

Operations Strategy

Empowering AI Leadership

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Introduction

Artificial intelligence (AI) is important for many reasons, but at the root of them all is this: AI can radically transform how work gets done. Companies have used AI to re-engineer processes in nearly every business and government function – sales, marketing, customer service and fraud detection; manufacturing, resource exploration and research and development; IT, human resources, finance and security. AI is giving strategy-makers new means to achieve differentiation and market penetration, and managers new ways to improve productivity and performance. But AI also raises customer expectations and obliges every employee and leader to use its powers responsibly. AI-enabled processes that use biased data and algorithms that are not fit for purpose will destroy value and reputation, not enhance it.

Companies are using AI to:

- **Create new processes that are exponentially faster and higher-performing than the ones they replace.** Companies are already using AI to speed up and improve process performance by between 200% and 1000%.¹ And, since AI systems can learn, processes based on AI continually improve. As AI gets better at identifying patterns, predictions of customer preferences and equipment breakdowns grow more accurate, recognition of the images, sounds and signs of fraud exceed human capabilities, and quality issues in manufacturing and data processing are identified, repaired and prevented more quickly. AI is already being used to predict maintenance and customer needs, clean data, improve product quality, classify incoming emails and forms, answer questions in chat conversations, reduce electricity use and identify tumours. These operational improvements can lead to higher customer satisfaction, lower operating costs and environmentally friendlier operations.
- **Do work that wasn't previously possible or practical.** AI is giving companies capabilities they lacked or could not afford. It is providing vehicles and drones with the ability to operate themselves with no or minimal human intervention. Researchers are discovering new medical treatments and chemical compounds, or new uses for old ones, using AI to discover patterns in vast amounts of scientific data. AI tools are aiding innovation, too. Product designers are arriving at previously unimagined concepts through the use of new processes – drawing on AI to generate hundreds or thousands of design options that meet product requirements. Also, by using clouds to deliver AI services, the cost of AI has become affordable for many more businesses.²
- **Improve productivity and reduce costs by augmenting and automating work.** AI can automate routine, repeatable and predictable work. But companies receive even more value when AI helps people do more of, and be better at, what they do better than machines: leading and managing organizations, finding solutions to new, difficult and irregular problems, doing creative work, making recommendations, and bringing human insight, empathy and ethical sensitivity to their job. For example, car manufacturers in pursuit of flexible assembly lines that can easily personalize cars, or switch between models, are using a new generation of AI-enabled “cobots” that assist workers. Rather than eliminating assembly-line jobs, these companies hired more workers.³

Dramatic process improvements, innovative new processes and novel AI-augmented ways of working make new strategies possible. Reducing operating costs with AI frees up cash to fund the transformation needed to pursue those strategies.⁴ It's the job of management, not the board, to use AI to transform operations and build a better operating model. But it falls under the board's oversight responsibility to ensure management is performing its role well.

Boards should see that AI is being applied to the tasks that matter to strategy, and that management is making wise, ethical and legal choices about the AI algorithms and models it deploys, the data it uses and the way it operates AI-enabled processes. This module is intended to help corporate boards decide what governance responsibilities need to be assigned for AI, which board committees, executives and ethics boards participate in the governance process and how accountability will be shared.

