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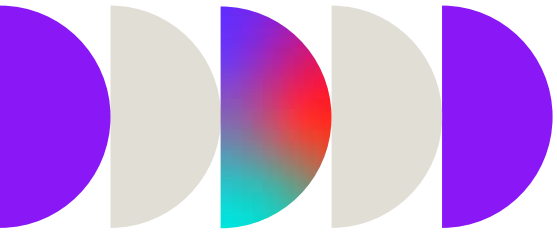
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PACKAGING AND CULTURAL ACCESSIBILITY. DESIGNING PRODUCT COMPREHENSIBILITY FOR ALL USERS

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ABSTRACT | Our society is becoming increasingly complex and diversified, comprising individuals of diverse geographical origins, new first and second-generation citizens with their own cultures, and social groups diversified by age or specific physical and cognitive abilities.

The issue of accessibility to products, services and environments is therefore becoming increasingly visible and widespread issue, no longer confined to niches of users with specific needs. In this scenario, the aim of this contribution is to explore the accessibility of packaging, with particular reference to the dimension of cultural accessibility, which is more related to cognitive and communication design aspects.

To date, the topic of accessibility in the packaging industry has been the subject of considerable theoretical and experimental reflection in relation to its physical-sensory component. However, solutions that make packaging also cognitively inclusive for culturally differentiated audiences still deserve to be further investigated and explored.

The article proposes, through a comparative analysis of different attitudes and interpretations of accessibility in packaging, an in-depth exploration and categorisation of the communicative-informative characteristics. Particular attention is paid to the consideration of the cultural background of the target users, which we define as cultural accessibility.

This analysis specifically aims to implement an operational tool for the investigation and design of accessible packaging. The purpose of this tool is to provide an objective assessment of the level of accessibility of packaging, thereby guiding the designer in the identification of solutions to enhance existing packaging, increase its level of accessibility and sustainability, and ensure its social responsibility.

1. Introduction

Our society is becoming increasingly complex and diversified, with individuals from various geographical origins, new first and second-generation citizens with their own cultures, and social groups differentiated by age or specific physical and cognitive abilities (Figure 1). Indeed, over recent years, Europe's demographic structure has undergone significant changes due to strong migration flows and an aging population (Eurostat data, 2023). As a result, the issue of



accessibility to products, services, and environments is becoming more prevalent, extending

beyond niches of users with specific needs to encompass society as a whole.

Figure 1. Dimensions of diversity. Credits: authors.

In our era of globalization, multiculturalism is an integral part of modern societies (Cerrina Feroni & Federico, 2017). The interconnections between diverse cultures influence many aspects of daily life, from cuisine to fashion, education to design.

Designing for a multicultural world is not only about inclusion but also about innovation and sustainability. This approach allows for the creation of products, services, and spaces that meet the needs and desires of a diverse population, promoting social cohesion and valuing cultural diversity.

Social sustainability, which considers people's well-being as fundamental, can be achieved through an inclusive design approach, involving values such as equity, safety, participation, integration, well-being, and quality of life. It is also an area of focus for companies, as neglecting these aspects can lead to commercial repercussions (Fain, 2018).

In this context, the present contribution aims to introduce a recently started research project focused on the accessibility of packaging—an omnipresent, mass-produced item that accompanies almost all our consumption activities, from purchase to use and disposal. Packaging's functional and communicative attributes make it a particularly intriguing subject of study: it is a powerful communication tool, capable of conveying meanings related to brand values and significantly influences purchase decisions and consumer perceptions.

The research aims to explore packaging accessibility, with a specific emphasis on cultural accessibility[1], which mainly pertains to cognitive and communicative design aspects. While the topic of accessibility in the packaging industry has seen significant theoretical and experimental discussion regarding its physical-sensory components - such as readability, manageability, ease of opening, and usability (Yoxal et al., 2019)— there remains a need for further exploration of solutions that make packaging cognitively inclusive for culturally diverse audiences.

[1] Cultural accessibility refers to the design and provision of products, services, and environments in a way that ensures they are inclusive and usable by people from diverse cultural backgrounds. The goal of cultural accessibility is to eliminate cultural barriers and promote inclusivity, making sure that cultural differences do not hinder people's ability to access, understand, and benefit from a product, service, or environment.

