Accessibility as an Afterthought: Addressing Packaging Design Misconceptions in the Consumer Packaged Goods Industry

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Abstract

This thesis investigates the ongoing marginalization of accessibility in the Consumer Packaged Goods (CPG) industry, challenging the perception of accessibility as an afterthought. Despite its growing awareness and evolving legal frameworks, many CPG businesses continue to overlook inclusive design in packaging, often citing cost, time constraints, or competing business priorities. Through a mixed-method approach—combining primary research using Microsoft's Seeing AI app with an extensive literature review—this study evaluates the real-world performance of product packaging meeting the needs of consumers with disabilities. Eleven products across various CPG categories were assessed based on five accessibility criteria: recognition accuracy, text readability, contrast and font size, tactile features, and digital accessibility tools. While Seeing AI successfully identified all products, significant limitations emerged in its ability to relay complete product information, particularly where packaging lacked readability, tactile elements, or accessible QR codes. These findings reinforce that most CPG brands fail to meaningfully incorporate accessibility, aligning with the literature that highlights gaps in corporate accountability, consumer trust and industry-wide implementation. This study concludes that accessible packaging is not only a legal and ethical responsibility but also a strategic business opportunity. By shifting from reactive compliance to proactive inclusion, CPG companies can improve consumer autonomy, reduce long-term costs, and unlock untapped market potential.

Introduction

Accessibility in product packaging has become an increasingly important issue as public awareness and consumer expectations around inclusivity continue to grow. Despite this momentum, many companies in the Consumer Packaged Goods industry still treat accessibility as an afterthought. This is often driven by persistent misconceptions—namely, that implementing accessible design is too

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costly, too time-consuming, or simply incompatible with other business priorities. As a result, individuals with disabilities are frequently excluded from fully engaging with products that are essential to everyday life, perpetuating inequities in consumer access and reinforcing the false notion that accessibility is a niche concern.

These challenges are compounded by inconsistencies in global regulatory frameworks. In North America, laws such as the Americans with Disabilities Act (ADA) and the Fair Packaging and Labeling Act (FPLA) in the United States, along with the Accessible Canada Act (ACA) and Ontario's Accessibility for Ontarians with Disabilities Act (AODA), offer guidance on accessibility but rarely impose mandatory standards specific to packaging design (Packaging Distributors of America, 2024). Compliance is often voluntary and typically pursued only when companies are legally challenged or extrinsically motivated to align with corporate social responsibility goals. By contrast, the European Accessibility Act (EAA) establishes a more proactive approach, requiring companies to integrate accessible features into their product design to comply with clear legal expectations and yet glaring deficiencies remain. These deficiencies highlight a global imbalance in how accessibility is prioritized—and reveal how, even in regulated markets, companies are more likely to act when accessibility aligns with profitability, public image, or reputational risk.

Given this context, this thesis explores the question: How do misconceptions about cost, time, and competing business priorities lead to accessibility being treated as an afterthought, and what strategies can firms adopt to address these challenges in the CPG industry? Through a mixed-methods approach—combining observational fieldwork using the Seeing AI app with secondary research from academic and industry sources—this study evaluates current packaging practices and investigates the disconnect between inclusive intent and actual execution. In doing so, it seeks to identify practical, scalable strategies that companies can adopt to embed accessibility into the core of their product development processes. Ultimately, this research repositions accessibility not merely as a matter of compliance or social obligation, but as a critical opportunity for innovation, consumer engagement, and long-term growth in the CPG sector.

Literature Review

Accessibility remains a significant yet often neglected aspect of the Consumer Packaged Goods industry. Misconceptions surrounding cost, time constraints, and competing business priorities contribute to accessibility being treated as an afterthought. This literature review synthesizes existing research on accessibility challenges, consumer impact, and business strategies, revealing gaps in the current discourse and opportunities for improvement.

Cost Misconception: Financial Implications of Accessibility Neglect

One of the most pervasive misconceptions is that accessibility enhancements are prohibitively expensive. However, research suggests otherwise. Forbes reports that retailers collectively lose billions due to poor accessibility, indicating that inaccessibility results in significant revenue loss. Some key findings they mentioned were that 65% of consumers with disabilities reported that their purchasing choices were limited every day by obstacles. While 43% indicated that they left an online or in-store purchasing task early due to a shortage of information limiting accessibility (Alexiou, 2022). Furthermore, Sloan expands on this, emphasizing that in addition to the immediate loss of market share comes the potential for legal risks and future redesign costs. In fact, Sloan reports that accessibility lawsuits have been steadily increasing since 2017 when over 800 were recorded. In 2022, that figure had risen to over 3,200, signaling heightened legal scrutiny of accessibility compliance. Hence it was reported that the trend can only be expected to continue, highlighting the merit of forward-thinking design choices by CPGs to minimize future liabilities and redesign costs attributed to accessibility (Sloan, 2023).

For greater context, a recent McKinsey & Company article presents a dual agenda for the Consumer Packaged Goods industry, advocating for balancing financial constraints with sustainable accessibility investments. Their article identifies industry trends that demonstrate how companies that prioritize accessibility achieve long-term financial benefits. Building on this, it is important to understand the broader shifts within the CPG industry that reinforce the need for sustainable investments like accessibility. Once considered a reliable growth engine, the CPG sector has seen its traditional strategies lose effectiveness over the past decade. From the 1980s through 2012, CPG companies experienced steady growth by building strong brands, expanding into growing markets, and maintaining cost efficiency. However, starting in the 2010s, that formula began to falter. Slowing population growth, retailer consolidation, and increasingly fragmented consumer preferences caused revenue growth to drop significantly; averaging just 2% annually from 2012 to 2019 as seen in Figure 1. In response, many companies focused on cost-cutting measures rather than innovation or consumer-centric investments such as accessibility considerations (Moulton, Exarchos, & Teichner, 2024).

This trend of cost-cutting measures was further intensified by the COVID-19 pandemic and recent inflationary pressures, which led to margin compression and a decline in product volumes. In this evolving landscape, CPG brands must rethink their priorities. As McKinsey & Company suggests, balancing short-term financial pressures with long-term, sustainable strategies, such as accessibility, can help restore growth and unlock new market opportunities. In other words, accessibility is not just a moral or legal imperative; it is an innovative, forward-

thinking investment in a time when traditional growth models are no longer guaranteed (Moulton, Exarchos, & Teichner, 2024).

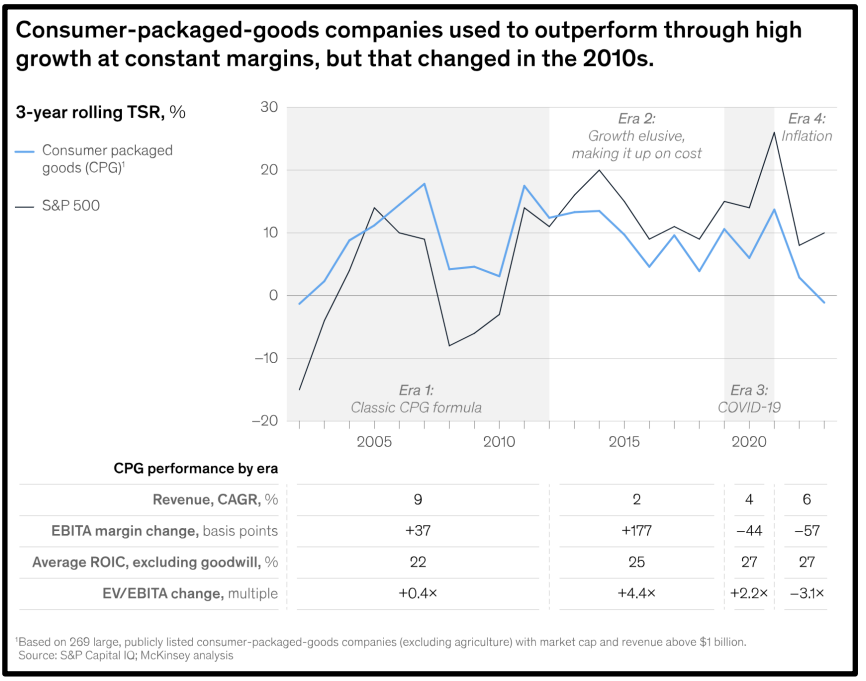


Figure 1. From Outperforming to Underperforming, *Note.* Graph of CPG performance grabbed from McKinsey & Company (Moulton, Exarchos, & Teichner, 2024)

Additionally, *The Retail Touchpoint* estimates that CPG businesses lose more than $6.9 billion annually due to inaccessibility, highlighting the direct economic impact of overlooking accessibility measures (Gevorkian, 2024). Despite this, companies continue to resist accessibility improvements, viewing them as secondary priorities (Omari, 2022). *The World Economic Forum* supports this claim, emphasizing that inclusive product design not only increases customer loyalty but also creates market differentiation, they also mentioned that 66% of the consumers are prepared to pay extra for products made by companies that are committed to good social causes (Girkar, 2024).

