grocery doppio
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State of the Industry:

Sustainability in Grocery: Progress Through Technology

About this report.

Grocery Doppio conducted a survey among both grocery shoppers and grocery executives.

The aim was to gain insights into several key areas, including shopper expectations, the current level of maturity among grocers, the utilization of technology and artificial intelligence to achieve their objectives, and their plans for the future regarding sustainability strategy.

Shopper respondents

841

Executive respondents

173

Note: This report leverages data from other Grocery Doppio and Incisiv studies. Those statistics are called out on respective pages.

Shoppers care about sustainability. However definitions vary and few are willing to pay a premium for it.

73%

of shoppers would prefer to shop at a grocer with clear sustainability principles.

13%

of shoppers are willing to pay a premium for it.

What do shoppers want?

Top Sustainability Areas	%
Transparency in product information (sourcing, ethical, etc.)	**86%**
Product Selection non GMO, planet-based alternatives, etc.	**79%**
Packaging and waste Less plastic use and compostable and re-usable packaging.	**63%**

Where do shoppers want it?

Category Impact	%
Produce	**83%**
Dairy and Eggs	**81%**
Meat	**74%**

What shoppers want: The three pillars of sustainability

In essence, sustainability is about ensuring that every product on the shelf has been brought there with the least harm to our planet and its inhabitants.

A compelling 73% of shoppers desire that grocers uphold strong sustainability principles.

For these consumers, sustainability revolves around three main pillars: 86% demand transparency in product sourcing; 79% prioritize healthier, eco-friendly selections such as non-GMO and plant-based items; and 63% advocate for reduced single-use plastic, showing a strong preference for compostable and reusable alternatives.

Yet, only 13% of shoppers would pay extra for sustainability; most simply expect it as a standard part of their shopping experience.

Grocers believe that improving sustainability is a brand differentiator and an efficiency lever.

78%

of grocers believe that sustainable practices will differentiate them from the competition.

83%

of grocers believe that sustainable practices will help them attract more Gen Z shoppers.

54%

of grocers believe that adopting sustainable practices will help reduce operating expenses in the future.

71%

of grocers believe that sustainable practices will help them attract more Gen Z associates.

Grocers are making sustainability central to their strategy

For grocery leaders, sustainability is not just a goal—it's an operational and strategic necessity.

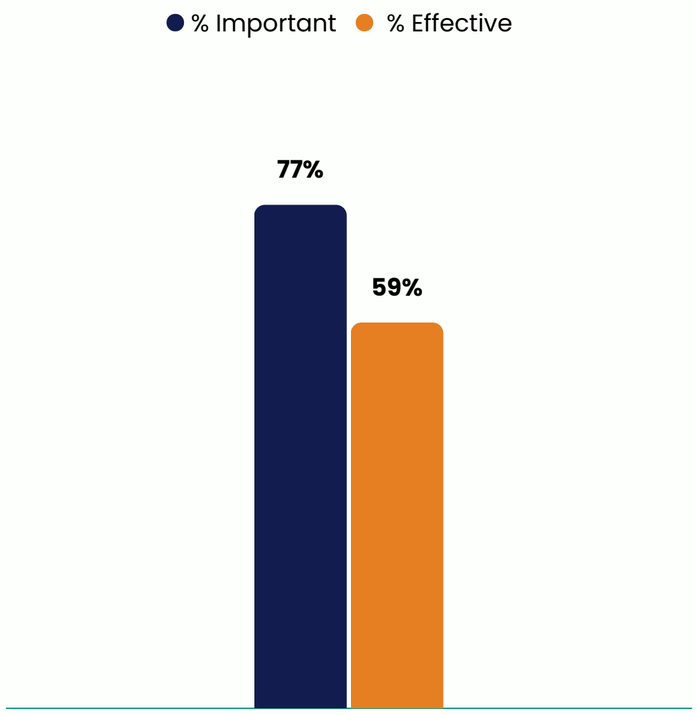
Sustainability practices help boost shopper loyalty, improve brand equity, enhance operational efficiency, and attract younger cohorts of shoppers and associates.

