alongside industry influencers.

The team reviewed all aspects of entrepreneurship, including finance, access to skills and education, and government policy, such as tax incentives.

**Recommendation:**
innovation, digital enterprise strategy, digital technology

**Result:**
With our help, the GPS body was able to create a digital entrepreneurship monitor, which entails a conceptual model that identifies areas where policy-makers can provide support for member states in developing enterprises built for a digital world.

The project helped the body to address the impact of digital transformation on employment across member states and to minimize the impact of digital disruption on enterprises that were most vulnerable, including start-ups and small and medium-sized businesses.

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**Helping a global medical device manufacturer halt the spread of health care-related infections**

**The challenge:**
A global medical device manufacturer wanted to increase the strategic focus, clinical relevance and overall economic value of its innovation investments and portfolio of approaches to help hospitals reduce health care-associated infections (HAIs).

**What we did:**
• Inventoried existing HAI-related products and services, as well as the innovation pipeline, to quantify the infection prevention portfolio's value and gaps to reaching its target five-year sales forecast
• Estimated global HAI-related product market size, growth and attractiveness by country and region
• Defined innovation strategy and identified partnerships or acquisition candidates that could close clinically relevant portfolio gaps
• Designed innovation governance and prioritization criteria to manage the company’s innovation portfolio
• Aligned sales force messaging, tools and training around clinical challenges and the need for “horizontal,” integrated end-to-end solutions to deliver clinical outcomes
• Developed a multi-year global advocacy strategy and marketing campaign to increase awareness of preventable patient harm in hospitals and other care settings

**Result:**
• The client was able to increase the revenue potential of the overall innovation pipeline by more than 300%, and improve the economic value of their innovation portfolio by more than 100%.
• The organization’s new innovation portfolio strategy helped the client to support the design and launch of award-winning, performance-based surgical scrubs that created a new product category and disrupted the industry.
• The strategy also allowed the organization to identify targets that resulted in the acquisition of a US$500m surgical skin preparation business.

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**Client cases**
EY approach adapted to your situation

We run large digital enablement programs for our clients, combining purpose, experiences, capabilities and people to provide them with an iterative and ongoing approach to transformation.

Given the rapid development and adoption of digital in consumer products, customers increasingly require faster decision cycles and mass customization. B2B customers have substantially shifted their research and transaction activities online — and onto their mobile devices. As a result, B2B companies have been forced to rethink critical customer engagement strategies and core investments in commerce infrastructure. This, in turn, forces manufacturers to come up with modular designs that can easily be customized to suit the needs of the customer, effectively changing the design and manufacturing process.

With digitalization, putting the customer at the center means putting them at the heart of what companies do. This is the biggest shift in the B2B market, which will require a step toward an “outside-in” mindset, rather than the opposite. B2B companies will likely make the same journey as B2C leaders, and use customer metrics and journey mapping tools to drive the change.

We continually bring businesses within the industrial products sector closer to their customers. Transforming businesses into highly collaborative and customer-driven organizations is a prerequisite for success in the age of the customer and succeeding in times of digital disruption.

Key questions to assess your customer enablement capability in the digital era:

• Will we change our ways of acquiring items — what happens if there are no more shops?
• What is the next evolution of big data — could it be big judgment?
• Digital changes the way we learn things: can a pupil take class outside the classroom?
• As different new platforms move the boundaries of how people handle their business, is selling the new buying?
• If we want sustainable growth, how can we get there and how can we, at the same time, accelerate growth?
• If health care is moving from treatment to prevention, how will drugmakers stay relevant?