Beyond legal risk, accessibility also offers a huge opportunity in the CPG business. It is estimated that between 15% and 25% of the U.S. population has some form of disability, and worldwide the number is one billion people (Sloan, 2023). The economic influence of this segment is significant; in the US alone, individuals with disabilities collectively have $490 billion in purchasing power.

On a global scale, this market represents over $13 trillion in disposable income. Research further shows that when factoring in the purchasing power of friends and family, accessibility issues extend into a bigger market of 3.3 billion consumers and impact the buying decisions of 73% of international consumers (Sloan, 2023).

The evidence above concludes that accessibility is not just an ethical consideration but a business imperative. CPG companies that do not take notice of accessibility are courting mounting legal risks, significant revenue opportunities, and costly reworks. Studies identify that customers with disabilities tend to forgo purchases due to accessibility barriers, worth billions of dollars in lost sales. Lawsuits against inaccessible companies have also increased meanwhile, highlighting the cost of noncompliance. However, businesses that actively invest in accessibility bring in increased customer trust, market differentiation, and profitability over the long term. Research shows that inclusive design is not an extra cost but a source of competitiveness. With more customers willing to prefer brands that are socially responsible, accessibility is not only a question of compliance with the law but also a key to business success.

The Time Constraint Myth: Perceived Barriers to Implementation

Another key barrier is the assumption that implementing accessibility measures in CPG business is time-consuming. Husemann, Zeyen, and Higgins analyze marketplace accessibility from a service-provider perspective, revealing that companies struggle with integrating accessibility into existing workflows (Husemann, Zeyen, & Higgins, 2023). Their study suggests that a lack of clear industry guidelines often delays accessibility improvements rather than the actual implementation process itself. Additionally, research from *The World Economic Forum* suggests that designing for accessibility from the outset reduces delays and minimizes costly retrofits (Girkar, 2024). This highlights that workflow efficiency is best achieved through a proactive approach—embedding accessibility from the outset not only streamlines implementation but also prevents delays and costly retrofits, ultimately making inclusive design a smarter and more sustainable long-term strategy.

Moreover, research from Sloan and Gevorkian highlights that proactive accessibility strategies streamline production processes and foster brand loyalty (Sloan, 2023; Gevorkian, 2024). Buddeejeen and Kengpol's research also supports this by demonstrating that incorporating accessibility at the beginning of product development leads to more efficient outcomes (Buddeejeen & Kengpol, 2018). Their study of accessibility in consumer products found that early intervention minimizes design changes and production costs later in the process. Additionally, Molin emphasizes the importance of usability testing with consumers with disabilities to reduce redesign efforts, highlighting that brands

can avoid last-minute regulatory compliance issues by involving users with disabilities in early development phases (Molin, 2024).

Ultimately, the belief that accessibility slows down production is not supported by evidence. Instead, the real challenge lies in the lack of early planning and the absence of clear industry standards. The research makes it clear that when accessibility is considered from the beginning—rather than being treated as an afterthought—it not only improves product usability but also streamlines development and reduces costly delays later on. Involving users with disabilities early in the design process can prevent redesigns, support compliance, and foster more thoughtful innovation. What emerges is not a story of accessibility as a burden, but rather one of missed opportunity—where businesses could gain efficiency, trust, and competitive advantage by simply rethinking how and when accessibility is prioritized.

Competing Business Priorities: The Perceived Antagonist to Accessibility

When it comes to CPG businesses, they tend to prioritize product innovation and promotion over accessibility compliance. Research from Goodrich suggests that consumers with disabilities are typically provided with lower-quality services due to corporate prioritization of mainstream consumers' needs (Goodrich, 2024). Eskytė also concurs, noting that consumers with disabilities in the EU market are often disadvantaged due to inaccessible label information, which negatively impacts both purchasing decisions and product usability (Eskytė, 2019). While the European market is generally considered more progressive in accessibility efforts compared to North America, significant gaps remain pointing to a global issue. Despite various initiatives, research shows that many EU countries still lack comprehensive and enforceable legislation mandating accessibility in consumer packaging. Reports by the European Court of Auditors and other watchdogs reveal that accessibility outcomes across the EU remain limited, with inconsistent implementation and a lack of binding standards preventing meaningful change (European Court of Auditors, 2023). This indicates that even in regions considered "ahead," the absence of strong legislative frameworks continues to hinder equal consumer access and inclusive design.

Likewise, Conn, Abisla, and Batra provide a comparison framework for CPG packaging designs with enhanced accessibility. Their study reveals that firms typically have non-standard structures, leading to varied implementation (Conn, Abisla, Batra, 2022). Additionally, Jenkins and Cummings articles provide consumer feedback, which states that CPG businesses neglecting accessibility will alienate a significant portion of their customers (Jenkins, 2024; Cummings, 2022). Furthermore, Wight's report points out that CPG businesses that do not incorporate accessibility into their go-to-market strategy stand to lose their competitive edge, especially in recent years when consumer expectations turn

towards inclusivity (Wight, 2024). All-in-all, despite previous studies on inclusive design with CPG businesses (Marshall & Lenz, 2025), there is still a gap in company adoption strategies and accountability measures.

In addition, Jenkins reports that many businesses claim to support accessibility but fail to implement meaningful changes (Jenkins, 2024). Similarly, this is further echoed by Smith, who identifies digital accessibility failures that contradict corporate messaging. Their report outlines five common accessibility mistakes companies make: failing to provide alternative text for images, inadequate colour contrast, and inaccessible website navigation (Smith, 2025). These recurring shortcomings not only undermine consumer trust but also reflect a broader trend within the CPG industry, where accessibility in packaging design is also often overlooked or inconsistently applied, revealing a disconnect between stated values and actual practice.

In connection, Gale's study further discusses how brands may superficially embrace inclusivity without investing in substantive changes. Their research highlights that accessibility marketing often lacks measurable follow-through, reducing consumer trust (Gale, 2023). Additionally, while some studies focus on regulatory frameworks, there is limited research on corporate accountability regarding accessibility claims (Lazar, 2019; Marshall and Lenz, 2025). The Journal of Consumer Policy (Eskytė, 2019) explores legal protections but highlights gaps in enforcement, suggesting the need for stronger oversight in ensuring brands fulfill their accessibility commitments in the CPG industry.

Adding on, several studies propose strategies to integrate accessibility into the CPG industry. For instance, Molin advocates for user-centred design methodologies, emphasizing that collaboration with consumers with disabilities leads to more effective solutions (Molin, 2024). Their findings indicate that co-designing with users with disabilities not only improves accessibility but also enhances overall product usability for all consumers. This approach is especially relevant for the CPG industry, where involving end users in the design of packaging can lead to more inclusive, functional, and widely accessible products that better serve diverse consumer needs.

Building on this, Manson's GWP industry guide outlines actionable steps for creating accessible packaging, supported by case studies of brands that have successfully implemented inclusive design (Manson, 2024). Similarly, McKinsey & Company emphasizes that when businesses embed accessibility into their core strategies, they not only strengthen their brand reputation but also unlock opportunities for market growth and reduce the risk of legal challenges (Moulton, Exarchos, & Teichner, 2024). These insights underscore the clear strategic benefits for CPG companies that prioritize accessibility in both design and operations.

Additionally, Wight emphasizes the importance of placing accessibility at the core of both digital and physical go-to-market strategies, suggesting that brands attuned to these needs are better positioned to succeed across retail channels (Wight, 2024). Similarly, Gale highlights accessible packaging as a potential competitive advantage in an increasingly inclusive consumer market, where demand for socially responsible brands continues to grow (Gale, 2023). However, the limited adoption of these practices across the CPG sector reveals a significant gap between emerging consumer expectations and widespread industry implementation.

