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**Accelerating recovery and  
preparing for the AI-driven future  
in the consumer industry**

# Introduction

The pandemic has exposed a fundamental truth in the consumer industry: the standard way of operating is not robust enough. Artificial intelligence (AI), however, could be the key to a reinvention. The advancement of AI has created opportunities to disrupt traditional ways of operating, coordinate and optimize activities across supply chains, and exert influence over demand for products.

What do we really mean by AI? AI is a suite of technologies and methodologies that use advanced algorithms to 'learn' from large amounts of data, imitating three behaviours that are traditionally associated only with human intelligence: interacting with other humans, completing routine tasks, and generating insights and predictions about future events.

As provinces and territories across Canada went into lockdown to curtail the transmission of COVID-19, consumer stockpiling, struggling supply chains, stock shortages, and the influx of online orders were just some of the challenges the consumer industry faced. Now, as the lockdowns and restrictions are slowly starting to lift, many businesses are adapting to new safety protocols, social distancing, and its lasting impacts on consumer behaviours.

The pandemic also altered consumer loyalties. Customer values and beliefs changed in response to the global health crisis. This means that businesses can no

longer depend on conventional revenue streams generated from in-person interaction, either through retail, transportation, or hospitality services, or in the manufacturing of consumer goods. Business leaders who remain focused on what has been lost, or who still rely on instinct and experience to react to these structural shifts, are missing a huge opportunity. Those companies that emerge on top will have seized the opportunity to use AI to better sense, understand, and predict changes in consumer behaviour and build agility within their operating models to respond in real time.

For many consumers, the COVID-19 pandemic has largely been an exercise in patience. Panic-buying early in the crisis led to stock-outs, making household essentials, gardening, and home office supplies hard to find. Long line-ups and social distancing restrictions at physical stores accelerated the move to online shopping. This put an enormous strain on delivery capacity of businesses, which in turn caused order-fulfillment delays

and higher operating costs. AI can not only alleviate many of these operational strains, helping to strengthen supply chains and manage stock levels, it can enable the types of customer experiences that drive both top- and bottom-line growth.

Behind the scenes, businesses have worked frantically to shore up their balance sheets. Many have turned to automation and AI to build at scale with lower costs. AI brings them the capabilities needed to anticipate and respond to volatile customer demand, all while maintaining a stream of products from regions under lockdown. Companies that managed to respond quickly to meet their customers' changing demands are now starting to reap the rewards and gain market share over their competitors.



# Building a more robust, data-enabled AI business model is now imperative

Making the right investments and the right decisions during a pressure-cooker time—like a global pandemic—is a minefield for business leaders. Is upgrading your e-commerce platform more important than strengthening your delivery capacity? Should you invest in secondary or tertiary manufacturing hubs to build resilience? How can you better predict changes in demand and optimize inventory for products in excessive demand? These are just some of the difficult questions facing the consumer industry today.

The unprecedented availability of data, along with cloud and AI capabilities to process and learn from it, is creating many opportunities for consumer companies to reimagine agility in their business

processes. The adoption of these new data- and AI-enabled processes will separate the winners from the losers, equipping them with the ability to better sense and respond to changes in consumer behaviour, optimize performance and customer relevancy in turbulent times, and handle supply/demand shocks or other unforeseen business disruptions with greater resiliency.

To become an AI-first organization, first you must define what role AI will play in your business and the value you expect it to generate. This will give your organization a vision of the capabilities, skillsets, and applications to rally around and guide the journey as you navigate through some of the common use cases below.



# AI use case 1

## Understanding customer demand

AI can enable an accurate and timely understanding of your customers' needs. It's the only way to get a fact-based understanding of your customers.

### What does this mean for your business?

Understanding your customer means you can not only better plan product offerings, but also be able to direct customers to those products. Ensuring the options that customers view is curated to their needs improves the customer experience and reduces the likelihood of an unexpected shock to inventories. Understanding the complete customer journey is key for success in today's digital business. Through greater transparency into how the customer interacts with your enterprise across different channels, you can segment your customer base to differentiate and customize your offerings based on their specific needs. Once you have this insight, you can use it to increase conversion rates for both potential and existing customers.