78% of executives recognize sustainability as a pivotal differentiator. Meanwhile, 83% are convinced of its appeal to Gen Z shoppers, and 71% believe it's influential in recruiting Gen Z staff.

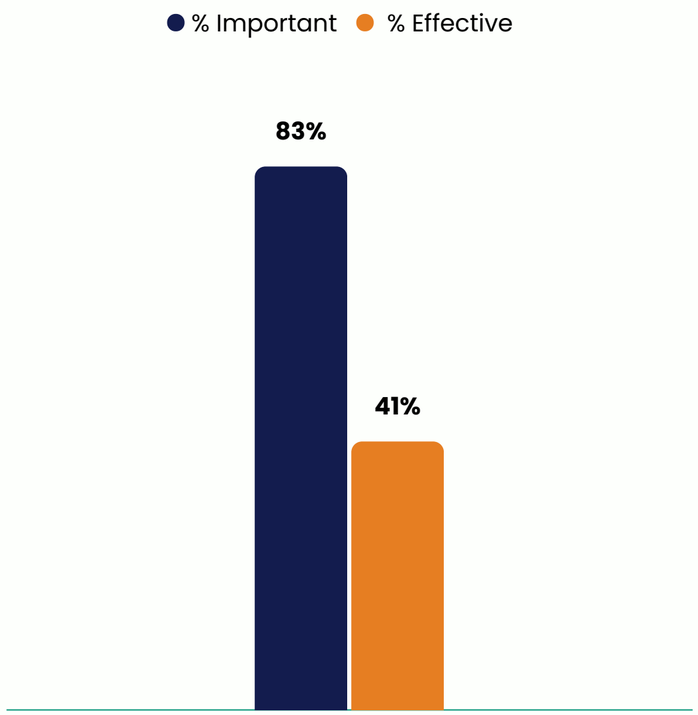
In addition, governments worldwide are increasingly implementing eco-friendly regulations. Grocers practicing sustainability are better positioned to comply without disruptive overhauls.

Grocers aren't leveraging technology effectively to improve sustainability.

Sustainability Processes
Importance vs Effectiveness



Sustainability Technology
Importance vs Effectiveness



Prioritizing process over technology

For many in the grocery industry, a foundational shift in operational processes might offer more immediate and tangible results in sustainability, even as the search continues for more effective technological solutions.

77% of grocers have identified the modification of business processes as crucial for realizing sustainability goals. Reassuringly, 59% feel confident that their current processes effectively address these ambitions.

In contrast, while a large majority, 83%, recognize the importance of leveraging technology to meet their sustainability goals, only 41% believe that their present technological solutions are effective.

What stops grocers from using technology more effectively to improve sustainability.

Top 5 challenges:	Rank
Inadequate budget / Unclear ROI	#1
Lack of specialized knowledge / Lack of awareness about specialized areas and technologies	#2
Lack of long-term technology-based strategy for sustainability	#3
Managing multiple owners / stakeholders	#4
Unclear standards or regulations	#5