Regulatory Frameworks: Proactive Disregard vs Reactive Reality

Across North America, regulatory frameworks play an influential but largely non-compulsory role in shaping accessibility practices in packaging. In the United States, legislation such as the ADA and FPLA provides broad guidelines for inclusive labelling and communication. However, these laws are not specific to packaging formats, and enforcement typically only occurs when companies face legal complaints or civil litigation. Canada's ACA and Ontario's AODA present similar limitations. While these laws advocate for inclusive design principles and establish general accessibility targets, they do not impose consistent, sector-wide standards for packaging within the CPG industry (Marshall & Lenz, 2025). As a result, many companies can view compliance as a reactive necessity—implemented only when required by law or when doing so serves branding or CSR interests.

Subsequently, this reactive posture stands in sharp contrast to the European approach. The EAA, which applies to both physical and digital goods and services, explicitly mandates that companies design consumer products and interfaces that are accessible to people with disabilities. Its proactive nature compels businesses to embed accessibility into their product development cycles, rather than treating it as a retroactive fix. Consequently, European firms face greater pressure and clearer incentives to integrate inclusive design at every level of the product experience (Packaging Europe, 2023).

Furthermore, the disparity between these regulatory environments highlights a critical tension: neither North America, nor Europe is immune to gaps in accessibility. The absence of enforceable, packaging-specific mandates allows accessibility to remain optional, supporting the broader misconception that it is secondary to other business goals. In many cases, as noted in *Packaging Europe*, companies adopt accessibility measures not because they are altruistically motivated, but legally bound to implement and recognize the growing consumer demand for inclusivity and the reputational benefits it can bring (Packaging Europe, 2023). Accessible packaging, when intrinsically implemented, therefore

becomes a powerful tool for brand differentiation, consumer loyalty, and market expansion—especially amidst the weight of evolving consumer expectations.

Similarly, *Packaging Strategies* emphasizes that the future of packaging hinges on brands' ability to serve diverse user groups through inclusive design. The article argues that while legislation remains an important driver, it is the shift in consumer expectations and business innovation that will ultimately push accessibility forward. From easy-to-open formats to tactile indicators and QR codes with screen-reader-friendly content, brands that invest in accessibility are not only meeting compliance expectations but are positioning themselves as leaders in consumer trust and modern brand strategy (Bach, 2020).

Taken together, these insights suggest that while regulation provides an important foundation, it is insufficient on its own to drive widespread change. Moreover, where enforcement mechanisms remain subverted, there is an inherent opportunity to emphasize educating businesses about the commercial and social advantages of accessibility. By framing accessibility as a moral imperative that drives tangible returns, stakeholders can help shift industry mindsets away from minimum compliance and toward proactive, consumer-centred design.

Summary of Literature

The literature review collectively demonstrates that accessibility in the Consumer Packaged Goods industry is frequently deprioritized due to persistent misconceptions about cost, assumptions about time constraints, and the tendency for businesses to prioritize other objectives. Despite heightened awareness, most companies continue to view accessibility as an afterthought, not only disenfranchising a significant percentage of the consumer base but also putting businesses at risk of legal, financial, and reputational harm. While existing research outlines numerous strategies—such as user-centred design, early integration, and digital innovation—there is still a notable lack of corporate accountability, consistent implementation, and consumer confidence in accessibility claims. These gaps underscore the need for a shift from reactive compliance to proactive inclusion. This review lays the groundwork for future research that could evaluate the effectiveness of current regulatory measures, assess the sincerity and impact of brand accessibility initiatives, and explore scalable, industry-wide approaches for embedding accessibility into mainstream packaging design.

Research Methodology

This research employs a mixed-methods approach with primary and secondary research to investigate accessibility challenges in the Consumer Packaged Goods

industry. By employing both qualitative and quantitative methods, this research aims to analyze the performance of existing accessibility tools and recommend ways for more inclusiveness.

Primary Research

Primary research will be obtained through the conduction of an observational study within supermarket aisles, where the Seeing AI app will be used to evaluate how much accessibility tools assist consumers with visual impairments. The research aims of this study include:

- To assess the accuracy and effectiveness of Seeing AI in identifying product information.
- To evaluate the accessibility of product packaging based on digital scanning capabilities.
- To determine potential improvements in technology and product design to enhance accessibility.

Procedure:

1. Visit the grocery store and select a variety of packaged goods from different brands.
2. Use the Seeing AI app to scan product labels and packaging.
3. Document findings on the clarity, accuracy, and completeness of the information provided by the app.
4. Compare results across different products and brands to identify patterns and gaps in accessibility.
5. Analyze how well these tools integrate with existing consumer needs and whether improvements are necessary.

Secondary Research

Secondary research will complement the main study by reviewing the available literature, industry reports, and regulatory policies governing accessibility in the CPG industry. The main sources are:

- Academic literature on packaging design accessibility issues and solutions.
- Advocacy groups' reports for more inclusive consumer experiences.
- Existing policies and regulatory measures by governmental and regulatory authorities on accessible packaging.
- Examples of case studies of successful brands that have embraced accessibility-friendly features.

Tools & Techniques

The tool used in this research is called Seeing AI, an application developed by Microsoft. It is a shared assistive technology that helps blind consumers identify objects, read text, and recognize product names. The app will be evaluated based on:

- **Precision** – How much it captures and provides product details.
- **Usability** – How easy it is to navigate and interact with consumers with disabilities.
- **Limitations** – Any functional shortcomings that can impact the consumer experience.

Data Collection and Analysis

- **Qualitative Analysis:** Observations from the grocery store study will be documented to understand user experience and identify recurring accessibility barriers.
- **Quantitative Analysis:** Data will be collected on the frequency of inaccurate or incomplete product information detected by Seeing AI, providing measurable insights into accessibility gaps.
- **Comparative Analysis:** Findings from primary research will be compared with secondary sources to highlight discrepancies and validate trends.

Justification for Methods and Tools

The selected methodology allows for a holistic understanding of accessibility in CPG packaging. Primary research provides real-world insights into the functionality of assistive technologies, while secondary research ensures a comprehensive review of existing knowledge and industry standards. The Seeing AI app was chosen due to its prominence in accessibility solutions, making it a relevant tool for evaluating digital assistive technology in the consumer space.

Expected Results

This study anticipates the following outcomes:

- Identification of key limitations in current accessibility tools such as Seeing AI.
- Insights into how brands can better integrate accessibility technology into their packaging strategies.

- Recommendations for policymakers and businesses to improve accessibility compliance in the CPG industry.

By employing a combination of primary observation and secondary analysis, this research aims to provide a detailed evaluation of accessibility challenges in product packaging. The findings will contribute to developing actionable strategies for brands to enhance inclusivity and consumer experience for individuals with disabilities.

Results

Upon numerous store visits, eleven key products were strategically chosen to accurately represent the 3000 to 5000 CPG SKUs featured in the average-sized mid-market Canadian grocery retailer. This study was conducted on-site at Toronto-based No Frills store # 3771 spanning different products (See Figure 8 in the Appendix**)** across the retailer's featured categories of CPG goods including food, personal care, pharmaceuticals, and household items. To evaluate the accessibility of each consumer-packaged goods, five core criteria were used: recognition accuracy via the Seeing AI app, readability of on-package text, contrast and font size, presence of tactile features (such as Braille or ergonomic elements), and the inclusion of digital accessibility tools like QR codes or NFC tags. These criteria were selected to reflect both functional and assistive elements of packaging design that impact consumers with visual impairments. A summary of these evaluation metrics is presented in Table 1 below.

Metric	Description	Data Collection Method	Notes/Observations
Recognition Accuracy	Does Seeing AI correctly identify the product name, brand, and type?	Seeing AI test	✅ Yes / ❌ No (If no, note errors)
Readability of Text	Does Seeing AI read aloud key product info (ingredients, warnings, instructions)?	Seeing AI test	✅ Yes / ❌ No (List missing details)
Contrast & Font Size	Does the text meet ACA guidelines for contrast and readability?	Visual Inspection	Score: 1 (poor) – 5 (excellent)
Tactile Elements	Does the package include braille or embossed elements?	Physical Assessment	✅ Yes / ❌ No
Digital Accessibility Tools	Does the package include accessible digital options?	Scan with Smartphone	✅ Yes / ❌ No (Note functionality)

Table 1 Note. This table outlines the criteria used to evaluate the accessibility of Consumer Packaged Goods.