To do this, you will need to consider the following questions:

- Do we know who our customers are, what they buy, and what drives their purchase behaviour?
- Does our customer understanding extend beyond our own data (e.g., integration of third-party data)?
- Can we detect the true drivers of demand (e.g., what factors predict purchase behaviour)?
- Do we understand channel performance across the customer journey (e.g., smart marketing attribution across various in-field campaigns)?

### What are the key benefits enabled by data and AI?

- **Improved customer relevancy** through more **accurate, real-time** customer demand signals to offer relevant products and services at the right points in the customer journey.
- **Gain a 360-degree understanding of customers**, facilitated through a single, integrated customer data set that uses both internal and external data sources.
- **Real-time access to customer data and insights** to provide more relevant experiences that are better tailored to customer needs.

### Industry case study:

A leading American outdoor apparel retailer is using AI to help customers determine the products that are right for them based on their preferred activities. Being able to get a handle on what customers need, connect this with the inventory, and tailor the products that are recommended makes sure that customers are exposed to products that are available, easy to ship, and meet their needs and expectations.

# AI use case 2

## Predicting and shaping customer demand

AI can help develop customer insights to **sense, predict,** and **respond** to micro and macro changes in consumer demands that have been accelerated by COVID-19.

### What does this mean for your business?

Consumer needs, perceptions, and behaviours are changing fast. By combining data from multiple channels with the power of machine learning, consumer businesses can better understand the complex relationship between customers and products across all touchpoints.

By mining internal and external data about their customers, merchants can gain insights into the preferences of similar individuals, allowing them to create offers, incentives, and a shopping experience that appeal to a specific set of people. To improve your ability to sense and respond to such changes, you must consider:

- Are we able to sense customer behaviour triggers and activate timely acquisition and retention activities (e.g., a certain increase in attrition triggers a specific retention strategy)?
- Are we able to use data and placement to influence product choices (e.g., adapt to predictive drivers of customer behaviour)?
- Are we able to quickly sense customer perceptions and adjust promotional pricing or messaging across channels in response to micro changes in behaviour (e.g., changes in shopping and browsing behaviour due to external factors, like COVID-19)?
- Can we quickly react to critical market demand shifts (e.g., sudden increase in e-commerce traffic)?

- Can we predict customer demand and streamline the path to purchase through relevant product recommendations capable of triggering order-fulfillment activities (e.g., automated order fulfillment)?

### What are the key benefits enabled by data and AI?

- **Develop customer and market intelligence** to tailor business strategies and drive profitable growth through insights developed from a better use of internal and external data.
- **Sense and respond to changes in consumer behaviour** quickly by adjusting product assortment, pricing, promotional offers, and marketing tactics.
- **Engage with customers at multiple touch points**, creating stronger connections through:
  - value-based targeting at critical points in the customer journey
  - dynamic/personalized pricing
  - personalized offers and experiences
- **Create a clear path to purchase**, improving customer conversion by communicating the right product or service at the right time, with the right message.
- **Improve marketing performance** to get a better return from every marketing dollar spent.

### Industry case study:

A leading American grocery chain is customizing its in-store experience by using “smart shelves.” Sensors can identify customers who are using their mobile app in the store and will highlight products these customers might be interested in based on their purchase history. This could include highlighting kid-friendly snacks or gluten-free foods or alerting them if an item on their shopping list is on sale. The data and insights gained from the app can be used to refine specific store assortments and better plan store layouts based on established shopping patterns.

# AI use case 3

## Optimizing supply chain performance

AI enables real-time, bi-directional demand-and-supply synchronization, which accelerates your ability to respond to changes in customer-demand and market conditions.

### What does this mean for your business?

Full visibility into interlinked supply chains has become more important because companies have outsourced parts of their supply chains, losing control and clarity over what used to be part of their own operations. In today's world, information is collected, analyzed, and used in real time to balance demand and supply. This allows production facilities to manage their path-order life cycle with more accuracy. Suppliers can plan production according to realistic lead times, which allows logistics providers to determine shipping requirements with greater certainty. All these components working together help push the product along in the most efficient and optimal manner, meeting customer demand at the right time.