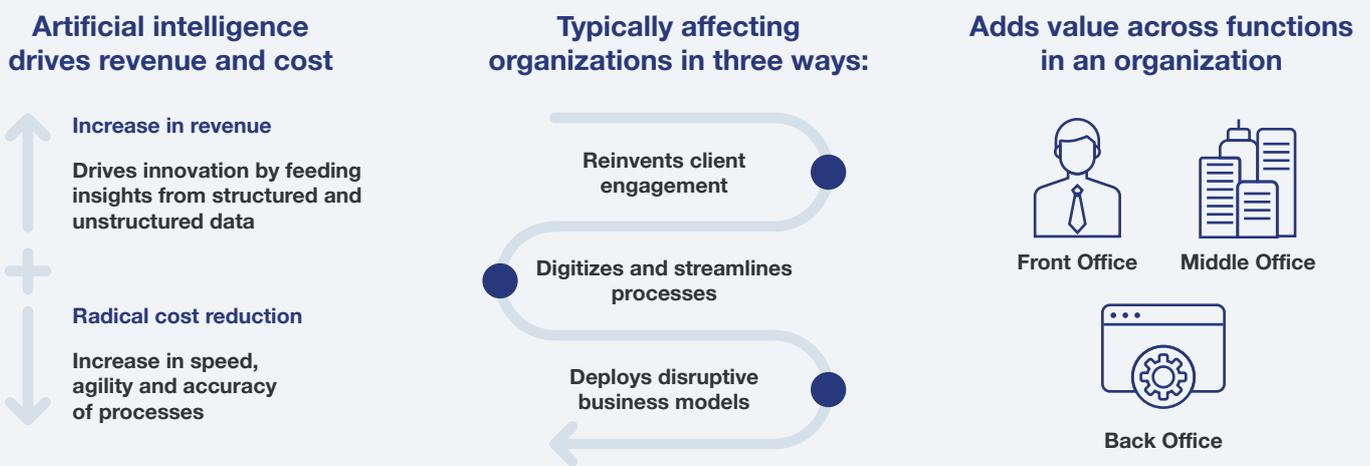


Figure 1: AI has the potential to transform organizations by providing new opportunities for process innovation.



Examples

Crédit Mutuel

Crédit Mutuel's advisers previously received 350,000 emails a day related to enquiries such as loan options or insurance coverage. It has now embedded AI solutions across all of its business lines to better serve the bank's 12 million customers. These solutions assist 20,000 Crédit Mutuel advisers in 5,000 branches and agencies by identifying frequent requests, determining the level of urgency, and responding quickly and accurately. This saves 200,000 working days annually, which are then reassigned towards training, upgrading advisers' skills and expanding sales activities. The bank is also better equipped to manage issues such as anti-money laundering and the financing of terrorism, with tighter controls and monitoring.

Kone

Kone, a lift manufacturer headquartered in Finland, has connected an internet of things (IoT) cloud platform to lifts, escalators and automated doors. The company uses AI and advanced analytics to predict its maintenance requirements, and to suggest resolutions to potential problems. This means less downtime, fewer faults and more detailed information for maintenance crews about the performance and usage of equipment. For people who use lifts and escalators, it means less waiting time, fewer delays and the potential for new, personalized experiences.

Toshiba

In Taiwan, where there is a shortage of doctors, caregivers can efficiently provide at-risk patients suffering from heart conditions with wearable devices made by Toshiba Electronics Taiwan Corporation, a subsidiary of Toshiba, Japan. Using AI and the IoT, biometric sensors in the devices collect a constant stream of data, such as heart rate and blood-oxygen levels. Trained to read and interpret patterns in this data, the cognitive solution can distinguish between healthy and abnormal patterns with increasing accuracy. In the event of abnormal readings, the system raises an alert to help patients and caregivers take preventive action. The devices provide Toshiba with a new market – consumer health and wellness – and a subscription-based revenue stream.



Responsibilities

While the G20/OECD Principles of Corporate Governance do not specify operations and process improvement in their list of responsibilities, boards cannot carry out their oversight duties without considering how their companies use and manage technology and management's major technology plans, investments and partnerships.

Many responsibilities that apply to other modules pertain to operations and processes:

- **To act in good faith, with due diligence and care,** boards should be fully informed about plans for applying AI in strategy, AI's alignment with core values and ethical standards, the risks associated with AI strategy, and regulations affecting the use of AI. Directors should have access to accurate, relevant and timely information.
- **To oversee corporate strategy, major plans of actions, risk management, and budgets and business plans,** boards should review and guide management's vision, goals, actions and expenditures for AI, its support for innovation and the use of new AI resources, management's awareness and plans for legal compliance and ameliorating AI risk, and competitors' use and plans for AI.
- **To oversee corporate performance, expenditures and acquisitions,** boards should review and guide AI's alignment with strategy, shareholder values, ethics, performance and risk indicators, implementation of AI plans, the effectiveness of AI to accelerate processes and improve productivity, major investments in AI systems and talent, and acquisitions.

To carry out these responsibilities, boards should also review and guide these technology-specific concerns:

Act in good faith, with due diligence and care.

Directors should:

- Be fully informed about their company's and competitors' use of AI for process innovation, cost reduction and new competencies.
- Learn about the implications of these new processes for skill requirements and jobs.
- Be fully informed about the adoption of AI in their environment and the demands and expectations important partners will place on their company.

Oversee corporate strategy, major plans of actions, risk management, and budgets and business plans.