We can help you:

• Develop a vision for future omni-channel experience, putting the consumer at the heart of the design
• Gain a clearer vision and strategy to focus digital technology investments on the aspects that will create the biggest benefits
• Define a proposition for, for example, a mobile app, including identifying the key message for the customer, the target market and the reasons why customer profiles would benefit from using the app
• Help support the business analysis and solution design team in defining processes to facilitate a new agile delivery model
• Identify the innate ability of each channel, leverage their abilities independently and across channels, and thereby boost collaboration in order to generate improved benefits
• Differentiate segments and create digital initiatives for each segment
Cloud vendor evaluation and selection for a global automotive company

**The challenge:**
The client needed assistance in enabling their business units to use cloud services more efficiently and cost-effectively while managing risks associated with migrating to the cloud. This included implementing the company's vision for establishing its virtual global data center capability to lower costs, time-to-market and environmental impact, and using cloud-based backup and disaster recovery (DR) services to minimize business disruptions and risks associated with not having adequate DR capabilities currently in place.

**What we did:**
- Conducted cloud service provider (CSP) evaluation and procurement of an infrastructure-as-a-service (IaaS) solution through a request for proposal process, gained an understanding of platform-as-a-service (PaaS) and managed services capabilities of these vendors
- Performed selection of a CSP to host enterprise-critical corporate applications based on 350+ requirements tailored for the client’s environment
- Identified and recommended one primary and one secondary CSP, based on cloud-specific considerations
- Developed a detailed decision analysis and price comparison framework to facilitate analytically driven, objective decision-making

**Result:**
- Helped the business to achieve flexibility in leveraging an economically more feasible CSP, with niche providers employed where necessary
- Chose a new CSP that supported managed services, co-location and hosting to give the client a smoother transition to the cloud environment
- Helped business units to begin using a CSP quickly and efficiently with clear guidance on security, risk, cost and service levels

Voice-of-the-customer (VoC) program for a Fortune 500 technology manufacturer

**The challenge:**
The client had a series of public relations problems, including C-level transition, failed product launches and seismic reorganization. Additionally, the marketplace was undergoing massive disruption from digital technologies. The client wanted a more responsive VoC program to have a better understanding of the impact of company and market issues and to re-engineer their business.

**What we did:**
- Created short-term brand research study deployed in the web-based survey tool Vovici in less than 10 days
- Analyzed initial brand impact
- Segmented impacts and identified key groups at risk
- Deployed phase II surveys focused on the impact of new technology disruption on their core product line
- Integrated the data with behavioral information gathered with the web analytics solution SiteCatalyst
- Developed new product marketing strategies focused on key decision groups
- Deployed phase III surveys focused on competitive research
- Recognized significant segmentation in product marketing opportunities by linking self-identification
- Identified competitive set and actual site behavior

**Result:**
- Influenced strategic direction of the client company in terms of business unit spin-offs
- Significantly changed the company’s marketing strategies around key demographics and segments
**EY approach adapted to your situation**

We create, incubate and activate new ways of manufacturing and distributing products and services, as well as new ways of running back- and middle-office operations, enabled by new disruptive technologies.

In the era of digital realization, we have access to all relevant information in real time through networking among all instances involved in value creation. Increased digitalization is impacting the supply chain, and introducing new opportunities and threats to any organization.

One of the main challenges involves turning industrial products into digital products and services, which can be delivered through an effective digital fulfilment network. Other obstacles include managing the mix of in-house and third-party providers, as well as defining how your digital asset supply chain differs from traditional supply chains. Another hurdle to overcome is the absence of norms and standards that apply in cross-company networking and integration, along with the lack of technology acceptance and inefficient IT security.

On the other hand, advantages of a digitalized industry include flexible manufacturing, which allows for dynamic design of business processes in various dimensions for industrial products, such as time, risk and cost. The interaction between humans and technical systems creates new opportunities for companies to take advantage of the demographic change in the context of job creation and skills development. Furthermore, optimized decision-making through constant transparency in real time makes the production more flexible in reacting and responding to disturbances, and provides an early indication of design decisions in the engineering.

Conscious of these challenges and opportunities, we can help clients manage and optimize the life cycle of digital assets, e.g., content marketing and digital media, designing an omni-channel strategy, digital inventory management and network design. We design and help implement new manufacturing setups and incubate new ways of distributing products and services, adapted to the new digital world.