There are a few things to ask yourself in order to efficiently synchronize your supply chain process to your customer demand:

- Are we collecting real-time data and making it available to multiple departments?
- Does our data allow us to quickly translate demand signals into supply chain triggers (e.g., a rise in demand of toilet paper triggers incremental order to be generated)?
- Are we using customer demand drivers to optimize our supply chain?
- Do we have the timely insights to sense changes to customer demand and redirect supply in response?
- Can we respond to demand and supply shocks when it matters most?
- Are we actively mining internal and external data sources to predict expected demand, understand true capacity, and identify potential bottlenecks and risks areas?
- Are we using our AI and its predictive capacity to inform planning and drive strategic decision-making (e.g., network planning, investment prioritization) as well as day-to-day operational decisions?

### What are the key benefits enabled by data and AI?

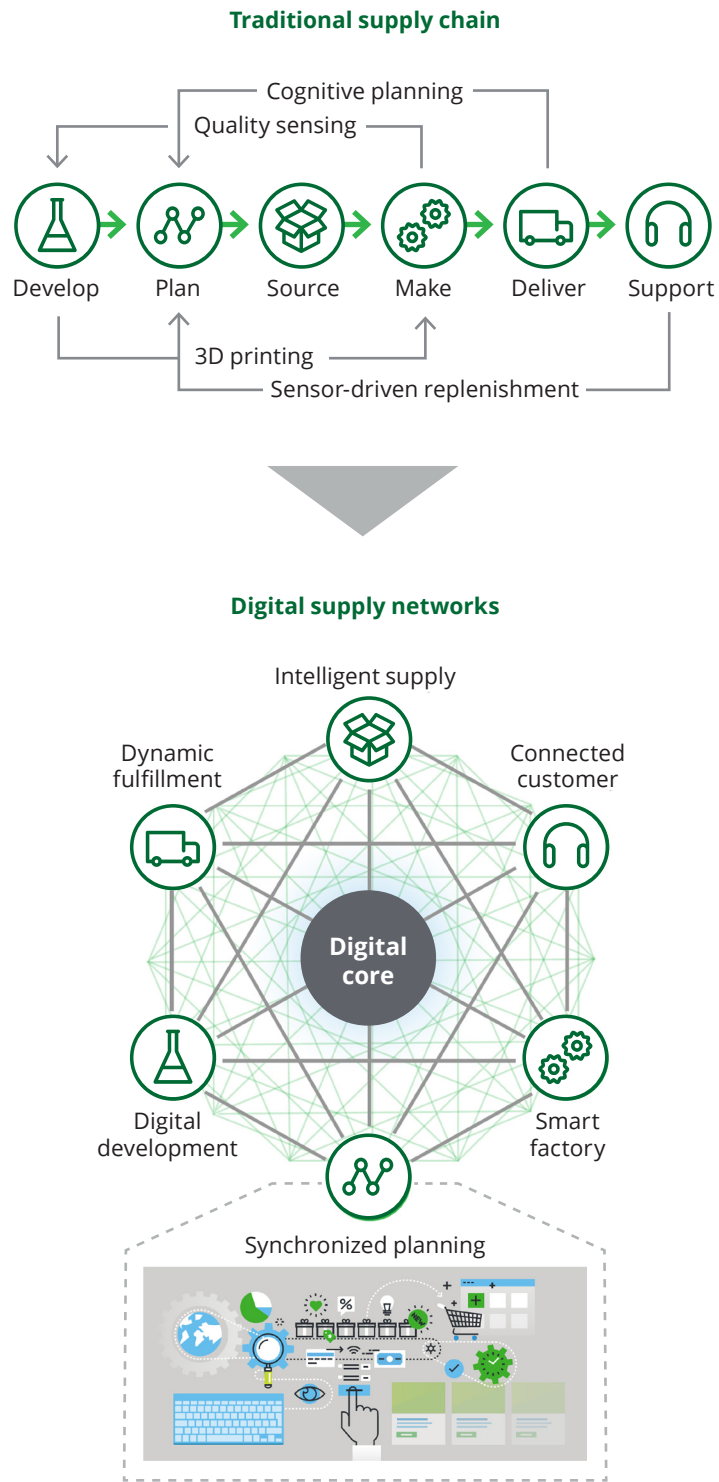
- **Increase supply chain transparency** to gain better visibility into the movement of products from the manufacturer or supplier to their destination. This helps you to understand bottlenecks and optimize within existing capacity constraints.
- **Create control towers** (see diagram 1) to facilitate quick responses to change. Allow privileged users to act quickly and reshape demand or redirect supply. [Learn more about this.](#)
- **Improve supply chain performance** by reducing lead times for critical components that are used regularly. This will help you better predict surges in demand and improve the traceability of supplier quality issues.