Directors should know:

- Whether management is developing strategies that take advantage of the new capabilities AI can bring to business processes.
- Whether investments in AI for operational transformations target important business outcomes and not only operational improvements with little impact on the top or bottom line.
- How the enterprise's acquisitions and partnerships affect its ability to use AI to advance its strategy, and whether they introduce new risks.
- Whether processes using AI have identified bias and other ethical risks when AI is applied to business processes, and whether the plans of action include measures to address them.

Oversee corporate performance, expenditures and acquisitions.

Directors should know:

- What progress the company is making in applying AI to processes that differentiate their company from competitors.
- Whether management is building the resources needed to implement and operate AI-enabled process change.
- Whether, and how, AI should be factored into performance objectives for management.
- Whether key performance indicators (KPIs) and key risk indicators (KRIs) for business processes are aligned to the AI-enabled strategy.
- How the innovation process using AI is being encouraged across the organization.
- Whether the data used to train and operate AI systems is being properly managed.
- How internal control processes are reported to the board (pp. 58/66, principle D7).
- How to monitor and manage potential conflicts of interest of management, board members and shareholders, including misuse of corporate assets and abuse in related party transactions (pp. 57/66, principle D6).

The analysis in this section is based on general principles of corporate governance, including the G20/OECD Principles of Corporate Governance, 2015. It does not constitute legal advice and is not intended to address the specific legal requirements of any jurisdiction or regulatory regime. Boards are encouraged to consult with their legal advisers in determining how best to apply the principles discussed in this module to their company.

Oversight

This section includes three tools to help directors oversee management as it uses AI for process innovation and creating new operating models for the company.

The Knowledge Management tool helps board members assess whether they possess, or have access to, the knowledge required to independently judge management's actions on using AI to improve processes.

View the Knowledge Assessment tool in Appendix 1.

The performance review tool consists of questions boards can ask management about their knowledge of AI and process innovation, and the progress and performance of their actions. It offers the SCEPTIC framework to help directors assess the answers they receive.

View the Performance Review tool in Appendix 2.

The guidance tool offers possible actions by the board in an "If, then" format.

View the Guidance tool in Appendix 3.



Agenda

The following suggestions can help the individual who prepares the board discussion and sets the agenda on process and operating model innovation through AI.

Before leading the first meeting

- **Prepare yourself:** Become familiar with AI, what it can do today to transform processes, and what it will be able to do in the future as the field advances. Separate the hype from reality by looking at the research and the sources behind the claims, and the issues that complicate the implementation of the technology. The resources section provides readings about AI and process improvement. Speak to senior IT, security and public affairs executives about any ethics issues on their minds.
- **Gauge board member interest in AI and process innovation:** Speak to other board members. Learn what importance they place on AI and the concerns they have about planned AI investments and partnerships. Identify the board members who are most interested in moving forward with new AI investments, and those who have concerns or lack interest.
- **Set goals:** Think ahead about the desired outcomes from the board discussion.

Set the initial agenda

Create a strategy for process innovation pilots. Agenda items can include:

- **Presentation:** Arrange for a briefing on how AI is being used to transform or improve the organization's most important processes for generating revenues and serving customers. The presentation can include examples from competitors and potential use cases uncovered by researchers. They should also include revenue and other quantified benefits when possible. The presentation should also introduce major risks and responsibilities that the company will have to manage, and the requirements that must be met to run AI, such as the data for training AI systems.
- **Discussion:** Identify processes that are good candidates for pilots, based on: high potential value; availability of data; ability to implement and scale up if successful.
- **Delegate:** Decide which members of the executive team will be responsible for selecting and running the pilots as well as deciding what support is needed (technology, development platforms, innovation sandboxes etc.).
- **Engage:** Decide how the board will stay current with developments in process innovation.

Set follow-up or alternative agenda items.

These can include:

- **Innovation and experimentation:** Discuss how the company is developing a culture that supports innovation with AI. This conversation can enquire about rewarding risk-taking, incentives, creation of innovation centres, office design and corporate values.
- **AI in the ecosystem:** Examine how AI will change the way companies work together within the supply chain, and what companies expect from suppliers. The discussion can include how AI can shift the bargaining power and the position of companies inside an ecosystem.
- **The operating model of the future:** Envision the new ways, end-to-end, in which the company gets work done, the new capabilities and cost structure this provides to the company, and how the new operating model supports or enables new business strategies.
- **AI in R&D:** Discuss how AI can be used to aid scientific researchers, product developers, competitive intelligence and market analysis, and the next steps.
- **Future of work:** Look at the new skills and roles the company will need to make AI process transformation a reality, and how the company will migrate to them. This can also include changing how employees work by providing them with AI tools.