**Key questions to assess your supply chain and operations enablement capability in the digital era:**

- How can you have joint ownership with your distributors and vendors in a new, highly connected world?
- How will drones and self-driving vehicles impact distribution and logistics?
- Are you able to attract and retain the next generation of employees?
- What happens when machines know more about your business than you do?
- How does the digital power shift to the customer affect your business?
- When customers can just 3D print products on site, will we need manufacturing and distribution?
- What will your service and support staff do when machines can maintain themselves?
- Can you get your IT organization to perform like a digital start-up?
- Can the internet of things (IoT) and analytics help you shift from selling products to selling the services they enable?
- When IoT redefines value chains, how can you avoid getting disintermediated?

**We can help you:**

- Establish an innovation portfolio approach to activate and manage innovation, driving business models, processes, products, services and experience innovation.
Mobile solution architecture and road map for a large natural gas company

**The challenge:**
The client needed an approach for updating their mobile connectivity capabilities. Historically, account executives supporting large commercial and industrial accounts used laptops for work purposes. These unconnected devices lacked the ability to have interactive and real-time access to the necessary and current account information needed for client interactions. Applications on the laptops were legacy systems that required significant time and effort offsite to develop customer insight, negatively impacting productivity and compromising customer experience.

**What we did:**
- Worked with IT and the business to define the vision, business requirements, conceptual and logical architectures, wireframes, implementation road map and gaps for the program
- Developed a mobile strategy for sales force and customer experience transformation
- Developed a future state vision, business requirements, mobile solution architecture and road map
- Designed conceptual and logical architectures
- Developed a wireframe demonstration of the new user interaction via mobile
- Assessed current tools used for offsite customer insight by account executives
- Performed a current state assessment against the leading practices for the power and utilities industry

**Result:**
- Sales force productivity improvement
- Higher customer satisfaction
- Strategic alignment and improved collaboration between IT and business stakeholders
- Higher brand perception

B2B e-commerce platform for a global consumer products company

**The challenge:**
To support activity growth and international expansion, the client chose to strengthen their e-commerce capabilities and facilitate the creation of customized pages for the company’s brands on the site used by their partners. The client was thus looking to develop a B2B e-commerce platform to share digital assets with their retailers.

**What we did:**
Software selection including the following steps:
- Business analyses and formalizing business needs
- Established evaluation criteria (functional and technical)
- Located potential vendors, performing researches, short-listing vendors and setting up proof of concept demos
- Provided factual vendor analysis and a recommendation

Project assistance, including:
- Analyzing current products’ distribution in web corners
- Coordinating design workshops and integration works
- Testing and coordinating crash tests with partners
- Providing support during go-live deliverables: reporting, actions and issues follow-up, functional specifications, acceptance test plans, closure reports

**Result:**
- Standardizing and outlining external best practices, as well as broadening the scope from a content management system (CMS) solution to a digital asset management (DAM) solution
- Capability to bring a selection of key technology players together to share digital assets
- Providing project steering and professional knowledge for both CMS and DAM during the implementation phase
EY approach adapted to your situation

We can help clients take stock of their existing digital spend and assets, identify risks, and design and deliver an operating model for digital to comply with regulation and build trust.

The digital era provides marvellous possibilities for innovation, and organizations have turned their attention to the significant benefits. Be it by entering new markets and creating new products, or by developing a better understanding of customers and finding different ways of connecting with them, the digital world offers enormous potential.

Unfortunately, too often many precautions have been overlooked and risks underestimated. In addition to great opportunities, the digital world also gives rise to new sources of serious risks. Typically, organizations have no experience in these risks and seldom are they even recognized properly.

Cybersecurity is not an inhibitor in the digital world – rather, it helps make it fully operational and sustainable. Cybersecurity is key to unlocking innovation and expansion, and by adopting a tailored organization and risk-centric approach to cybersecurity, organizations can refocus on opportunities and exploration. By confirming that the digital risks are managed comprehensively, companies can safely focus on operations in the digital era.