### Industry proof points:

84% of supply chain leaders report success in breaking down silos with technology that increases supply chain visibility, and 66% report improved coordination with manufacturing [[Forbes](#)]. Deloitte has helped a billion-dollar Canadian general merchandise retailer reduce inventory by 15 to 25% and improve service levels by more than 5%.

- An example of a company capitalizing on AI is a leading German sportswear manufacturer and retailer that is using machine-learning algorithms to optimize inventory levels and omnichannel fulfillment.
- **Enhance forecasting and planning** through AI. From cutting costs to keeping consumers happy, AI can improve forecasting accuracy and help companies fill orders on time, avoid unnecessary inventory expenses, and plan for price fluctuations.

Diagram 1:  
**Evolving the supply chain to a digital supply network powered by AI and cognitive capability**



# AI use case 4

## Improving operational efficiency

Machine learning and AI can help improve operational efficiency incrementally. Using new sources of data, new techniques, and automation, consumer businesses could radically improve their operational productivity at the hyper-localized level.

### What does this mean for your business?

Adopting data science and machine-learning techniques will allow companies to automatically determine and optimize performance, increase productivity, and minimize constraints. AI can also help remove steps from manual processes, freeing people to perform more strategic tasks and develop further system improvements.

To optimize your business operations, think about the following:

- Are we using data and AI to optimize factors that affect operational productivity?
- Are we using intelligent automation to accelerate back-end office functions and reduce administrative burden?
- Are we using data to balance capacity, reduce idle time, and shorten lead times across our network?

### What are the key benefits enabled by data and AI?

- **Introduce computer vision and image recognition** to improve the speed and accuracy of detecting stock-outs, customer wait times, pricing errors, and loss-prevention risks.
- **Use voice recognition and natural language processing systems**—like chatbots—to reduce the cost of improving customer experience.
- **Robotic process automation (RPA)** (see diagram 2) can automate repetitive, labour-intensive business processes to free up human capacity for tasks with higher added value.

### Industry case studies:

- UPS has saved over US\$50 million by using AI to optimize its delivery routes. [[Forbes](#)]
- **Improve efficiency by automating the supply network** using robotic process automation (RPA), which can be used to accelerate activity across the supply network. [\*Learn more about automating the digital supply chain network.\*](#)