Resources

(All references as of 2/8/19)

Books

- Michael L. George Sr, Dan Blackwell, Michael L. George Jr, Dinesh Rajan, “Lean Six Sigma in the Age of Artificial Intelligence: Harnessing the Power of the Fourth Industrial Revolution”, McGraw-Hill Education, 2019.
- Paul R. Daugherty and H. James Wilson, “Human + Machine: Reimagining Work in the Age of AI”, Harvard Business Review Press, 2018.

Reports

- “AI in the Factory of the Future: The Ghost in the Machine”, Boston Consulting Group, 2018.
- “Beyond the Hype: A Guide to Understanding and Successfully Implementing Artificial Intelligence Within Your Business”, IBM Services, 2018.
- “Cognitive Catalysts: Reinventing Enterprises and Experiences with Artificial Intelligence”, IBM Institute for Business Value.

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Articles

- Irving Wladawsky-Berger, “The Impact of Artificial Intelligence on R&D and Innovation”, The Wall Street Journal, 15 June 2018.
- Thomas H. Davenport and Rajeev Ronanki, “Artificial Intelligence for the Real World”, Harvard Business Review, January–February 2018.

Endnotes

(All references as of 2/8/19)

1. “Process Reimagined”, Accenture, 2017.
2. “Google AI claims 99% accuracy in metastatic breast cancer detection”, Venturebeat.com.
3. Paul R. Daugherty and H. James Wilson, “Human + Machine: Reimagining Work in the Age of AI”, Harvard Business Review Press, 2018.
4. “Save-to-Transform as a Catalyst for Embracing Digital Disruption”, Deloitte 2019.

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Appendix 1: Knowledge Assessment Tool

This tool can be used by individual directors or as a board exercise. When asking the following questions, consider whether the board:

- Possesses the knowledge needed for independent judgement about AI and AI-related issues
- Has access to this knowledge from inside the company, from other sources or through free access to experts

The tool also suggests related modules for additional analysis.

External environment:	Area of knowledge:	Board knowledge (more than sufficient, sufficient, insufficient):	Access to knowledge by board (more than sufficient, sufficient, insufficient):	Related modules:
How AI is changing operations in our industry and markets				
Emergence of exponentially faster and higher-performing business processes	Opportunities to use AI in: <ul style="list-style-type: none"> • Customer-facing and supporting processes (sales, customer service, marketing) • Product creation, delivery and logistics processes (research and development, manufacturing, product maintenance, supply chain, service operations) • Business operations (finance, IT, human resources, legal) • Processes specific to our industry (e.g. bank operations and fraud detection in finance, diagnostics and medical alerts in healthcare) • Ethical issues, risks and responsibilities that arise with these new processes • Changing customer, business partner and employee expectations for process performance 			See Customer module for more specific questions on sales, marketing and service processes. See also: <ul style="list-style-type: none"> • Competitive strategy • Risk • Technology • Cybersecurity
Do work that wasn't possible or practical	Opportunities to use AI (see process categories above) to: <ul style="list-style-type: none"> • Solve previously unsolvable business problems • Create entirely new business capabilities • Permanently reduce costs • Process bottlenecks that can be broken with AI 			<ul style="list-style-type: none"> • Competitive strategy • Customer • People and culture • Risk • Technology • Cybersecurity
Augment and automate work	<ul style="list-style-type: none"> • Benefits and limits of augmenting and automating work • Opportunities for augmentation and automation • Legal and labour-agreement constraints on automation 			<ul style="list-style-type: none"> • People and culture • Cybersecurity
Ethical, legal and other AI responsibilities	Effective practices for responsible AI, including: <ul style="list-style-type: none"> • The risks involved in AI-driven processes • Explainability, fairness, diversity and inclusion • Accountability for AI-driven decisions • Data guardianship, including ownership and reuse, privacy and security • Address ethical issues, risks and responsibilities that arise with new AI-enabled processes 			<ul style="list-style-type: none"> • Ethics