[2] The Ethical Packaging Charter is a project by Politecnico di Milano and Edizioni Dativo. It is a set of principles and guidelines aimed at promoting responsible and sustainable practices in the packaging industry, promoted by the Packaging Ethical Charter Foundation. It encompasses various aspects of packaging design, production, and lifecycle management, with a focus on minimizing environmental impact, ensuring social responsibility, and enhancing consumer safety and satisfaction. (Source: https://fondazionecartaeticapackaging.org/)

As emphasizes in the Ethical Packaging Charter[2], packaging has evolved into a mature and essential product, necessitating collaborative reflection among industry stakeholders to ensure its development aligns with consumer, user, environmental, and societal needs (Baule & Bucchetti, 2015). In this context, the communicative and cultural accessibility of packaging has become increasingly significant, highlighting the importance of design awareness in influencing user interaction and comprehension.

Packaging inherently must fulfil multiple requirements, often forcing designers, producers, and distributors to balance different functions. Its primary role is to protect and preserve its contents throughout the supply chain—from production to storage, transportation, display, purchase, and final consumer use. Additionally, packaging must facilitate product sales by ensuring easy identification and clear communication of contents. It is also meant to establish a physical-sensory and cultural connection with users, allowing for intuitive and straightforward interaction. Moreover, legal requirements, such as environmental labelling and specific needs of producers or distributors, must be met (Goodman-Dean et al., 2016).

Packaging design should account for the wide range of human perceptual and cognitive processes, gestures, languages, and cultural backgrounds (International Standard, 2011). Each of these aspects influences design choices regarding shape, material, operational mechanisms, opening and closing systems, quantity, size, and placement of key information, among others. Recognizing that not all design needs can be perfectly aligned, it falls to the designer to prioritize which aspects to emphasize based on the specific context.

Extensive research in psychology and consumer behavior underscores the significant role of culture in shaping cognition, perception, behavior, and decision-making (De Mooij & Hofstede, 2011; Ji & Yap, 2016). The subjective relationship between packaging and the user can be explored through personal values, which can be categorized into three main areas: internal values (such as self-actualization, self-respect, and fulfilment), external values (like respect, security, and belonging), and pleasure-oriented values (including excitement, enjoyment, and pleasure). These values drive consumer behavior and are shaped by cultural influences (Limon et al., 2009). According to congruence theory[3], consumers are more inclined to choose products and

[3] In psychology it is a cognitive consistency theory that focuses on the role of persuasive communications in

brands that align with their personal values. Consequently, packaging that reflects both the cultural and personal values of consumers is more effective in shaping their purchase intentions (Ploom et al., 2019).

To support user and environmentally-conscious packaging design, several tools have been developed over the years, in order to assess the performances (both quantitative and qualitative) of existing packaging, evaluate their compliance with quality standards, and highlight project opportunities. For this research, some tools developed in the context of other research experiences were analyzed, which allowed for critical reflection on the interpretive keys adopted and the ultimate goals of these instruments: from environmental and social sustainability (Badalucco, 2011; De Giorgi, 2013; Barbero & Tamborrini, 2018), to design implications in terms of physical and sensory accessibility on both a qualitative (Badalucco, 2011; De Giorgi, 2013; Rossi, 2019) and quantitative/ performance level (Fain, 2018).

However, aspects concerning cultural accessibility in its communicative dimension appear to require further reflection (Van den Berg-Weitzel & Van de Laar, 2001) with specific reference to the design of information content to help users overcome socio-cultural barriers. These barriers are related, for instance, to cultural self-referentiality—such as the use of technical and specialized language (Gallavotti & Pistoi, 2007)—or the lack of adequate and/or shared languages, such as the limited use of information in English or other languages, or alternative languages like Braille, digital insights, etc. These aspects have design implications related to the expressiveness of packaging —through elements like colour, shape, typography, etc. — and how information is presented, either explicitly (by highlighting facts, images, and details) or implicitly (through symbolism and metaphors).

The central research question thus becomes: what specific tools and methodologies can be developed and applied to critically analyze and promote the effective design of culturally inclusive packaging?