Category	Brand	Product Name	Packaging Type	Seeing AI Recognition (✅/❌ & Notes)	Text Readability (✅/❌ & Missing Info)	Contrast & Font Size (1–5 Score)	Braille/Tactile Elements (✅/❌)	Digital Accessibility Tools (✅/❌ & Notes)
Food	Heinz: Figure 9	Ketchup Bottle	Plastic Bottle	✅ Correctly Identified	❌ Missing Ingredients	3 (Average)	❌ No Braille, ✅ Ergonomic Shape	❌ No QR Code
Food	Nando's: Figure 10	Nando's Perinaise	Plastic Bottle	✅ Correctly Identified	❌ Missing Ingredients	3 (Average)	❌ No Braille, ✅ Ergonomic Shape	❌ No QR Code
Personal Care	Unilever Dove: Figure 11	Body Wash	Plastic Bottle	✅ Correctly Identified	✅ Readable	3 (Average)	❌ No Braille	✅ QR Code with product info
Personal Care	Selsun Blue: Figure 12	Anti-dandruff Shampoo	Plastic Bottle	✅ Correctly Identified	✅ Readable	2 (Poor)	❌ No Braille, ✅ Ergonomic Shape	✅ QR Code, but not accessibility-focused
Pharmaceuticals	Tylenol: Figure 13	Extra Strength Cold Daytime & Nighttime Tablets	Box & Blister Pack	✅ Correctly Identified	✅ Readable	3 (Average)	❌ No Braille	❌ No QR Code
Pharmaceuticals	Zarbee's: Figure 14	Immunity Syrup	Plastic bottle with security/tamper seal	✅ Correctly Identified	✅ Readable	3 (Average)	❌ No Braille	❌ No QR Code
Boxed Cereal	General Mills: Figure 15	Cereal Box	Cardboard Box	✅ Correctly Identified	✅ Readable	3 (Average)	❌ No Braille	❌ No QR Code

Table 2 (part 1) This table summarizes findings from the Seeing AI recognition study, including product identification accuracy, readability of packaging text, visual contrast, presence of tactile elements, and availability of digital accessibility tools. All referenced product images (Figures 3–13) are included in the Appendix

Category	Brand	Product Name	Packaging Type	Seeing AI Recognition (✅/❌ & Notes)	Text Readability (✅/❌ & Missing Info)	Contrast & Font Size (1–5 Score)	Braille/Tactile Elements (✅/❌)	Digital Accessibility Tools (✅/❌ & Notes)
Boxed Cereal	Kellogg's: Figure 16	Cereal Box	Cardboard Box	✅ Correctly Identified	✅ Readable	3 (Average)	❌ No Braille	❌ No QR Code
Pump bottles	Life Brand: Figure17	Liquid Hand Soap	Plastic Pump Bottle	✅ Correctly Identified	❌ Hard to read	2 (Poor)	❌ No Braille	❌ No QR Code
Pump bottles	Aveeno Baby: Figure 18	Calming comfort Lotion	Plastic Pump Bottle	✅ Correctly Identified	✅ Fully Readable	4 (Good)	❌ No Braille	❌ No QR Code
Canned Food	Puck: Figure 19	Thickened Creamy Product	Aluminum Can	✅ Correctly Identified	❌ Hard to read	2 (Poor)	❌ No Braille	❌ No QR Code

Table 2 (part 2) This table summarizes findings from the Seeing AI recognition study, including product identification accuracy, readability of packaging text, visual contrast, presence of tactile elements, and availability of digital accessibility tools. All referenced product images (Figures 3–13) are included in the Appendix

AI Recognition Accuracy

The Seeing AI app successfully identified all eleven products included in the study, demonstrating consistent performance in object and brand recognition as shown in Figure 2. This suggests that the app is effective for basic identification tasks, such as recognizing product names and general packaging features. However, as reflected in Table 3 above, the tool struggled to extract deeper product information particularly when the contrast was low or the text was too small. This limitation reinforces findings in the literature which suggest that while current assistive technologies may address surface-level accessibility needs, they often fail to support full consumer autonomy, especially during complex decision-making processes (Sloan, 2023). The data below highlights the need for more accessible packaging that works in tandem with assistive technologies to deliver complete and usable information.

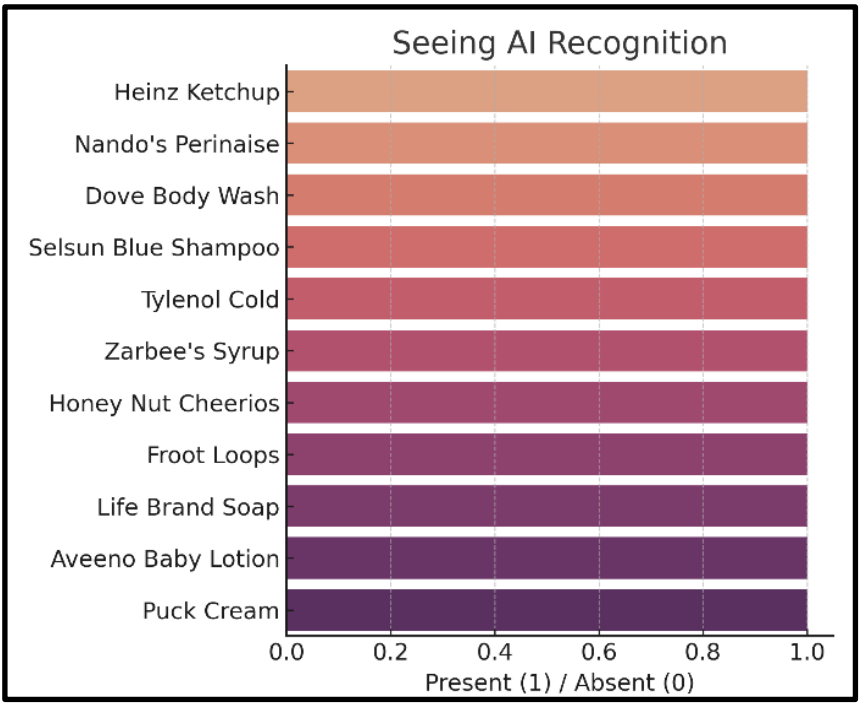


Figure 2. Seeing AI's Effectiveness in Identifying Product Packaging. Note. The figure shows the number of correctly identified products across five categories and eleven products

Text Readability and Information Gaps

Despite correct identification, four out of eleven products had issues with text readability as visible in Figure 3, this was either due to poor contrast, small font sizes, or cluttered design. These findings are consistent with Eskytė's research, which found that consumers with disabilities often face obstacles related to unreadable or insufficient product information (Eskytė, 2019). For consumers with visual impairments, missing ingredients or usage instructions can pose both safety risks and a barrier to independent purchasing decisions. This research reinforces the notion that product design continues to prioritize aesthetic and branding elements over clarity and legibility, a trend noted in Goodrich's critique of corporate priorities (Goodrich, 2024).

