Capgemini invent

CXO INSIGHTS

CXO TECH BRIEF FOR RETAIL & CPG

1. SECTORAL EXEC SUMMARY

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SECTORAL OVERVIEW WITH A RETROSPECTIVE ON 2020 (A TURNING POINT) AND PROJECTIONS FOR 2021 (BUSINESS CHALLENGES)

RETROSPECTIVE

HYPER-COMPETITION

Retailers and CPG companies are facing a **hypercompetitive market** due to the evolution of the macro-economic environment, the increasing expectations of **fickle and fragmented consumers** and the rise of **new competitors** (disruptors) with state-of-the-art technologies.

COVID-19

The pandemic-related social distancing has also entirely disrupted the buying behavior of consumers who have not only **changed their consumption patterns** but also their **purchase frequency** and **locations**.

WHAT'S NEXT

THE SURGE OF E-COMMERCE

2020 has accelerated the adoption of e-commerce enabling many web-based companies to drastically improve their revenues over this year. However, **e-commerce is a less profitable** model for traditional retailers and has emphasized their **need to reduce costs** and **increase productivity**. The Covid-19 crisis has led to an increased gap between digitized and non-digitized companies and has pushed retailers and CPG companies to act quickly to mitigate this obsolescence, by **accelerating their agility** and using technology to ensure business continuity.

POPULARITY OF MORE LOCAL PRODUCTS

Consumers are also getting increasingly **involved in sustainability issues** as demonstrated by the significant increase in demand for **local and organic products**. This trend is here to stay given that **54%** of consumers stated that they would prefer to buy local or regional products once the pandemic is over (Source: CRI). Hence, retailers must also **reinvent their supply** and **distribution chains** to match these shifts in expectations.

24% of consumers worldwide currently have high interactions with physical retail stores as against 59% before the Covid-19 outbreak

1. SECTORAL EXEC SUMMARY

MAJOR MOVES BY MARKET PLAYERS

TWO MAIN TYPES OF PLAYERS AND TRENDS IN THE RETAIL AND CPG MARKET

KEY PLAYERS DRIVING TRENDS IN THE RETAIL INDUSTRY

Alibaba
Amazon

These are the players that **invent the new rules of the retail market** (CX, inventory management, delivery) and cement their position as market leaders thanks to their **mastery of innovative technologies**. They constantly **invest in emerging technologies** such as AI, IOT, AR/VR and in start-ups to **develop their ecosystem** and anticipate the future of retail.

TRADITIONAL RETAILERS / CPG AND TECH COMPANIES

Since 2018, to face the harsh competition, traditional players have been **increasing their investments in technology** and tend to **closely partner with high-tech leaders or start-ups** to create new **digital assets** and **services** to rapidly bridge their digital gap.

Carrefour & Google

Strategic alliance objectives:

New sales **channels** (*2020 – voice shopping*)

- **Broadening** to younger customer base through IoT & IA
- Integration of employees' **cloud** and office **automation tools**
- Creation of a **Digital Hub** (2019)

OTHER PARTNERSHIPS TO INITIATE THE WIDESPREAD USE OF EMERGING TECHNOLOGIES (IOT, AI, CLOUD AND COMPUTER VISION)

Walmart & Google	New sales channel possibilities
Tesco & Trigo	Cashierless checkout system
Walmart & Microsoft	Innovation hub factory
Intermarché & Microsoft	Data factory
Plus & Reflex	E2E supply chain optimization

1. SECTORAL EXEC SUMMARY

CONVICTIONS REGARDING THE SECTOR'S KEY TRENDS BASED ON TECH AND SECTOR MATURITY ANALYSIS

HOT

EMERGING TECHNOLOGIES IN WHICH RETAILERS ARE CURRENTLY PRIORITIZING THEIR INVESTMENTS

ARTIFICIAL INTELLIGENCE: ithas a strong impact in **reducing costs**, building a better **customer relationship** and providing better **selling opportunities**. AI is applied within marketing personalization, customer service, inventory management, logistics and delivery