This entails identifying strategies and tools that not only assess the cultural accessibility of packaging but also guide designers in creating packaging that respects and reflects diverse cultural perspectives and needs. The aim is to ensure that packaging is accessible and appealing to a broad spectrum of consumers from various cultural backgrounds, thereby enhancing user experience and fostering inclusivity.

2. Cultural accessibility and packaging: a methodological approach

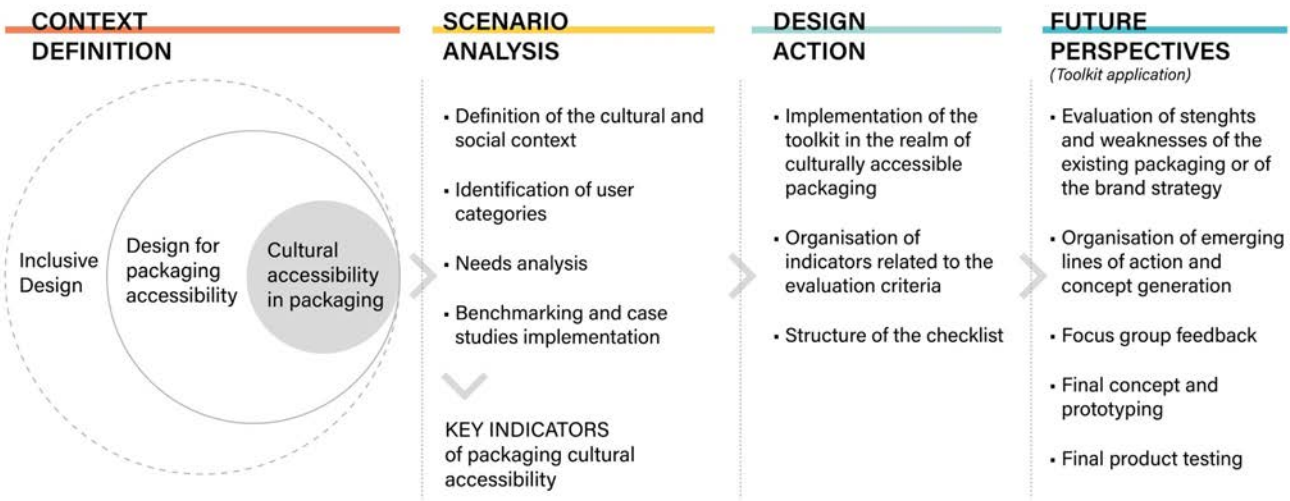
Designing the built environment, everyday objects, information, services, strategies, means necessarily having to take into account the variety of human beings, their different needs and capabilities in performing actions or achieving goals. A topic of social sustainability that looks at the component

of people's well-being as a fundamental fact, which can also be achieved through an inclusive approach.

Indeed, the central theme of *inclusive design* embraces various design approaches that aim to create products and services that are accessible to and usable by a wide range of people, regardless of their abilities or circumstances (Coleman, 1994). These approaches include, for example, design strategies that refer to the areas of *Universal design* (Mace, 1985), *Design for All* (EIDD - European Institute for Design and Disability, 2004) and *Human Centred Design* (ISO 9241-210:2010[4], point 2.7 - standard Ergonomics of human-system interaction).

The article proposes, through a comparative analysis of different attitudes and interpretations of cultural accessibility in packaging, an in-depth exploration and categorisation of the communicative-informative characteristics.

From a methodological perspective (Figure 2), the topic was initially approached through a literature review aimed at defining the design domain of Inclusive Design in packaging, which refers to the creation of packaging solutions that are accessible, usable, and appealing to the widest possible range of people, regardless of their age, ability, cultural background, or other characteristics (Waller et al., 2015). This activity allowed for the identification of the main categorizations and interpretations of cultural accessibility in packaging, which were useful for the



subsequent selection and analysis of case studies, which proved to be of interest in terms of

4 Definition of Human Centered Design available in "Ergonomics of human-system interaction - Part 210: Human-centred design for interactive systems", section 2.7.

inclusive solutions with respect to diverse user groups (gender identity, language proficiency, geographical origin, educational background, etc.).