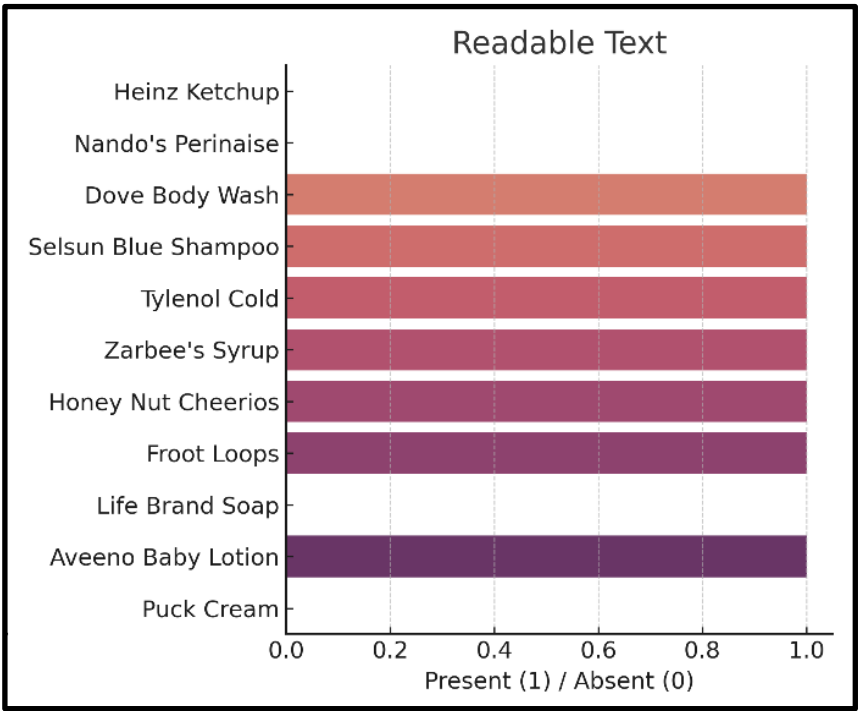


Figure 3. Chart Displaying Seeing AI Text Readability Findings. This figure illustrates the app's ability to read and interpret product text, including brand names, ingredients, and other packaging information

Contrast and Font Size

The average score for contrast and font legibility was three out of five across products as shown in Figure 4below, with only one product, the Aveeno Baby Lotion, scoring above average (See Figure 18 in the Appendix). Low-contrast text and insufficient font sizing were especially problematic on darker bottles or metallic packaging, such as Selsun Blue Shampoo and Puck Cream as seen in Figure 19 and Figure 12 in the Appendix. These results echo Cummings' argument that many companies lack awareness of accessibility design guidelines, especially in visual communication (Cummings, 2022). In the literature, Molin emphasizes that user testing with consumers with disabilities could preempt many of these design issues (Molin, 2024). Yet, based on product performance, it is clear that few brands incorporate these feedback loops into the development process. This reality is underpinned by the lack of advancement in this area, given the ten years that have passed since the Canadian Food Inspection Agency's (CFIA's) 2015 Food Labelling Modernization industry stakeholder consultation first raised many of the accessibility concerns that persist today (Canadian Food Inspection Agency, 2015).

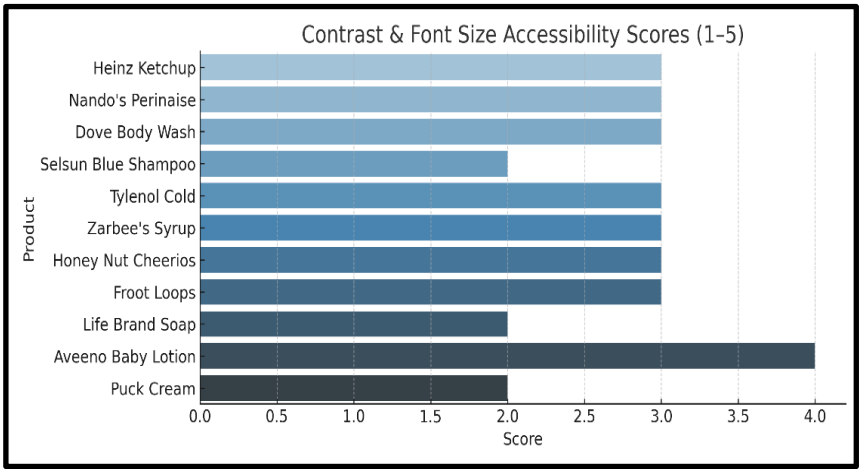


Figure 4. Chart Displaying Contrast and Font Size Accessibility Scores Found in the Study. This figure highlights the evaluated scores (on a scale of 1 to 5) for contrast and font size across a selection of Consumer Packaged Goods, based on visibility and readability criteria relevant to users with visual impairments

Tactile Accessibility

As seen below in Figure 5, not a single product included Braille or any tactile indicators, reinforcing the neglect of this accessibility layer across mainstream Consumer Packaged Goods. This observation aligns with Jenkins' report on the

disconnect between corporate messaging and real-world implementation of accessibility practices (Jenkins, 2024). Although some products featured ergonomic shapes (See Figure 6), these did not serve blind or low-vision consumers directly and are more aligned with general usability. Furthermore, as highlighted in the literature by Buddeejeen and Kengpol, early-stage integration of tactile elements can reduce production costs and improve inclusivity without major redesigns (Buddeejeen & Kengpol, 2018). Their absence in every sampled product suggests that most brands are still operating under the false assumption that accessibility features are expensive or nonessential (Alexiou, 2022; Sloan, 2023).

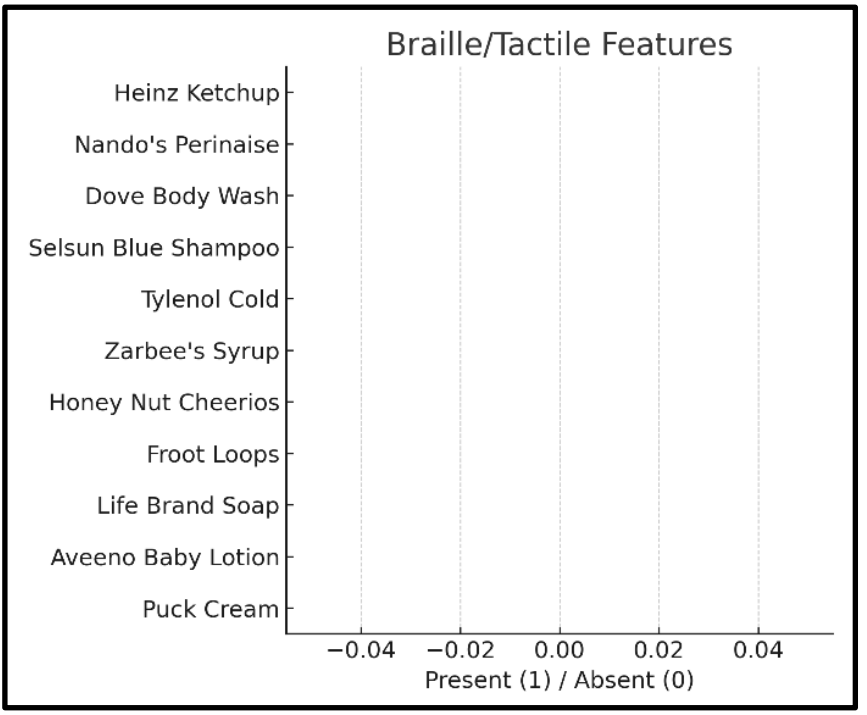


Figure 5. Chart Displaying Presence of Braille and Tactile Features on CPG During Study. This figure illustrates that none of the evaluated Consumer Packaged Goods included braille or tactile accessibility features, indicating a complete lack of such considerations across all product categories analyzed in the study

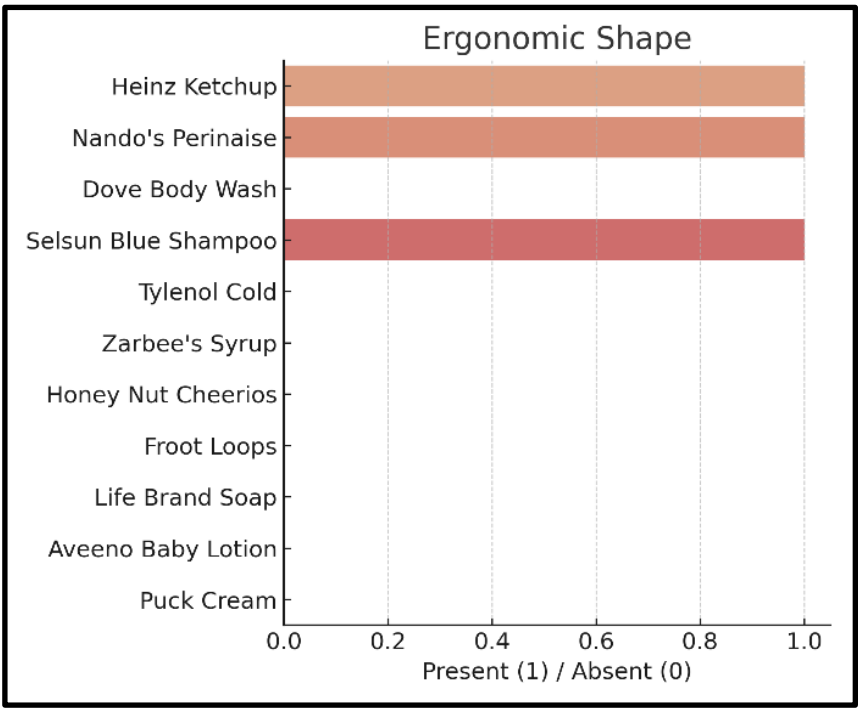


Figure 6. Chart Displaying Presence of Ergonomic Packaging Shapes Identified in the Study. This figure shows that three products included ergonomic design features intended to enhance grip or usability

QR Codes and Digital Accessibility

Per the research, only two out of eleven products featured QR codes as seen below in Figure 7, and none provided content specifically geared toward accessibility. This presents a missed chance for brands to bridge the information gap with technology. Dove Body Wash (See Figure 11 in the Appendix) was the sole product whose QR code led to supplemental product information; however, its utility was largely marketing-centric, and lacked the audio guides, multilingual options, or structured navigation features expected for accessible packaging. This finding reaffirms the findings Smith & Gale presented in the literature review that accessibility is often superficially addressed, if at all (Smith, 2025; Gale, 2023). While QR codes could serve as a powerful bridge between analog packaging and digital content, their potential remains unrealized due to poor execution and a lack of accessibility-specific optimization.