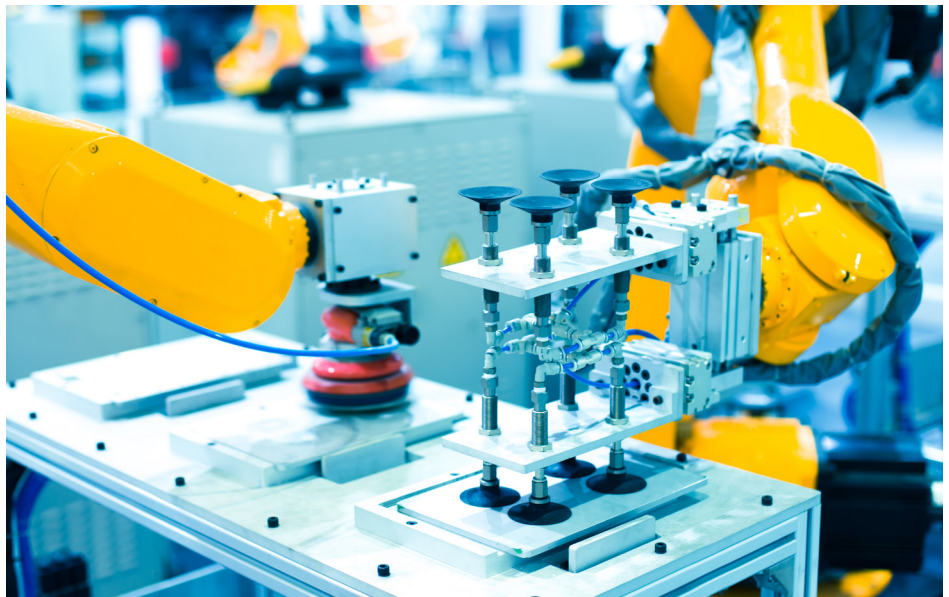
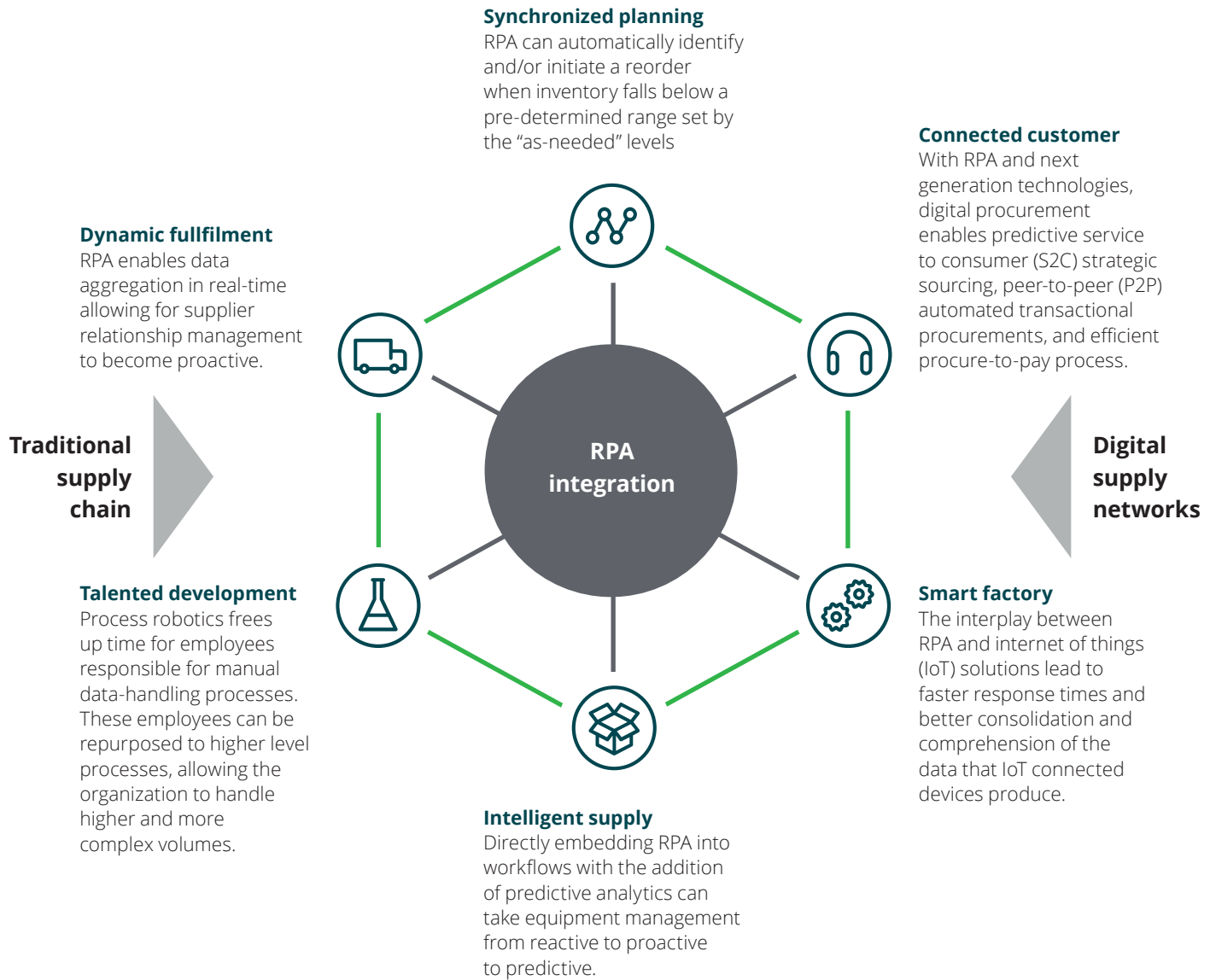




Diagram 2:  
**RPA in the supply chain**



# AI use case 5

## Building supply chain resiliency

Companies can improve the resiliency of their supply chain by harnessing data that can be used to predict the risks and provide mitigating strategies to protect against uncontrollable external factors.