External environment:	Area of knowledge:	Board knowledge (more than sufficient, sufficient, insufficient):	Access to knowledge by board (more than sufficient, sufficient, insufficient):	Related modules:
How AI is changing operations in our industry and markets				
Other questions	<ul style="list-style-type: none"> • When new AI-enabled processes will be available and scalable • People and culture issues involving AI-enabled processes: change management, skill/talent issues and support for a culture of process innovation • Technology requirements and migration issues that accompany creation of AI-enabled processes • Benefits of providing an educational programme on AI to board members (either internally or externally) • Does the board: <ul style="list-style-type: none"> • receive information from internal and external sources? • have free access to timely advice from qualified advisers? 			<ul style="list-style-type: none"> • People and culture • Technology • Cybersecurity
Competitors', customers' and partners' use of AI in operations				
Incumbents and traditional competitors	<p>How traditional competitors compare on:</p> <ul style="list-style-type: none"> • Use of AI to improve and transform processes • Instituting new operating models using AI-enabled processes • AI investments • Development platforms to create systems enabling new processes • Innovation programmes and incentives for innovation • Intellectual property • Vendors and partners engaged, and results obtained • AI talent • Intellectual property (patents, unique data etc.) 			<ul style="list-style-type: none"> • Competitive strategy • Customer • People and culture • Risk • Technology
Digital giants and upstarts	<ul style="list-style-type: none"> • How digital giants and upstarts threaten our industry with new AI-enabled processes that provide new capabilities and cost structures • Whether digital giants and upstarts use new AI-enabled operating models to conduct business, and what those are • How the speed and capabilities of our processes compare with digital rivals entering our industry • What data digital giant competitors generate and use in comparable processes 			<ul style="list-style-type: none"> • Competitive strategy • Customer • Risk • Technology • Cybersecurity
Customers and business partners	<ul style="list-style-type: none"> • Changing customer expectations and preferences for interacting with our company • Possibilities to partner with companies in ecosystem • Companies with AI process improvement capabilities that are potential acquisition targets • Whether partners follow responsible AI practices 			<ul style="list-style-type: none"> • Competitive strategy • Customer
Other questions	<ul style="list-style-type: none"> • How our competitors' success at process transformation and improvement with AI compares to ours, and why • How competitors manage fairness, data guardianship, explainability and other AI responsibilities • Results of benchmark comparisons against competitors inside industry 			<ul style="list-style-type: none"> • Competitive strategy

Internal environment:	Area of knowledge:	Board knowledge (more than sufficient, sufficient, insufficient):	Access to knowledge by board (more than sufficient, sufficient, insufficient):	Related modules:
Creation of AI-transformed operations				
Identification of new process transformation and improvement opportunities	<ul style="list-style-type: none"> • How management prioritizes AI opportunities (top value drivers, alignment etc.) • What management is learning from other companies 			<ul style="list-style-type: none"> • Competitive strategy
Identification of risk	<ul style="list-style-type: none"> • The risk and ethical exposure of the opportunities • The organization's approach to identifying and mitigating AI process risk 			<ul style="list-style-type: none"> • Ethics • Risk • Cybersecurity
Investment in AI	<ul style="list-style-type: none"> • Expenditures in AI for process improvement • Investments in an agile development platform for AI • Developing needed skills and talent 			
Identification of implementation requirements	<ul style="list-style-type: none"> • How management identifies implementation and ethics requirements, including changing company culture to encourage process innovation and to responsibly operate and develop AI; recruit and retain AI talent; obtain, manage and protect data • Our partners' readiness to share data and use shared, AI-transformed processes 			<ul style="list-style-type: none"> • Competitive strategy • Customer • People and culture
Implementation of AI-transformed operations				
Initiation	<ul style="list-style-type: none"> • Major AI initiatives underway for process transformation and improvement • Anticipated value and cost of initiative • Data: <ul style="list-style-type: none"> • Internal data the company will use for initiative • Data the company is acquiring from external sources for initiative • Action taken to ensure data quality, and that it is collected, used and stored responsibly • How management judges initiatives' value, risks, compliance with core mission and values, and the responsibilities and legal requirements to be met 			<ul style="list-style-type: none"> • Competitive strategy • Customer • Ethics • People and culture • Risk • Cybersecurity
Progress	<ul style="list-style-type: none"> • The status of the companies' major AI process transformation and improvement activities • Reasons for delays and cost overruns • Partners and ecosystems involved in the initiatives • Addressing responsibilities and risks 			<ul style="list-style-type: none"> • Ethics • Risk
Evaluation	<ul style="list-style-type: none"> • Results of pilots • Value received • Cost against budget • Effectiveness of risk mitigation and responsibility assurance • Acceptance by customers, employees, partners • Lessons learned 			<ul style="list-style-type: none"> • Ethics • Risk
For companies affecting EU citizens	<ul style="list-style-type: none"> • Compliance with GDPR 			
Other questions	<ul style="list-style-type: none"> • Whether establishing a task force or committee will help the board review the company's AI activities 			<ul style="list-style-type: none"> • Governance