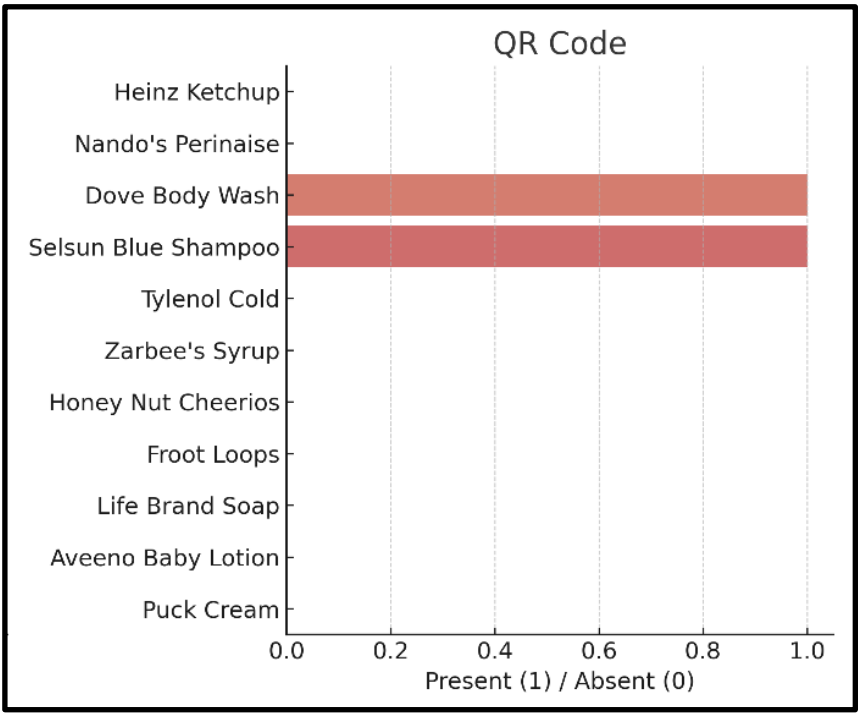


Figure 7. Chart Displaying Presence of QR Codes on Product Packaging During Study. This figure shows that only two of the evaluated products included QR codes. However, neither code was specifically designed for accessibility purposes, highlighting a missed opportunity to enhance digital access

Summary of Results

Overall, the results of this study reveal consistent and significant accessibility gaps across Consumer Packaged Goods in multiple product categories. While the Seeing AI app proved effective in identifying all eleven products, it struggled to read detailed information in cases where packaging lacked sufficient contrast, font size, or clarity. Text readability problems existed in almost a quarter of the tested products, with some not even showing vital product information such as ingredients or instructions on use. The average score for contrast and font size was middling, reinforcing concerns from the literature that visual design often overshadows functional accessibility in the CPG industry. Most notably, none of the products included Braille or any tactile elements, despite well-documented recommendations for early-stage integration of such features. In fact, although two products included QR codes, none delivered accessibility-oriented content, highlighting a missed opportunity for digital inclusion. These findings

collectively support the broader critique identified in the literature review: that accessibility in the CPG industry is frequently treated as an afterthought, despite the availability of effective tools, clear consumer demand, and proven long-term benefits. The observational data presented across all criteria reinforce the need for systemic changes to packaging accessibility regulations and enforcement, effectively motivating CPG businesses to provide more inclusive, user-centred approaches that prioritize accessibility from the outset.

Discussion

This study sets out to investigate how accessible current CPGs are for individuals with disabilities. The results are significant in understanding broader systemic gaps in inclusive packaging and underscore the proposed thesis question. Moreover, it helps understand to what extent brands incorporate genuine accessibility into product packaging, and how accessibility features —or the lack thereof— reflect the perception of accessibility as an afterthought within the CPG industry. The findings not only reinform widespread neglect of accessibility features but also highlight key misconceptions and strategic gaps raised in the literature review. Ultimately, reaffirming that accessibility continues to be marginalized in consumer product packaging, despite its relevance.

Accessibility as an Afterthought

The observational data reveals a consistent trend in that, despite being able to identify all tested products, the Seeing AI app often struggled to extract meaningful and complete information from the packaging. Most significantly, four of the eleven products contained incomplete lists of ingredients or necessary health-related information, which is not only inconvenient but also a safety hazard. This supports research findings that poor packaging accessibility limits consumers' ability to make informed decisions and reinforces the systemic disadvantage people with disabilities face in the marketplace (Eskytė, 2019). The absence of tactile features such as Braille across all tested products—despite the availability of this tactile printing technology—supports Sloan's assertion that many CPG companies treat accessibility as a legal checkbox rather than a design priority (Sloan, 2023). It also reflects Lazar's concern that without enforceable protections, companies resort to minimal compliance (Lazar, 2019). Similarly, as mentioned before, research by Jenkins and Smith argues that companies frequently make surface-level commitments to accessibility, but these are rarely reflected in their actual product offerings (Jenkins, 2024; Smith, 2025). The findings from this study support the following claims: the presence of QR codes on only two products—and the absence of accessibility-specific content on all of them—demonstrates that even low-effort digital enhancements are not being effectively utilized to promote inclusive design in the CPG industry.

Cost and Time Misconceptions: A Repeated Theme

The literature consistently challenges the myth that accessible design is too costly or time-consuming. Research by Sloan and Moulton, Exarchos, and Teichner argues that inaccessibility actually leads to greater long-term costs, including legal liabilities, redesign expenses, and the loss of customer trust (Sloan, 2023; Moulton, Exarchos, & Teichner, 2024). Despite this, CPG businesses continue to forgo accessible packaging features. In this research study, none of the products included Braille or structured tactile guides, and the average contrast and font legibility scores hovered around a mediocre 3 out of 5. Ultimately, these results validate Cummings' assertion that design teams often overlook accessibility in favour of aesthetic minimalism or brand consistency, mistaking it for a luxury add-on rather than a necessity (Cummings, 2022).

Additionally, evidence provided by Buddeejeen and Kengpol states that integrating accessibility from the start leads to more efficient and cost-effective production outcomes (Buddeejeen & Kengpol, 2018). Yet, the products evaluated in this study reveal that such integration is rarely pursued in practice. Instead, brands appear to delay accessibility enhancements, potentially due to workflow disruptions or limited staff training, reinforcing Husemann, Zeyen, and Higgins' finding that internal misperceptions—rather than logistical limitations—are the real barriers to implementation (Husemann, Zeyen, & Higgins, 2023).

The Role of Competing Priorities and Accountability

One of the most compelling observations in this study is the stark gap between what brands claim to value and what they actually deliver. The review of the literature highlights that the majority of CPG companies advertise a dedication to diversity and inclusion in advertising communications, but this does not necessarily mean product-level accessibility (Gale, 2023; Smith, 2025). This can be seen in the observed use of QR codes without accessibility features—such as audio labels, navigation support, or contrast optimization—rendering them ineffective for visually impaired users. In effect, such digital features on CPG become performative rather than practical, supporting research by Gale's argument that inclusivity is often used as a branding tool rather than a guiding design principle (Gale, 2023).