IOT: it is widely recognized for improving **supply chain efficiency**, store optimization, automation of warehouse logistics and a wide range of uses for customer engagement. The ultra connectivity of devices is also a means to improve product traceability by greatly enhancing the amount of information available.
In the context of COVID-19, it enables businesses to ensure better **compliance with safety measures**

ON THE RADAR

EMERGING TECHNOLOGIES WITH HIGH POTENTIAL USE CASES BUT REQUIRING MORE EVIDENCE OF ROI BEFORE INVESTING MORE

5G: its deployment will **enhance and develop** the use of other emerging technologies (IoT, AI, etc.) by providing safer and faster connectivity

VISUAL SEARCH: a new alternative to traditional search methods. Already popular in China and the USA with over 600 million visual searches on Pinterest each month. Image-based Pinterest ads have a conversion rate of 8.5%, according to Heap, Inc. By 2021, early adopter brands could **increase their digital commerce revenue by 30%** (Gartner)

VOICE SEARCH: The voice shopping market is **materializing rapidly** as major players compete for a leading position, forging alliances and introducing new voice-activated smart speaker devices. Although voice shopping is still in its nascent stages, millions of users are buying smart speaker devices.

HYPE

EMERGING TECHNOLOGIES NOT CONSIDERED AS MUST-HAVES TODAY BY RETAILERS AND THEIR CUSTOMERS. ONLY SINGLE PILOTS HAVE BEEN CONDUCTED FOR SOME OF THEM

AR/VR: an opportunity to provide an **immersive experience** enhancing the user's perception of reality by combining physical and virtual elements and to improve employee training

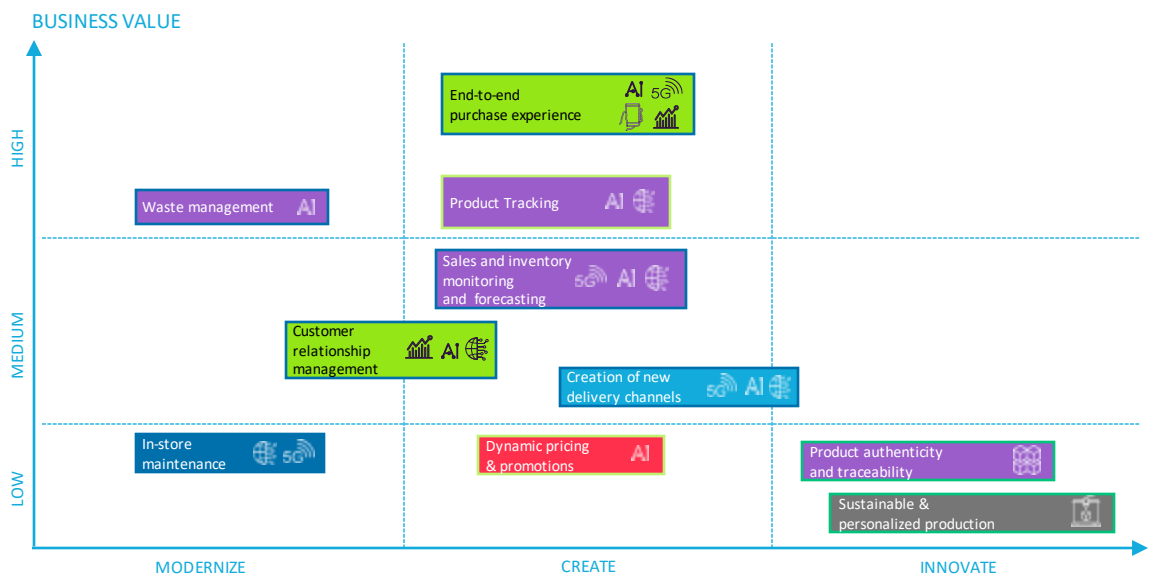
3-D PRINTING: an opportunity to **reduce costs and production time** (for example: prototyping, test and learn, etc.).
This technology can help enhance the customer experience by providing **personalized** products.
It can also be an opportunity to improve or create new after-sales services