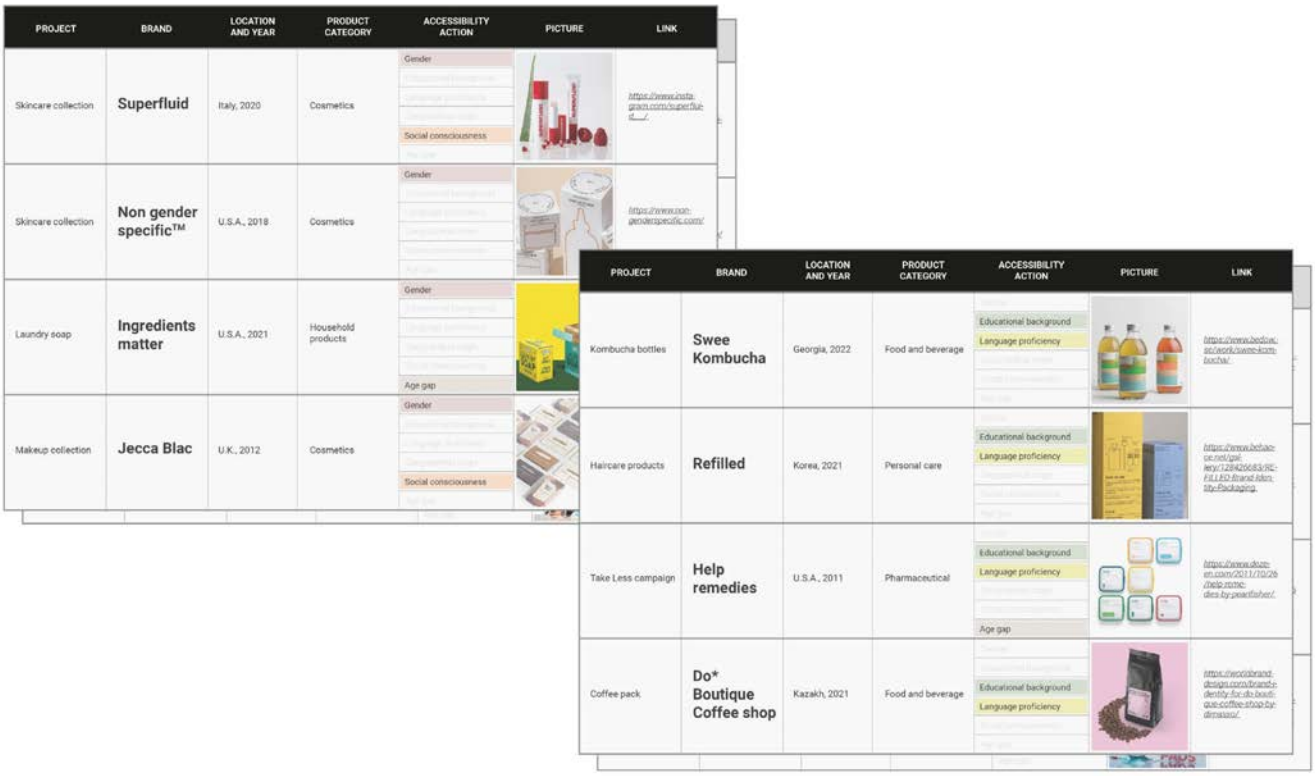


Figure 2. Methodological approach for the development of a cultural accessible packaging. Credits: authors.

A selection of 50 case studies of existing packaging (Figure 3), notable for their proposed cultural accessibility solutions, was conducted. These case studies span various product categories and were chosen based on the types of accessibility they address.

Figure 3. An extract of the case studies of cultural accessibility mapped and analysed. Credits: authors.

2.1 Gender

Gender neutrality in packaging – a topic extensively explored in recent studies - refers to designing and creating products that does not specifically target or appeal to any particular gender, aiming instead to be inclusive and appealing to all consumers regardless of their gender identity (Huang, 2023). This approach avoids using stereotypical colours, imagery, language, or iconic elements that are traditionally associated with a specific gender, focuses instead on neutral features that can appeal to a broader range of consumers (Dimaandal & Espineda, 2023).