Appendix 2: Performance Review Tool

The SCEPTIC framework:

- **Specificity:** Are the answers precise and do they show evidence of depth of knowledge? (Precision, Incision)
- **Candour:** Do the answers cover up negatives, exaggerate positives or steer towards one action?
- **Evidence:** Is there data, KPIs and other support to back up the opinion? Is the evidence biased, incomplete or unscientific?
- **Planning:** Are answers drawn from an effective internal process?
- **Thoroughness:** Are the answers based on a rigorous search for answers from diverse sources, or overreliant on a single, uniform kind of source?
- **Involvement:** Are the answers based on real-world experience?
- **Consistency:** Are the answers you are receiving logical or are there internal contradictions and gaps?

External environment:	Ask management:	Related modules:
How AI is changing operations in our industry and markets		
<p>Emergence of new opportunities to transform, improve and speed up business processes</p>	<ul style="list-style-type: none"> • What are the most important AI opportunities we should pursue to: <ul style="list-style-type: none"> • Speed up and improve our processes? • Permanently restructure our operating costs? • Solve business problems we were unable to solve before? • Address demands from customers, business partners and regulators? • How do we know these are the most important opportunities? • Do we see these processes coalescing into a new operating model for our industry? If so, when did this start to happen? • What companies should we follow for ideas on how to use AI to transform processes? • How might these new processes create conflicts with our core values and principles? <p>Process categories to consider:</p> <ul style="list-style-type: none"> • Customer-facing and supporting processes (sales, customer service, marketing) • Product creation, delivery and logistics processes (research and development, manufacturing, product maintenance, supply chain, service operations) • Business operations (finance, IT, human resources, legal) • Other processes specific to our industry (e.g. bank operations and fraud detection in finance, diagnostics and medical alerts in healthcare) 	<p>See Customer module for more specific questions on sales, marketing and service processes.</p> <p>See also:</p> <ul style="list-style-type: none"> • Competitive strategy • Risk • Technology

External environment:	Ask management:	Related modules:
How AI is changing operations in our industry and markets		
Augment and automate work	<ul style="list-style-type: none"> • What opportunities have we found to augment our workforce's capabilities with AI? • Are we focusing on augmenting our workforce's skills, abilities and decision-making as we change our processes with AI? • Which processes do we plan to automate using AI? Did we study alternatives that augment the workforce? If so, why is automation the better approach? • Have we consulted with our legal staff and unions about the impact on jobs and skills from our AI plans? 	<ul style="list-style-type: none"> • People and culture
Ethical, legal and other AI responsibilities	<ul style="list-style-type: none"> • What specific risks and responsibilities have we identified with our plans for AI process change? • What are the most effective ways to address them? 	<ul style="list-style-type: none"> • Ethics
Other questions	<ul style="list-style-type: none"> • When will the technology to create these new AI-enabled processes be mature and scalable enough for us to use it? How did we determine that? • What cultural, employee and skills issues will we have to manage to successfully implement AI-enabled processes? Which are especially salient for our organization? • How are we developing a culture that simultaneously supports process innovation and the responsible use of AI and data? • What are the technology requirements and migration challenges that our company must meet to successfully implement AI-enabled processes? How ready is our company to meet these challenges? • Who advises us on AI? Are we satisfied with the advice? 	<ul style="list-style-type: none"> • People and culture • Technology • Cybersecurity
Competitors', customers' and partners' use of AI in operations		
Incumbents and traditional competitors	<ul style="list-style-type: none"> • How are our traditional competitors using AI to improve and transform processes? How do their capabilities and performance compare to ours? How do our investments in AI for process change compare with theirs? • Are our traditional competitors using AI-enabled processes to create innovative new operating models? • What are the results of benchmark comparisons against competitors inside our industry? • What are our competitors doing to create a culture that supports process innovation? How well is it working? • How are they obtaining the talent and skills they need to operate these processes? • What ethical issues and AI responsibilities are they encountering as they transform processes? How are they managing them? 	<ul style="list-style-type: none"> • Competitive strategy • Customer • People and culture • Risk • Technology • Cybersecurity
Digital giants and upstarts	<ul style="list-style-type: none"> • Are digital giants and start-ups challenging our industry with new AI-enabled processes? What new capabilities and performance levels do they have or are they developing that we cannot match? What is their operating model? What are the implications for our business? • How do the speed and capabilities of our processes compare to digital rivals entering our industry? • What data do digital giants generate and use in their comparable processes? How do they use it? • What companies in adjacent industries are using AI-enabled processes to enter our markets? 	<ul style="list-style-type: none"> • Competitive strategy • Customer • Risk • Technology