2.1 HOW IS THE VALUE CHAIN DISRUPTED BY TECH?

Offerings	Logistics & Supply Chain	Production	Customer Experience & Marketing	Distribution channels	Support functions
CHALLENGES					
• Provide personalized product and service offerings to meet the rapidly changing customer needs	• Increase efficiency in warehouse management to fulfill the exponentially growing e-orders • Reduce the supply chain footprint • Optimize cost efficiency in inventory management	• Adopt more sustainable production methods (packaging, production processes, etc.)	• Reinvent the in-store customer experience to increase the attractiveness of physical stores • Provide a seamless omnichannel experience to bridge the gap between the online and in-store customer journey	• Reduce the delivery time • Optimize product allocation • Provide new pickup solutions to match customer needs/habits	• Reduce in-store costs • Improve employee efficiency • Optimize inventory management
Sales and inventory monitoring and forecasting	Waste management	Sustainable production	End-to-end purchase experience	Sales and inventory monitoring and forecasting	In-store maintenance
Dynamic pricing and promotions	Product authenticity and traceability	Personalized production	Customer relationship management	Creation of new delivery channels	Sales and inventory monitoring and forecasting
	Product tracking				

Use-case

2.2 FOCUS ON TECH DELIVERY MATURITY & BUSINESS VALUE



Timeframe Now Tomorrow In the near future

IoT · 5G Network · Blockchain · Robotics · Data analytics · Augmented reality

PWA · Cloud / Edge · 3D Printing · Quantum · Virtual reality · AI/Machine learning

3. FOCUS ON VALUE CHAIN BLOCKS ALONG WITH USE CASES

CUSTOMER EXPERIENCE & MARKETING

- 40% of retailers see it as a critical priority
- Online and in-store CX is paramount for retailers
- Provide the best retail CX possible
- Visual search, IoT, AI, Data, AR/VR, PWA, and 5G

- **Need:** today, the combination of a hypercompetitive industry and the new obligations related to the health crisis has forced retailers to improve their in-store and online experience. Connecting all the different touchpoints has become essential to retain an increasingly elusive customer.
- **How tech can help:** improve the omnichannel experience and develop data and analytics strategies, to facilitate a personalized shopping experience and phygitalize the physical store experience.
- **Examples of emerging use-cases:**
  - Understand the in-store customer behavior through heat mapping thanks to IoT sensors and AI (enabling data analysis)
  - Personalize offers and promotions by setting up smart shelves using IoT and AI
  - Facilitate product search through images thanks to visual search and computer vision (for example, the Target app using the Pinterest Lens) (AI, IoT)

LOGISTICS & SUPPLY CHAIN

- Weekly e-commerce sales during the 1st lockdown in France: +27% and +29% (vs. 2019) respectively in May and Sep 2020
- Need for a sustainable supply chain
- The surge of e-commerce
- IoT, AI, and 5G

- **Need:** e-commerce is the main trend for retail/CPG, but it requires that the current supply chain be redesigned in terms of volumes and cost reduction to make it more profitable while simultaneously adopting more sustainable practices.
- **How tech can help:** Create more automated warehouses for greater efficiency in inventory management and order preparation.
- **Examples of emerging use cases:**
  - Optimize storage and waste reduction by using connected monitors for tracking environmental conditions to regulate warehouse temperatures (IoT, AI, 5G)
  - Optimize reverse logistics processes and waste reduction by using AI solutions (inventory tracking system)
  - Automate warehouse logistics with Robotic Process Automation ((AI, IoT)

DISTRIBUTION CHANNELS

- 60% of French people who use the Internet on their smartphones want recognition of their individuality as well as multiple simplified touchpoints
- Product availability
- Better customer satisfaction
- AI, IoT, 5G