From a gender inclusion perspective in packaging, it is evident that certain sectors, such as cosmetics and children's toys (Figure 4), have already made significant strides. These market areas have explored and implemented marketing and packaging design strategies that reflect greater sensitivity and inclusivity towards various genders. However, there are still sectors that could benefit from increased attention in this regard.
For instance, the household cleaning sector remains strongly rooted in gender stereotypes, often representing and targeting a predominantly female audience. This perpetuates the notion that domestic tasks are primarily a responsibility of women, overlooking the reality of a society where an increasing number of men share these duties. A change in packaging that reflects a more equitable and inclusive view could help break these patterns and promote a more modern and realistic image of household management.
Similarly, the alcoholic beverage sector tends to target a predominantly male audience, both through packaging design choices and advertising strategies. This trend not only excludes a significant portion of the female market but also reinforces limiting stereotypes that associate certain types of alcoholic drinks exclusively with men.
Promoting packaging that is gender-neutral or even celebrates consumer diversity could not only expand the market target but also contribute to a more balanced and inclusive representation of the consumers.



Figure 4. Some of the case studies collected in which design attentions related to gender accessibility can be identified. Credits: authors.

2.2 Educational background

From a design perspective it is essential to recognize that not all individuals have access to the same social and cultural resources. Therefore, communication must be straightforward and accessible to everyone: developing solutions that overcome socio-cultural barriers that often lead to feelings of cultural inadequacy is crucial.

Regarding the attention to the cultural background of target users, it is interesting to observe how packaging experimentation has made significant progress, particularly in the fields of personal care and pharmaceutical products (Figure 5). These areas have leveraged digital technologies and visual design techniques to facilitate access to detailed and comprehensible information about the usage and storage of products. For instance, QR codes and other interactive technologies allow consumers to access digital insights in various languages and formats, making information accessible to a culturally diverse audience. Additionally, visual simplifications, such as universal icons and intuitive illustrations, help overcome language barriers, ensuring that instructions are understood regardless of the users' cultural background.



Figure 5. Selected case studies in which some design attentions to people with different cultural backgrounds can be identified. Credits: authors.

2.3 Language proficiency

Linguistic accessibility in packaging is a topic of growing importance in the modern world, where globalization and cultural diversity have become the norm. Ensuring that product information is understandable to people from various linguistic backgrounds is crucial not only for enhancing the consumer experience but also for ensuring safety and compliance with international regulations, particularly in sensitive sectors such as food, pharmaceuticals, and cosmetics.

The use of images, symbols, and icons results in effective communication, particularly in contexts where language comprehension varies among users. These visual elements must be culturally relevant and easily recognizable to ensure that the intended message is universally understood. Incorporating digital and audio insights can further enhance comprehension; for instance, QR codes can link to multilingual websites or video descriptions, offering alternative ways to engage with textual content. Additionally, narration and verbal descriptions should be clear and engaging, ensuring that all users can access and understand the information being conveyed. This multi-faceted approach helps bridge language gaps and ensures effective communication across diverse audiences (Alley-Young, 2014).

One of the most innovative ways to enhance linguistic accessibility in packaging is through the use of digital technologies[5]. For instance, many companies are incorporating QR codes or digital insights into their packaging that redirect users to multilingual online content. This content can include video tutorials, detailed instructions, and nutritional or safety information.

Visual simplifications, such as the use of universal icons and intuitive illustrations, represent another effective approach to improving linguistic accessibility. These graphical elements can convey essential information without the need for text, overcoming language barriers (Figure 6).