Furthermore, this also relates to Conn, Abisla, and Batra's findings that CPG structures vary widely in accessibility performance, often because companies lack standardized approaches or accountability frameworks (Conn, Abisla, & Batra, 2022). The diversity of Consumer Packaged Goods formats examined in this research (plastic bottles, pump containers, cardboard boxes, blister packs, as seen in Table 2) offered no correlation between product type and accessibility features. This inconsistency suggests that accessibility is not being addressed at an

industry-wide level, and instead is left up to individual brands—many of which lack the internal mechanisms to ensure compliance or innovation in this area.

Likewise, the issue of accountability also intersects with legal frameworks. As identified by the European Court of Auditors, even in regions with progressive regulatory environments, enforcement is weak and accessibility outcomes remain poor (European Court of Auditors, 2023). Moreover, the absence of any Braille labelling across all tested products in this study—despite Canada's existing accessibility legislation (Marshall & Lenz, 2025)—indicates a serious gap between policy intent and business implementation. Subsequently, the results support Lazar's proposal that without enforceable consumer protection policies, companies will continue to deprioritize accessibility in favour of faster go-to-market strategies (Lazar, 2019).

Missed Opportunities

The Seeing AI app was chosen for this research due to its widespread use and positioning as a leading assistive technology for visually impaired individuals. However, the study uncovered several limitations in its ability to fully bridge accessibility gaps, particularly when CPG products lacked structured information or relied heavily on visual design elements. Subsequently, the failure of QR codes or NFC Tags to provide useful or accessible content further exacerbated this challenge. It also aligns with Smith's identification of a growing gap between the promise of digital accessibility and the reality of its execution, most notably in CPG environments where accessible technology exists but is not effectively implemented (Smith, 2025).

Ultimately, this reinforces the need for more accessible packaging within the CPG sector, packaging that works in tandem with assistive tools to support independent product navigation, ingredient identification, and safe usage. The findings of this study affirm that a dedicated accessibility tool could serve as both a practical aid for consumers and a catalyst for brands to rethink their packaging strategies through a more inclusive lens. As Sloan and Girkar emphasize, the growing economic influence of the community with disabilities—valued at over $13 trillion globally—positions accessibility not merely as a compliance obligation but as a critical market opportunity for CPG companies seeking to stay competitive and relevant (Sloan, 2023; Girkar, 2024).

A Case for Industry-Wide Reform

The discussion ultimately points to a systemic issue: accessibility is not embedded into the foundational strategies of most CPG brands. Despite clear evidence of economic incentives, social responsibility, and available technology, most brands treat accessibility as an afterthought—if they address it at all. The literature

strongly supports the conclusion that accessibility is both underleveraged and misunderstood in the consumer packaging industry (Moulton et al., 2024; Wight, 2024). The observational data from this study suggests this, offering tangible proof that the insights from secondary sources are reflected in the everyday consumer experience.

All in all, the implications are profound: unless brands begin to prioritize accessibility from the design phase onward, the CPG industry will continue to marginalize millions of consumers. As shown by Molin's research, consumer-inclusive co-design practices are not only possible but proven to improve product usability for everyone, not just individuals with disabilities (Molin, 2024). This research supports this notion and strengthens the argument that accessibility should be central to product innovation, not a peripheral concern.

Conclusion

This thesis set out to explore how persistent misconceptions about cost, time, and competing priorities contribute to the continued marginalization of accessibility within the Consumer Packaged Goods industry. Through a combination of observational fieldwork and secondary literature analysis, it became evident that accessibility is not being adequately embedded into packaging strategies, despite compelling legal, social, and economic incentives. CPG brands often perceive accessibility as either too expensive, too complex, or simply less important than other business objectives—misconceptions that this research has shown to be both unfounded and counterproductive.

While the sample size was limited to eleven products—reflecting common categories across mid-market retailers—the observational study using the Seeing AI application revealed that effective product identification is largely limited to basic attributes, whereas most packages lack more meaningful accessibility features. Key information such as ingredients or instructions was often unreadable, tactile indicators like Braille were entirely absent, and QR codes—when present—failed to offer meaningful or inclusive content. These real-world findings echoed themes from the literature, highlighting how delayed implementation, superficial inclusion, and a lack of regulatory enforcement perpetuate barriers for consumers with disabilities.

However, the research also identified a clear path forward. Studies show that integrating accessibility early in the design process—through strategies like user-centred design, co-creation with consumers with disabilities, and proactive inclusion planning—can yield long-term benefits such as cost savings, enhanced usability, brand trust, and market growth. Practical pathways to accessible packaging reform can also include inspection protocols, enforced audit systems,

and tax incentives from policy makers; QR codes leading to standardized accessible experiences from CPG brands; and retailer-prioritized shelf space for brands that meet accessibility standards. This is particularly relevant as the consumer-with-disability segment represents a global market worth over $13 trillion, a demographic that brands can no longer afford to ignore.

Ultimately, this thesis demonstrates that the exclusion of accessibility features in packaging is not the result of technological limitations or consumer disinterest, but rather a failure of strategic vision. To treat accessibility as an afterthought is to overlook both human rights and business opportunities. For the CPG industry to evolve and remain competitive, it must adopt a proactive, inclusive mindset—one that places accessibility at the core of product design and delivery. Doing so will not only close the gap between corporate values and consumer experience but also foster a more equitable and sustainable marketplace for all.

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Appendix

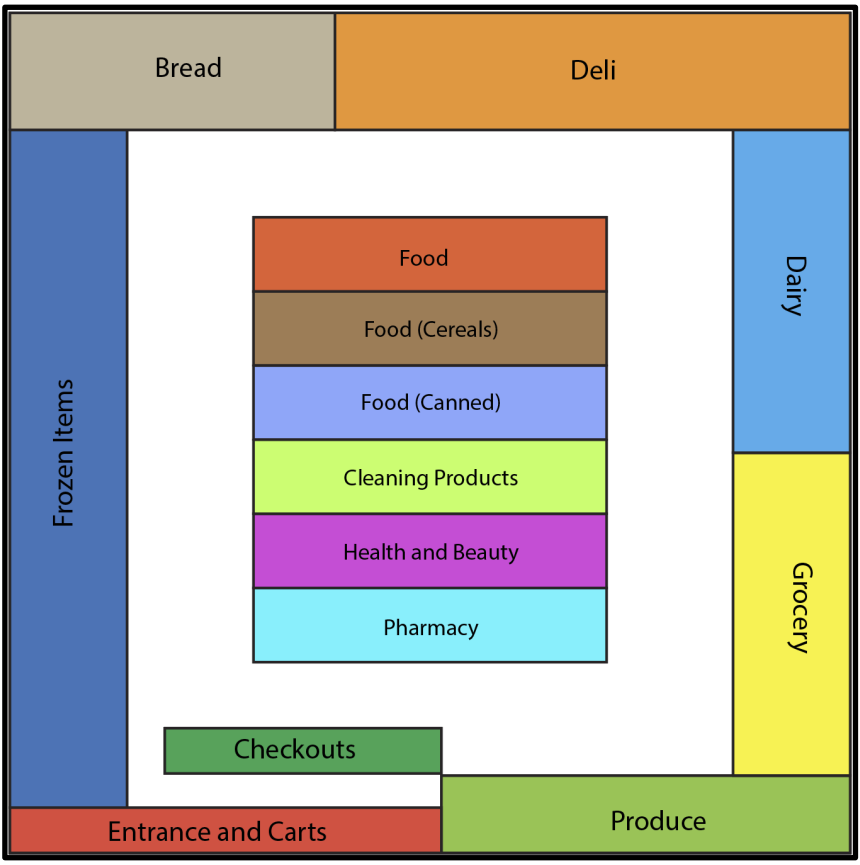


Figure 8. Floor Layout Diagram of No Frills store #3771. This diagram was created to map out the product placement in the grocery store



Figure 9. Front and Back Pictures of Heinz Tomato Ketchup

Note. This figure displays the product's packaging layout. The app generated the following text: "The image shows a hand holding a bottle of Heinz Tomato Ketchup. The bottle is positioned upright with the label facing the viewer. The label displays the brand name "HEINZ" at the top, followed by "Tomato Ketchup" and "Aux Tomates" below it. The label also includes an illustration of a tomato with leaves and the text "57 Varieties" beneath it. The volume of the bottle is indicated as 750 mL. The bottom of the bottle, which is the cap, has some printed information, including a date and a code."