By acting in time, it is possible to adjust the balance of the digital world back toward sustainability and safety, and to help protect your organization better and create trust in your brand.

Key questions to assess your risk management capability in the digital era:

- How much assurance is enough in a digital world?
- How can a data breach within outsourced services be recognized?
- How and when should a cloud be backed up?
- Are you taking enough, or too many risks, on digital?
- What is the optimal way to advertise in the digital era?
- What new requirements does the digital era set for data privacy?
- How will the ownership of industrial products change in a digital world?
- How can critical devices be trusted in the digital era?
- What is the role of traditional insurances in the industrial era?

We can help you:

- Exploit the new, attractive possibilities of the digital era in a sustainable and safe way that accounts for critical parts of digital risk management, cybersecurity topics and different compliance-related factors.
- Do business also in the future in the presence of digital risks and cyber attacks.
Compliance risk assessment of internet-based channels and online conversations for a global pharmaceutical company

The challenge:
Highly concerned by the lack of governance and policies regarding online communication, the client decided to initiate an internal audit to highlight the company’s exposure to health and safety compliance risks. The client had a multiplication of information systems with no global oversight or inventory of the company’s internet and digital assets. We were called upon to run the initial assessment of the company’s online exposure and help the internal audit team build evidence of breakages and compliance risks. The main objective was to identify health and safety risks relating to the client’s online presence (inbound and outbound communication).

The scope encompassed the identification of maverick websites and entry contact points, as well as measuring the medical information’s compliance exposure.

What we did:
• Defined and rated the health and safety risk environment applicable to online and digital communication for the client
• Developed a tailored, semi-automated screening and testing interface for the company’s internet footprint, and carried out a compliance assessment for product-related information
• Extracted and assessed the compliance of all social media conversations to and from the company for product-related information
• Identified websites and social media accounts presenting compliance exposure
• Helped in defining and documenting the governance and control gaps to manage the company’s global online presence, to help the client rethink their capabilities for the future

Result:
• Through our core life sciences sector and regulatory insight, we helped the internal audit team to build substantial evidence of compliance exposure and governance deficiencies.
• The client was able to identify critical exposure to health and safety risks (e.g., pharmacovigilance, information accuracy and promotional nature) rapidly and take immediate counteraction.
• The report shed light on areas of exposure and helped the client to build a strong business case for escalating the issues to the board of directors and for governance remediation.

Digital footprint risk assessment for a leading pharmaceutical company

The challenge:
The client had traditionally refrained from being present on social media, but with a focus on growth in proprietary branded business and recent high-profile regulatory cases arising out of digital non-compliance, the company wanted to:
• Assess its exposure to risks posed through online channels and understand high-level mitigation strategies
• Protect the company brand on digital and social channels
• Understand the opportunities that social media channels present

What we did:
• We used our proprietary social media risk framework to observe and assess regulatory warning letters sent to global pharmaceutical companies.
• We undertook manual web crawling to understand the critical areas of risk that online channels present.
• In addition, we carried out social media listening to identify key themes for the company and representative product brands and to understand broad sentiment on social media.

We also briefed the business on how to:
• Mitigate the risks posed through online channels and reduce the risk exposure to the organization
• Leverage social media as a strategic enabler for the business

Result:
• The client gained a shared understanding, across the executive board, of the risk exposure to the organization through online channels.
• The client grasped the opportunities online and on social media for a global pharmaceutical company.
Further reading

**Born to be digital**
How leading CIOs are preparing for a digital transformation

**Order from chaos**
Where big data and analytics are heading, and how life sciences can prepare for the transformational tidal wave

**Ready for takeoff?**
Overcoming the practical and legal difficulties in identifying and realizing the value of data

**Sustaining digital leadership**
Agile technology strategies for growth, business models and customer engagement

**Creating trust in the digital world**
EY Global Information Security Survey 2015

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EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

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