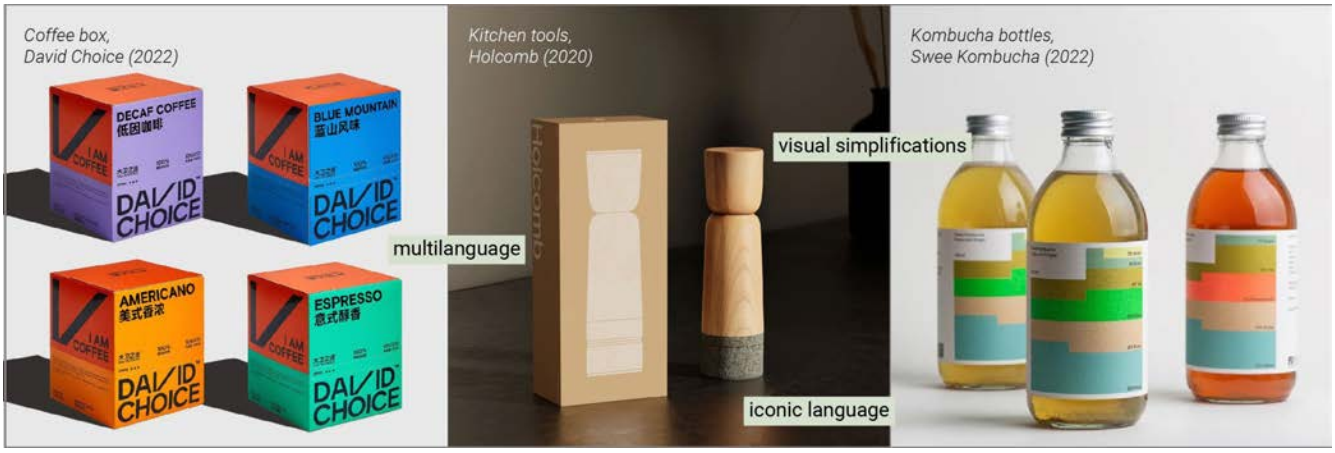


Figure 6. Some of the case studies where particular attention is given to linguistic accessibility. Credits: authors.

2.4 Geographical origin

When developing packaging that considers the geographic origin of end users, it is essential to adopt an approach that acknowledges and respects diverse cultural traditions, preferences, and regional sensitivities. This can be achieved through in-depth market research that analyses the demographic and cultural variety of consumers in different territories (Berg-Weitzel & Laar, 2001), for instance, adapting the use of colours, symbols, and graphics to reflect local aesthetics and positive cultural associations (Figure 7).

Among the strategies that might be interesting to adopt, the use of foreign lettering can be advantageous if it aligns with the origin of the product, thus improving perceived quality, especially for familiar products. Positive evaluations are further amplified when there is congruency between the lettering and the product category, as consumers tend to favour

[5] It is important to remember that some functions may improve accessibility for certain types of users but not for others. In fact, digital accessibility certainly represents a great opportunity for a large part of consumers, but at the same time it can be a limitation for older users. Therefore, a good accessible packaging project should still take into account providing the same cultural content through the structuring of differentiated experiences.

familiar products with unconventional lettering (Hornikx et al, 2013). Additionally, colour interpretation by different cultures plays a crucial role in brand perception. An example is the use of the colour green. While it is universally linked to nature and life, its specific meanings can differ significantly based on the religious, historical, and cultural influences of each region. For instance, in countries with Islamic traditions, green is associated with religion, prosperity, and elegance. Conversely, in China, green can also carry negative connotations related to infidelity and shame.

Effective packaging design should consider these cultural differences in colour preferences to avoid negative connotations and enhance appeal. Companies that skilfully utilize colour (as well as symbols and icons) in their packaging can significantly boost product appeal, increase profits, and achieve greater brand recognition, demonstrating that colours have different meanings across cultures and can profoundly affect product perception (Valdillez, 2012).