Figure 10. Front and Back Pictures of Nando's Perinaise

Note. This figure displays the product's packaging layout. The app generated the following text: "The image shows a bottle of Nando's PERinaise, a mayonnaise-style dressing. The label on the bottle indicates that it contains 450 ml of product and is labeled as ""HOT PIQUANTE."" The label also highlights that the product is made with cage-free eggs and is gluten-free, vegetarian, kosher certified, and halal trust certified. The ingredients listed include water, rapeseed oil (27%), vinegar, sugar, corn starch, salt, free-range egg yolk (2.2%), and a variety of spices such as African Bird's Eye Chili, cayenne pepper, paprika, mustard flour, black pepper, and white pepper. It also contains onion puree, green chillies, garlic puree, and stabilizers like guar gum and xanthan gum. The bottle has a red cap at the bottom, and the brand name "Nando's" is embossed on the side of the bottle."



Figure 11. Front and Back Pictures of Dove's Sensitive Skin Body Wash

Note. The app generated the following text: "The image shows a bottle of Dove body wash being held in a hand. The bottle is white with a light blue cap and features the Dove logo, which includes a gold dove symbol and the word "Dove" in blue text. Below the logo, the product is labeled as "sensitive skin" and "hypoallergenic" in both English and French. The bottle also mentions "24hr Renewing MicroMoisture" and indicates the volume as "20 US FL OZ / 591 mL"."



Figure 12. Front and Back Pictures of Selsun Blue Anti-Dandruff Shampoo Packaging

Note. This figure displays the product's packaging layout. The app generated the following text: "The image shows a person holding a bottle of Selsun Blue anti-dandruff shampoo. The bottle is blue and has a capacity of 300 mL. The label on the bottle indicates that it is designed for itchy dry scalp and contains Pyrithione zinc at 1%. The label also mentions that it has a soothing formula that nourishes the scalp with every use and helps prevent and relieve dandruff and itchy scalp. The text on the bottle is presented in both English and French."



Figure 13. Front and Back Pictures of Tylenol Extra Strength Cold Daytime & Nighttime Tablets

Note. This figure displays the product's packaging layout. The app generated the following text: "The image shows a box of Tylenol Cold Extra Strength medication. The box is labelled as a "24HR CONVENIENCE PACK" and contains acetaminophen among other ingredients. The packaging is divided into two sections: one for daytime tablets and one for nighttime tablets. The daytime section includes 10 tablets, which are yellow, and is indicated to relieve nasal congestion, dry cough, fever, and aches and pains. The nighttime section also includes 10 tablets, which are blue, and is indicated to relieve nasal congestion, dry cough, runny nose/sneezing, fever, and aches and pain. The total count of tablets in the package is 20, referred to as "20 eZ TABS." The DIN numbers for the daytime and nighttime tablets are 02276186 and 02276259, respectively."



Figure 14. Front and Back of Zarbee's Immunity Syrup

Note. This figure displays the product's packaging layout. The app generated the following text: "The image shows a bottle of Zarbee's Children's Immunity Syrup being held in a hand. The bottle is designed for children aged 2 years and older. The label indicates that the syrup contains honey, elderberry, vitamin D, and zinc, which are noted to support the immune system, provide a source of antioxidants, and soothe coughs and irritated throats. The flavor is mixed berry. The bottle has a capacity of 118 mL."



Figure 15. Front and Side Pictures of General Mills Honey Nut Cheerios

Note. This image highlights the front-facing and side-facing design of the product. The app generated the following text: “"The image shows a box of Honey Nut Cheerios cereal, which is a limited edition with ""Happy Heart Shapes."" The box prominently features the word ""Dad"" with the phrase ""Makes My Heart Happy"" below it. The cereal is described as naturally flavored and made by General Mills. The top left corner of the box highlights that whole grain is the first ingredient. In the center of the box, there is a large heart-shaped cereal piece. Below it, a red heart graphic states ""Oat Fibre Helps Lower Cholesterol."" Next to this, there is a cartoon bee character holding a honey dipper. The bottom of the box provides nutritional information, stating that 1 cup (37g) of Honey Nut Cheerios cereal made with oats provides 35% of the daily amount of fibers shown to help lower cholesterol. The net weight of the cereal is 430 grams.”



Figure 16. Front and Side Pictures of Kellogg's Froot Loops

Note. This image highlights the front-facing and side-facing design of the product. The app generated the following text: "The image shows a box of Kellogg's Froot Loops cereal. The box prominently features the brand name ""Kellogg's"" in the top left corner. Below this, it states ""SOURCE OF 8 VITAMINS & MINERALS"" and ""MADE WITH WHOLE GRAINS."" The main design includes the Froot Loops logo with the letters ""F"" and ""R"" in white, and the ""O's"" are represented by colorful cereal loops. The character Toucan Sam is depicted in the center, with a rainbow-colored beak and blue feathers, holding a cereal loop. The text ""Great Fruity Taste!"" is on the right side. The bottom left corner indicates ""No artificial flavours or colours"" and ""Made in Canada,"" with a weight of ""320 g."" The bottom right corner mentions ""NATURAL FRUIT FLAVOURS"" and ""150 CALORIES per 27 g."" Various fruit images, such as orange, lime, raspberry, and cherry, are scattered around the box, along with cereal loops."



Figure 17. Front and Back Pictures of Life Brand's Aloe Vera Liquid Hand Soap

Note. This figure displays the product's packaging layout. The app generated the following text: ""The image shows a hand holding a bottle of liquid hand soap. The bottle is clear with a pump dispenser on top. The label on the front of the bottle reads ""Life Brand"" and indicates that the soap contains Aloe Vera and Vitamin E. The text is presented in both English and French, with ""Aloe Vera & Vitamin E"" and ""Aloès et vitamine E"" respectively. Below this, it states ""Liquid Hand Soap"" and ""Savon liquide pour les mains."" The volume of the bottle is specified as 340 mL."



Figure 18. Front and Back Pictures of Aveeno Baby Body Lotion Packaging

Note. This figure displays the product's packaging layout. The app generated the following text: "The image shows a bottle of Aveeno Baby Calming Comfort Lotion being held in a hand. The bottle is white with a pump dispenser at the top, which is light purple in colour. The label on the front of the bottle includes text in both English and French. It states that the lotion contains natural oat and has a lavender and vanilla scent, designed to moisturize baby's skin for 24 hours and help calm the baby before bedtime. The bottle has a capacity of 532 mL, and the product is noted to be free of parabens, phthalates, and dyes. The label also includes a small graphic of leaves and a QR code at the bottom."

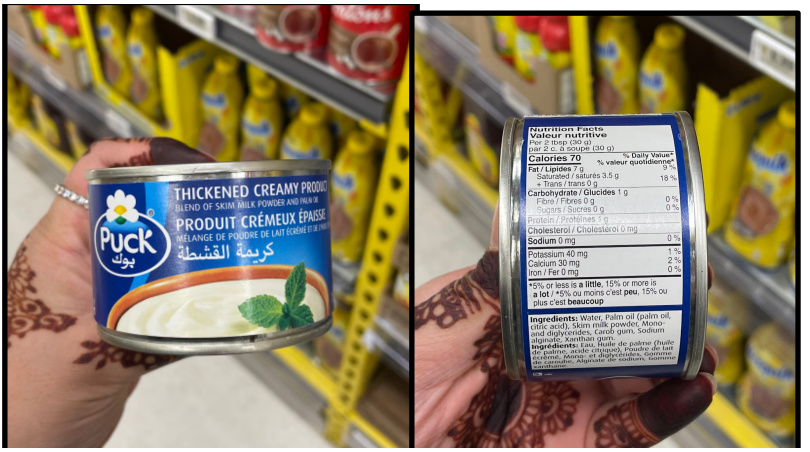


Figure 19. Picture of Puck's Thickened Creamy Product

Note. This image highlights the front-facing and side-facing design of the aluminum can, with emphasis on the visibility of product text, contrast, and the absence of tactile or digital accessibility features. The app generated the following text: "The image shows a hand holding a can of Puck Thickened Creamy Product, which is a blend of skim milk powder and palm oil. The can is prominently displayed in the foreground, with the label clearly visible, featuring text in English, French, and Arabic."