Barriers to successful technology adoption

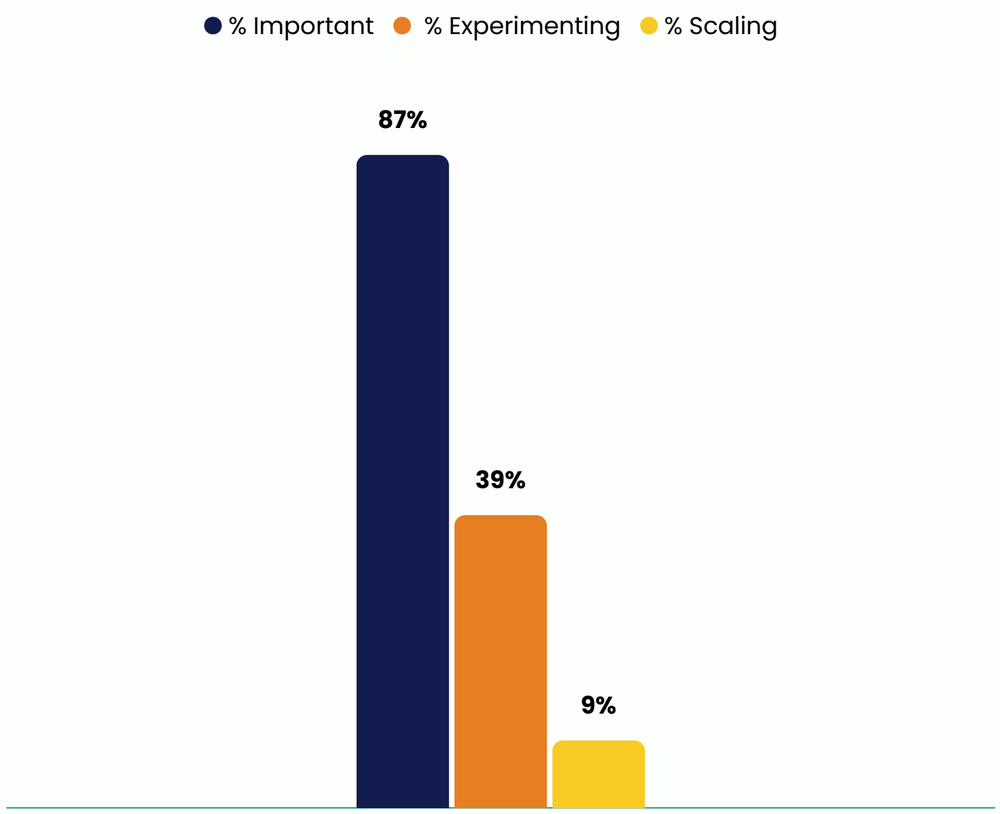
In the quest to harness technology for sustainability, grocers encounter multiple challenges.

Firstly, budgetary constraints paired with an uncertain return on investment make it difficult for them to allocate funds confidently.

This is exacerbated by a knowledge deficit; many grocers aren't fully aware of specialized tech solutions available or their potential impact. The absence of a coherent, long-term technological strategy specifically focused on sustainability leaves many without clear direction. Decision-making becomes even more complex when considering the varied interests of multiple stakeholders and owners within the business.

To top it all off, the industry is grappling with ambiguous and evolving standards and regulations pertaining to sustainable technology.

A majority of grocers believe that leveraging AI is important to meet their sustainability goals.



Harnessing AI: Clear intent to experiment and scale

The significance of Artificial Intelligence (AI) in the grocery sector's pursuit of sustainability is becoming increasingly evident.

The majority of grocers (87%) recognize and affirm AI's pivotal role in helping them realize their sustainability ambitions. This showcases the immense potential and trust vested in this technology.

However, when delving into actual implementation, there's a disparity. A mere 39% of grocers have transitioned from ideation to actively experimenting with AI-driven sustainability measures.

Only a small segment, 9%, are scaling and integrating AI solutions into their core sustainability strategies.

This highlights both the opportunities and challenges grocers face in harnessing AI for a greener future.

Sustainability Use Cases and Impact of AI:

Use-Case	Description	How can AI impact these?
Eco-friendly Packaging	Opting for packaging materials that are recyclable, biodegradable, or made from post-consumer recycled content. This reduces the environmental footprint of the products on the shelves.	Machine learning can analyze and optimize packaging designs for minimal material use. Additionally, AI can assist in researching and developing biodegradable or recyclable materials by predicting their environmental impact over time.
Local Sourcing	Promoting and prioritizing local produce and products to minimize transportation emissions and support local economies.	Predictive analytics can forecast local produce yields, helping grocers to better plan their inventory. AI can also optimize supply chain logistics to reduce carbon footprints by prioritizing local suppliers.
Sustainable Product Selection	Curating a selection of certified organic, fair trade, and sustainably-sourced products. Allocate prime shelf space for plant-based and alternative protein products, catering to the growing demand and highlighting their lower environmental impact.	Algorithms can analyze product life cycles, evaluate their sustainability metrics, and recommend products that align with a store's sustainability goals.
End of Life Product Management	Identify opportunities to change the product packaging across areas (quantity of material, type of material, type of printing, etc.) while meeting market packing standards.	Predictive analytics can forecast which products are likely to expire soon, allowing stores to manage waste better, be it through promotions, donations, or composting.
Eco-labeling	Use clear labeling systems or shelf markers to denote products that are organic, sustainably sourced, or have other eco-friendly attributes.	AI can automatically verify and monitor the authenticity of eco-claims made by suppliers, ensuring that products labeled as "sustainable" or "organic" meet set standards.
Private Brand Expansion	Improve store inventory accuracy by using real-time inventory data (IoT tracking, sales, associate mobile devices, etc.).	AI can assess the market demand for sustainable products, guiding private brands in developing products that meet these demands. It can also optimize formulations or designs for sustainability.
Promotional Materials	Improve store inventory accuracy by using real-time inventory data (IoT tracking, sales, associate mobile devices, etc.).	AI can improve overall targeting and can optimize the inventory of promotional materials, ensuring that only necessary quantities are printed, thus avoiding overproduction and subsequent waste.

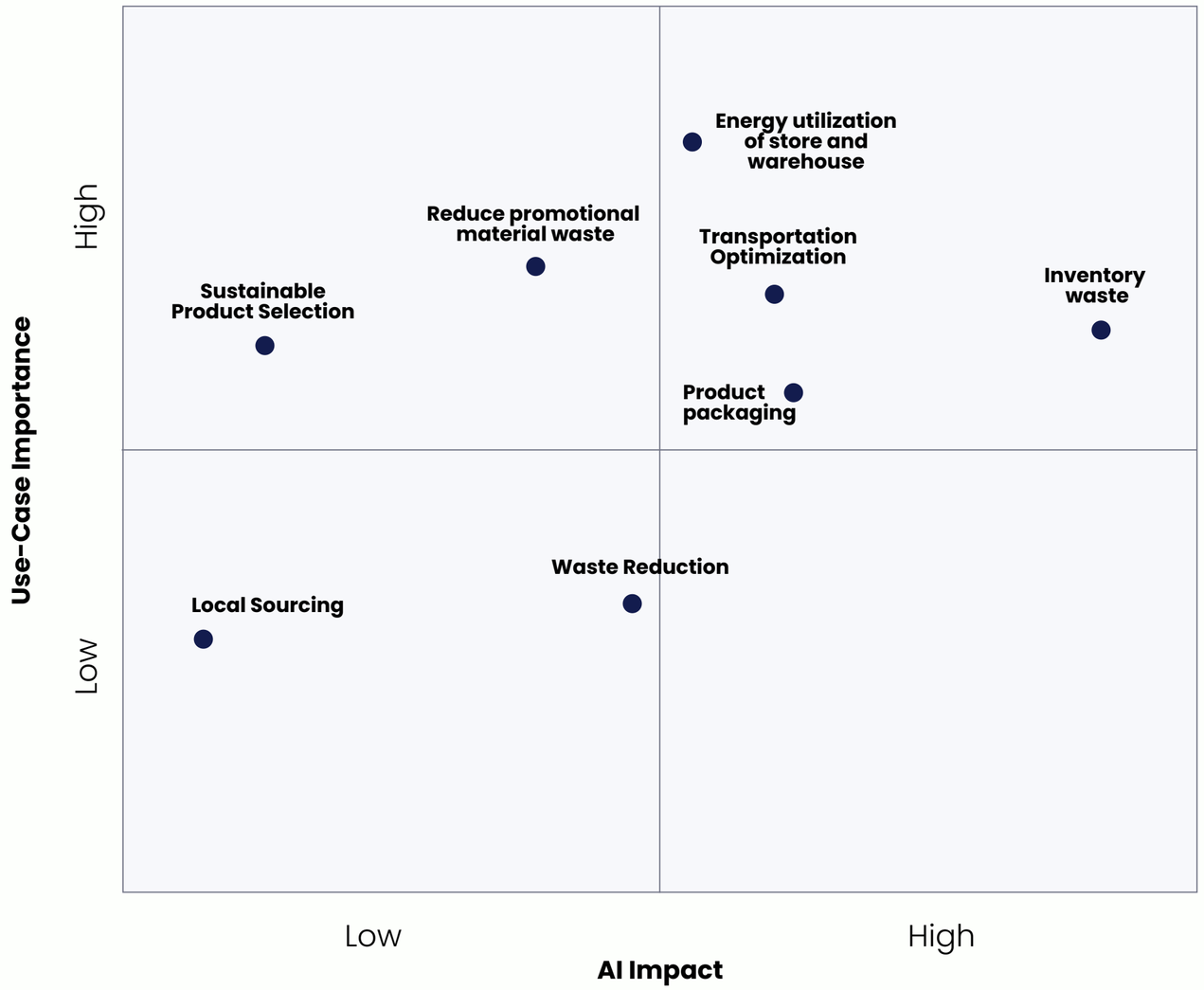
Sustainability Use Cases and Impact of AI:

Use-Cases	Description	How can AI impact these?
Energy Efficiency	Implementing LED lighting, energy-efficient appliances, and HVAC systems.	AI-driven systems can analyze energy consumption patterns and optimize usage, ensuring lights and systems are only active when needed.
Waste Management	Reducing food waste by better managing perishables and offering unsold items at discounted prices or donating them.	Predictive analytics can forecast demand more accurately to help stores order just what they need, minimizing overstock and waste. Also track expiry of perishables.
Water Conservation	Utilizing water-saving appliances and fixtures and monitoring water usage.	AI can monitor water usage patterns in real-time, identifying leaks or areas of waste and optimizing usage.
Green Building Design	Constructing or renovating stores using sustainable building materials and designs that reduce energy consumption.	AI can aid in building design by simulating energy usage under different design scenarios.
Smart Refrigeration	Implementing energy-efficient refrigeration units and monitoring them for optimal performance.	Sensors combined with AI can ensure optimal temperatures, reducing energy usage and preventing food spoilage.
Reduce Paper and Plastic Use	Offering e-receipts to customers instead of paper ones Using digital means to display prices, promotions, or product information, reducing the need for paper and plastic tags	AI can dynamically adjust signage based on inventory, promoting items that are overstocked or nearing expiration.

Sustainability Use Cases and Impact of AI:

Use-Cases	AI/ML Can Be Used To:	How can AI impact these?
Energy Efficiency	Implement energy-efficient practices in warehouses, cold storage, and transportation.	AI systems can monitor energy consumption in real-time and suggest optimizations, like the best times to cool cold storage or charge electric delivery vehicles.
Sustainable Inventory / Inventory Waste	Manage inventory in a way that minimizes waste, particularly of perishable items.	Predictive analytics can anticipate which items are likely to remain unsold and suggest markdowns or alternative uses.
Demand Forecasting	Accurately predict product demand to reduce overproduction	By analyzing sales data, weather patterns, and other influencing factors, AI can provide more accurate demand forecasts.
Ethical Supplier Auditing	Regularly audit suppliers to ensure they follow sustainable and ethical practices. Prioritize suppliers who have sustainability certifications or those who adhere to recognized sustainability standards.	AI can analyze vast amounts of data from suppliers, including third-party reports, social media, and news sources, to flag potential ethical violations or unsustainable practices. Over time, machine learning can identify patterns that indicate risks, helping businesses preemptively address issues.
Optimize transportation routes	Optimize delivery routes, reducing fuel consumption.	Using machine learning algorithms, AI can analyze traffic patterns, weather conditions, and other variables to determine the most fuel-efficient routes for delivery trucks. This not only reduces carbon emissions but also cuts down on delivery times and costs.
Transparent sourcing	Providing complete visibility into the origin and journey of products, from the raw materials stage to the final product that reaches the consumer. This involves detailing where products come from, under what conditions they were produced, processed, and transported, and the environmental or social impact of these processes.	AI systems can integrate and analyze data across the supply chain to provide a transparent view of product sourcing. Using blockchain combined with AI, for instance, can track products from their origin to the store shelf, ensuring ethical and sustainable sourcing.
Cold Chain Monitoring	Use IoT sensors to monitor temperature-sensitive goods throughout the supply chain, ensuring optimal temperatures and reducing spoilage.	AI-driven sensors can continuously monitor temperature and humidity levels during transportation and storage. If conditions deviate from the ideal range, the AI system can send real-time alerts, ensuring food safety and reducing waste. Predictive analytics can also anticipate potential cold chain disruptions based on historical data.
Sustainable Transportation	Use vehicles that run on alternative fuels, such as electric trucks or those powered by biodiesel. Additionally, consolidate shipments to maximize transportation efficiency.	AI can optimize the mix of transportation modes (e.g. rail vs. truck) based on factors like speed, cost, and carbon footprint. Additionally, for electric vehicle fleets, AI can optimize charging times and locations to utilize green energy sources and reduce costs.

Supply chain use-cases are the top focus areas for grocers.



Harnessing AI: Clear intent to experiment and scale

Artificial Intelligence (AI) is emerging as a transformative tool for sustainability in grocery.

Not only are supply chain goals rated as the most impactful, but they are also directly linked to overall Net Zero goals, where companies need to track, report, and reduce their emissions across all levels (Scope 1, Scope 2, Scope 3).

Grocers have substantial sustainability opportunities in inventory management, reducing waste through predictive analytics, and energy optimization with smart systems. Streamlined transportation logistics reduce emissions and costs. Prioritizing minimal and sustainable packaging significantly lowers environmental impact and appeals to eco-aware consumers.

KEY TAKEAWAYS

In the journey toward sustainability, grocers have yet to fully harness the power of technology and AI.

Grocers have embraced sustainability

The grocery industry has seen a marked shift towards sustainable practices in recent years.

Grocers are prioritizing green initiatives, committing to reduce their carbon footprints, and adopting more eco-friendly business practices.

78%

of grocers believe that sustainable practices will differentiate them.

Immediate impact: Efficiency and Transparency

By adopting sustainable practices, grocers can streamline operations, reduce wastage, and offer shoppers greater transparency.

They are also better positioned to meet increasing eco-friendly government regulations.

86%

of shoppers demand greater transparency.

Technology has been underutilized

There's a noticeable gap in the effective use of technology to achieve sustainability goals.

Many grocers are yet to fully leverage tools which could amplify their sustainability efforts and drive more impactful results.

41%

of grocers believe their current technological solutions are effective.

Is AI the game changer?

While AI is transformative and can transform various facets of the business. - optimizing inventory, reducing energy consumption, streamlining transportation routes etc. few (9%) have scaled it.

Experiments over the next 24 months will help make it more real.

87%

of grocers believe that AI is critical to meeting their sustainability goals.

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ABOUT GROCERY DOPPIO

Grocers have experienced a generational shift in e-commerce adoption within a condensed period of time, giving rise to both new growth opportunities and unfamiliar threats.

Grocery Doppio is an independent source of insights and inspiration designed to help grocers jumpstart, accelerate, and sustain growth in this dynamic new environment.

www.grocerydoppio.com

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ABOUT WYNSHOP

Wynshop is an ambitious team of digital innovators helping grocers and other local store-based retailers grow wildly successful online businesses. Wynshop's easy-to-use digital commerce platform enables efficient in-house picking, reduces fulfillment costs, and gives retailers control over every facet of the digital shopping experience.

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