- **Need:** Optimize the allocation of all products across all distribution channels to ensure availability to customers
- **How tech can help:** Automated warehouses to accelerate order preparation, facilitate the process of receiving packages through autonomous and digital channels, inventory forecasting intelligence to optimize allocation (on time, right place, right amount).
- **Examples of emerging use cases:**
  - Predict sales and automatically anticipate replenishment by using IoT sensors and AI
  - Automate warehouse logistics with Robotic Process Automation
  - Facilitate product pick-up/return through smart lockers (IoT)

4. FOCUS ON USE CASES AND ASSOCIATED TECHNOLOGIES

IOT TO OPTIMIZE INVENTORY MONITORING

DISTRIBUTION CHANNELS

- **Concept:** Levi's is equipped with a real-time inventory monitoring system in all its US and part of its European stores. The system collects and forwards backstore inventory information so that the stock can be automatically replenished when running low.

  This is achieved by using an RFID tag in every Levi's product, which helps collect data on customer preferences and better anticipate the stocks required for each item.
- **Results:**
  - Inventory accuracy of 98% and the possibility to make an entire inventory in less than 20 minutes
  - Average sales increase of 5% (in equipped Levi's stores)
- **Key concern :** high investment cost (around 1.75 million euros per year in RFID tags)

MARKET TECHNO IMPACT

Market and techno rationale:

Widespread use of RFID tags in the inventory management process is a solution that can only be applied for rather expensive goods to compensate for the investment.

TECHNOLOGIES AI

RFID
AI/MACHINE LEARNING
SENSORS

Benefits:

- Boost sales
- Increase customer satisfaction

IOT AS A FACILITATOR OF IN-STORE ACTIVITIES

CUSTOMER EXPERIENCE & MARKETING

- **Concept:** Kroger in partnership with Microsoft has introduced smart shelves to electronically display prices, ads, digital coupons, nutritional data (etc.) in stores using EDGE technology. Thanks to the IoT devices integrated into the shelves such as electronic tags, they connect to the shopping list on the customer's smartphone and highlight the relevant products and promotions, thus augmenting the shopping experience. In addition, this technology also helps to keep track of in-store inventory in real time by using a variety of sensors, thereby optimizing aisle stock management.
- **Results:**
  - Average revenue increase of 6% thanks to a more personalized in-store consumer experience and the sale of digital ad space
  - More precious insights can also be generated on in-store costumer behavior
  - Covid-friendly since it also minimizes interactions with shopping assistants
- **Key concern:** a rise in energy consumption

MARKET TECHNO IMPACT

Market and techno rationale:

The concept was rolled out at the beginning of 2019 and was only deployed in 100 stores that year. Yet the benefits associated with the technology seem to easily compensate for the implementation costs of these connected shelves.

TECHNOLOGIES

RFID TAGS & READERS
CLOUD / EDGE
SENSORS

Benefits:

- Monitor your inventory in real time to prevent stock shortages
- Increase in revenue thanks to improved CX
- Increase interaction with customers in stores to learn more about their habits

4. FOCUS ON USE CASES AND ASSOCIATED TECHNOLOGIES

TARGET'S VISUAL SEARCH APP

CUSTOMER EXPERIENCE & MARKETING

- **Concept:** Target integrated Pinterest's visual search tool in their own mobile app to enhance the customer experience by enabling them to search through their catalog by taking pictures of items from their surroundings.