### What does this mean for your business?

Supply chains are multifaceted systems comprising various organizations, operations, processes, assets, people, and strategic stakeholders. This complexity is also reflected through the flow of information across the chain, ensuring that appropriate decisions are taken for the system to work both efficiently and effectively. And as supply chains stretch farther around the world, they get even more difficult to manage because of things like unpredictable weather patterns and external sources of risks.

The data available through social media streams could provide valuable live information about the status of locations, assets, sentiments, and weather in various regions; it could be used to make better decisions. Data availability and appropriate insights are critical for any system to manage supply chain risks effectively. With simulation and digital twin technology, companies can facilitate a faster analysis process, a faster quantification process, and often better suggestions for mitigation based on a wide-ranging analysis of past scenarios.

To improve your supply chain resiliency, you must consider:

- Do we have AI systems capable of using data to identify the source of risk?
- Can we quantify the risk based on past impact data?
- Are we using AI algorithms and the available data to suggest actions for the best possible mitigation?

### What are the key benefits enabled by data and AI?

- **Use digital twins** for critical parts of the supply network to simulate the effect of massively disruptive events. [Learn more about this.](#)
- **Improve business readiness** to respond to major business disruptions and emergency situations.

### Industry case study:

Microsoft improved service levels by 5% and eliminated US\$250 million in waste through simulation [[AnyLogic](#)].

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The scale of becoming an AI-enabled organization can seem daunting, but a focused, value-based, and incremental approach to adoption will help to deliver immediate value and mobilize the entire organization to move toward a new future.

# Accelerating value through enterprise adoption

For consumer industry organizations that want to lead in this space, especially those with the scope and ambition to build and maintain unique AI solutions, becoming an AI-enabled organization could generate a long-term advantage over the competition.

Turning this vision into reality can be summed up as: **Start small, test and learn, scale fast, and build iteratively.**

Attempting to infuse AI into a new way of operating and thinking all at once could result in massive organizational disruption and lead to challenges with change management and adoption. Instead, start to build low-risk use cases that deliver clear and immediate value. Deciding on a suitable

approach to delivering selected AI use cases starts with being honest about your risk tolerance, scale, skills and capabilities, and competitive environment. Be mindful of the impacts on your workforce and make sure employees are sold on the value and then reward them for improved performance to gain adoption. If left as an afterthought, this could be the hill you die on.

Once the use cases have been optimized and are routinely delivering value, they can be swiftly rolled out across the organization to maximize value and extend the benefits. Successful scaling of an AI use case will depend on existing capabilities and skill sets for supporting enterprise-level solutions and the speed of enterprise adoption.

Processes and systems to clean, catalogue, and manage source data, assess and monitor solution performance, and assess AI models for risk and bias all need to be developed and scaled as the number and scope of AI use cases grows.

Most organizations will spend as much time on data management as they do on developing AI capabilities and solutions. Without an end-to-end approach that depends on a robust data ecosystem, AI initiatives will quickly turn into science experiments or one-off projects, thus diminishing the transformational potential.

## Making it real

Most consumer industry organizations have not yet started making use of AI's transformative potential to drive business outcomes ranging from reducing costs and improving customer experiences to mitigating risks, just to name a few. As with all technological innovations, it falls on business leaders to ensure both funding and effort are prioritized for AI solutions that address real business issues and support the broader strategic objectives of the company.

However, because the world of AI is so new, there is no one right way of dividing ownership. The design and implementation of solutions needs to be a true partnership between relevant cross-functional leaders. The ownership of AI activity will depend on the strategic importance of AI to the organization, as well as the size of the investment being made in this technology. Maximizing value depends on the organization being nimble enough to recognize, prioritize, and pursue new AI opportunities as they open—whether it's to ride out a global crisis or thrive in an ever-evolving market economy.

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## Contact:

**Stefan Ivic**

**Partner, Omnia AI,  
Consumer Industries Leader  
for Data, Analytics, and AI**

sivic@deloitte.ca

778-228-0489

**[www.deloitte.ca](http://www.deloitte.ca)**