External environment:	Ask management:	Related modules:
Competitors', customers' and partners' use of AI in operations		
All competitors	<ul style="list-style-type: none"> • How does our competitors' success at process transformation and improvement with AI compare to ours? • How do our competitors manage fairness, data guardianship, explainability and other AI responsibilities? • How are the development platforms they are using to create AI systems for these processes similar to or different from the ones we use? • What unique intellectual property – patents, proprietary data – are they capitalizing on to improve their processes? 	<ul style="list-style-type: none"> • Competitive strategy • Customer • Ethics • Risk • Technology • Cybersecurity
Customers and business partners	<ul style="list-style-type: none"> • How are the expectations and preferences for interacting with our company changing? How are we using AI to meet those expectations? • What are the most promising opportunities for partnering with companies in the ecosystem? • What is our plan for acquiring companies to boost our AI process capabilities? • Are our suppliers and partners' practices for using AI responsibly consistent with ours? If not, what are we doing to reconcile them? 	<ul style="list-style-type: none"> • Competitive strategy • Customer

Internal environment:	Ask management:	Related modules:
Creation of AI-transformed operations		
Identification of new process transformation and improvement opportunities	<ul style="list-style-type: none"> • What is our roadmap for AI process innovation in the future? • How are we identifying opportunities for AI in process innovation and their potential value? • How are we prioritizing these opportunities? (identifying value drivers, alignment with strategy, cost reduction, revenue generation etc.) • Do our AI process innovation plans include a new operating model that ties them together in a new way of doing business? What is that model? How will it support our business strategy? • Are we using design thinking to develop new processes? • What are the most important lessons we've learned from studying other companies? 	<ul style="list-style-type: none"> • Brand • Competitive strategy
Identification of risk	<ul style="list-style-type: none"> • What reputation risks are opened by pursuing these opportunities? • What other risks and ethics issues do these opportunities expose us to? • How did we identify these risks? 	<ul style="list-style-type: none"> • Ethics • Risk • Cybersecurity
Investment in AI	<ul style="list-style-type: none"> • What AI investments are we making to pursue these opportunities? • Does our software development platform have the capabilities we need to create and test AI systems? If not, what investments are we making to upgrade it? • What investments are we making in skills and talent? Are we making them in a way that is consistent with our diversity goals? 	