  In addition, customers can snap a photo of any product in a Target store and the app will pull up similar items, showing them a full lineup of options rather than only what is available in that one store. The Pinterest Lens uses AI to both assign detailed textual tags to the retailer's inventory and recognize images to find identical or similar products.
- **Results:**
  - The number of searches using the Pinterest Lens have multiplied threefold since 2019
  - 2.5 billion identifiable home and fashion products
  - Higher customer engagement leading to an average increase of 20% in sales
- **Key concern :** high investment cost (around 1.75 million euros per year in RFID tags)

MARKET TECHNO IMPACT

Market and techno rationale:

More intuitive search features are needed to respond to very demanding customer expectations. They would help generate a 30% increase in digital sales for brands. Yet, to function properly, the technology requires a vast database and AI to analyze it

TECHNOLOGIES AI AI/MACHINE LEARNING

VISUAL SEARCH

Benefits:

- Better customer engagement
- New ways of purchasing
- A more frictionless experience potentially enabling an increase in sales

CONTROLLING PRODUCT STORAGE CONDITIONS (in warehouses and during transit)

LOGISTICS & SUPPLY CHAIN

- **Concept:** Monitoring the cold chain helps guarantee food safety. This technology aims at monitoring temperature, humidity and other conditions for items in storage or transit.

  The highest and lowest temperatures are recorded as well as any time spent outside of these preset limits in order to compensate for optimal storage conditions. Tools include thermometers for temperature monitoring, hydrometers for monitoring air humidity, data loggers for recording and evaluating measured values, and transport recorders for logistics
- **Results:** longer product life cycle with reduced costs, compliance with regulations (product quality)
- **Key concern:** high investment cost

MARKET TECHNO IMPACT

Market and techno rationale:

- Smart facility monitoring systems
- Big data and cloud computing
- IoT

TECHNOLOGIES IOT

CLOUD / EDGE

BIG DATA

Benefits:

- Maintaining internal temperatures and notifying any deviations in temperature (various audio / video alarms)
- Stock rotation
- Forced air-cooling (for temperature stability and recovery)
- Cost reduction
- Regulatory compliance

4. FOCUS ON USE CASES AND ASSOCIATED TECHNOLOGIES

OCADO'S REAL-TIME FAST-MOVING ROBOTS

LOGISTICS &
SUPPLY CHAIN

- **Ocado's warehouse** has thousands of robots zooming around a grid system to pack groceries. These robots can process 65,000 orders every week. They communicate on a 4G network to avoid bumping into each other.
- **Concept :** Robots collect orders inside the warehouse. They move along the grid system and are controlled by an air traffic control system. Information is communicated between devices so that processes can be automated, without the need for human intervention.
- **Results:** Warehouse automation (for product movement, order preparation) and autonomous robots to move groceries and other products in real time.
- **Key concern:** high investment cost, complex data management, risk of accidents with casualties

MARKET TECHNO IMPACT

Market and techno rationale:

In May 2020, Monoprix has implemented Ocado's solution in its new warehouse in the Parisian suburbs and aims to reach 100,000 orders per week.

TECHNOLOGIES

IOT

ROBOTICS

Benefits:

- Improved productivity without additional resources by implementing programmed decisions through IoT infrastructure

REDUCING WASTE BY LEVERAGING AI

DISTRIBUTION
CHANNELS

- **Concept:** Morrisons improved its on-shelf availability (fresh products included) thanks to an entirely automated ordering system (Replenishment Optimization software). AI science enables them to carry out accurate forecasting and helps automate the order process for each product and store, while balancing multiple and competing KPIs.
- **Results:**
  - Shelf gaps reduced by 30%
  - Stockholding in stores reduced by 2 to 3 days
  - Optimization of the replenishment process by automating and simplifying its ordering system, thereby giving customer-facing employees more time for value-added activities
- **Solution partner**:
  - An AI-powered solution to predict consumer demands in order to calculate the right amount of stock required

MARKET TECHNO IMPACT

Market and techno rationale:

Using AI to address inventory management issues enables businesses to have more a sustainable product distribution and helps them reduce waste, especially when it comes to fresh and perishable goods

TECHNOLOGIES

CLOUD / EDGE

AI/MACHINE LEARNING

Benefits:

- Waste reduction
- Increased employee productivity
- Increased profitability by reducing missed sales

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