Internal environment:	Ask management:	Related modules:
Creation of AI-transformed operations		
Identification of implementation requirements	<ul style="list-style-type: none"> • What are the implementation and ethics requirements for successfully pursuing these opportunities – e.g. cultural changes; support and incentives for process innovation; talent needs; cross-functional cooperation; obtaining, managing and protecting data? • What agreements do we have with partners about sharing data and AI-enabled processes? • How will our data science and analytics teams support our AI process improvement operations? • What is our strategy for training our employees for the new skills, roles and jobs required for AI? 	<ul style="list-style-type: none"> • Competitive strategy • Customer • People and culture
Implementation of AI-transformed operations		
Initiation	<ul style="list-style-type: none"> • What major AI initiatives are underway for process transformation and improvement? What are our plans for prototypes, initial implementations and scaling up these processes? • Are these initiatives well aligned with our strategic priorities and business needs? • What is their potential value to our business? Their brand reputation, legal and other risks? How did we evaluate this? • What will our major initiatives cost? • How do we judge success? What are the KPIs? • Are our process improvement plans consistent with our core values? • Which executives are responsible for driving the technical, process and cultural/human resource management changes? • Who from outside our company is participating in our initiative, and what role will they play? (vendors, consultants, ecosystem partners) • What are their legal, human resource and technical requirements? How will they be met? • How will we move from a pilot to a full-scale system? • How will we put in place the data science and technical capabilities to carry out these processes? • What internal data will we use to train and operate this process? What data are we acquiring from outside the company? How will we ensure data quality, and collect, use and store the data responsibly? • How will we avoid bias? • What level of transparency do we require, and how will we obtain it? 	<ul style="list-style-type: none"> • Competitive strategy • Customer • Ethics • People and culture • Risk • Cybersecurity
Progress	<ul style="list-style-type: none"> • What progress has been made to date in our major AI process transformation and improvement activities? How is progress measured? • What are the reasons for delays and cost overruns (if any)? How will they be resolved? • How are we ameliorating project risks? <p>How are we ensuring our employees and partners are complying with responsible AI and other ethics practices?</p> <ul style="list-style-type: none"> • How are we addressing concerns and resistance from managers and other employees? • Is coordination across organizational silos going well? If not, how will problems be addressed? 	<ul style="list-style-type: none"> • Ethics • Risk

Internal environment:	Ask management:	Related modules:
Implementation of AI-transformed operations		
Evaluation	<ul style="list-style-type: none"> • What have been the results of pilots? • Have we met our goals and KPIs? • What value have we received? Did it meet expectations? • Does the new process outperform the previous process? By what metrics? Do we have the business capabilities we sought? • Have we completely met legal and responsibility requirements? If not, how will we meet them? • How will we sustain our success? • Have there been any negative outcomes? How are they being mitigated? • Are the new processes accepted by the employees, customers and partners who use them? 	<ul style="list-style-type: none"> • Ethics • Governance • Risk • Cybersecurity
For companies affecting EU citizens	<ul style="list-style-type: none"> • Is the new process compliant with GDPR? 	

Appendix 3: Independent Guide Performance

Use this tool to consider responses to the knowledge assessment and performance review tools. These suggestions are a starting point for brainstorming on responses.

If the board...	Then consider...
Needs more external information	<ul style="list-style-type: none"> • Reading and subscribing to news sources and reports on AI strategies and trends • Attending events on AI strategies and opportunities • Meeting with venture capitalists, customers, trusted advisers and AI technology experts • Setting up fact-finding sessions with academics and experts
Needs more internal information	<ul style="list-style-type: none"> • Requesting reports and updates from the executive team • Meeting with mid-level managers and teams developing competitive AI strategy and systems
Needs more competitor information	<ul style="list-style-type: none"> • Hiring benchmarking services • Encouraging management to focus on competitor analysis
Needs management to focus on strategy and business-model innovation	<p>Encouraging management to:</p> <ul style="list-style-type: none"> • set up design thinking and ideation sessions • study AI strategy innovations by competitors and in industry • focus on developing a culture and organization that supports innovation and experimentation • review executive compensation
Needs management to better align AI activities with strategy	<p>Setting up strategy reviews</p> <p>Encouraging management to:</p> <ul style="list-style-type: none"> • review and reconsider KPIs and metrics, including creating new metrics
Needs management to better understand customers	<p>Encouraging management to:</p> <ul style="list-style-type: none"> • learn more about changing customer expectations and needs through research and design thinking sessions <p><i>See also: the Customer module</i></p>
Needs management to speed up progress	<p>Encouraging management to:</p> <ul style="list-style-type: none"> • review performance of suppliers and partners, and consider new ones • increase investments in talent and systems • review systems development and architecture for implementation issues and solutions <p><i>See also: the Technology module</i></p>
Needs management to increase benefits from strategic AI initiatives	<p>Encouraging management to:</p> <ul style="list-style-type: none"> • rapidly improve new AI-enabled systems and processes • investigate new business models • consider new joint ventures and partnerships
Needs management to better understand and follow through on risk, compliance and responsibilities of AI	<p>Encouraging management to:</p> <ul style="list-style-type: none"> • work with trusted advisers and legal experts to identify risks, relevant legal issues and ethical concerns • develop an AI governance framework • establish an ethics board • request regular reports on risk and responsibility assurance <p><i>See also: the Ethics, AI governance and Risk modules</i></p>