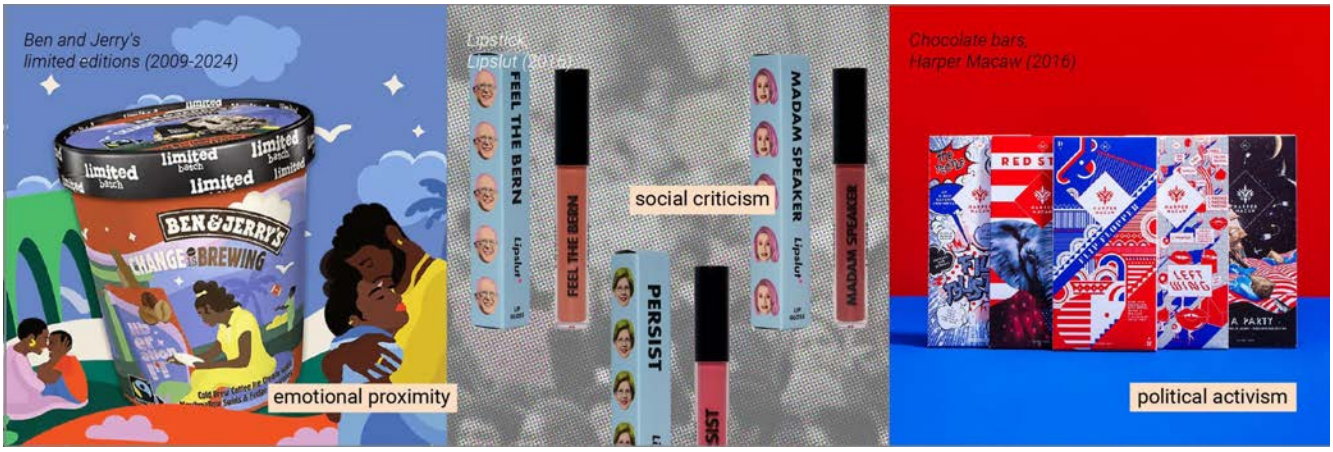


Figure 7. Some of the case studies in which attention is paid to cultural elements related to the different geographical origin of potential consumers. Credits: authors.

2.5 Social consciousness

Today's consumers are more informed, critical, and demanding, seeking trust, transparency, fairness, and social responsibility from companies. Marketers face the challenge of appealing to a generation that values immediacy, digital connectivity, and social consciousness. Large corporations are expected to contribute positively to society by addressing social and environmental issues, creating "shared value" and integrating ethical business practices and responsible investment, concerned with sustainable production and sourcing, and comprehensive environmental management (Kiygi-Calli, 2019).

Social activism in packaging (Figure 8) reflects a company's commitment to corporate social responsibility, demonstrating awareness of social and environmental concerns. This commitment not only enhances a brand's reputation and builds consumer trust but also aligns with growing consumer expectations for ethical and environmentally responsible practices. Sustainable and recyclable packaging helps reduce environmental impact, while inclusivity and diversity in design challenge stereotypes and promote equality. Brands that integrate these values into their packaging strategies often benefit from improved brand reputation, increased customer loyalty, attraction of new consumers, competitive advantage, and alignment with regulatory trends. Additionally, social activism in packaging can stimulate innovation, opening new business



opportunities and fostering a more inclusive and sustainable world.

Figure 8. Some of the case studies where an explicit brand position on issues of social consciousness is evident. Credits: authors.

2.6 Age gap

In packaging design, taking into account the differences in age of the users is crucial in order to respond to very different needs in terms of physical, perceptual and cultural abilities, thus reaching as wide a market as possible. For instance, according to some studies (Świda et al, 2018; Guido et al, 2020; Banerjee et al, 2022) certain packaging types and designs, like glass bottles, straightforward logos, and muted colours, are generally preferred by older consumers. Additionally, they give priority to details like the product's composition, producer name, and expiration date.

To cater to this demographic, packaging must address physical challenges such as reduced hand strength, compromised vision, and difficulties in reading small text. It is therefore useful to adapt design precautions related primarily to the physical accessibility of the product.

On the other hand, developing attractive culturally appropriate packaging can attract younger consumers to products traditionally targeted at older demographics (Figure 9). This strategy offers several advantages such as broadening the consumer base and changing the perception of the products. Fresh and modern packaging can significantly enhance a product's appeal, particularly to young consumers. Attractive designs, vibrant colours, and innovative graphics can capture the attention of a younger audience who may not have previously considered the product. Incorporating current trends such as interactive technologies - like QR codes and augmented reality - or popular themes can make the product more relevant and engaging for this demographic. Interactive packaging experiences, such as games, quizzes, or exclusive content accessible via QR codes, can stimulate interest and encourage engagement. Additionally, packaging that tells a story or aligns with social causes important to young people, such as environmental or social issues, can further increase its appeal. Formats are youth-responsive, like single servings or portable containers, and a renewed brand identity incorporating elements of pop culture or youthful influences, can build a stronger emotional connection and make the product more appealing.

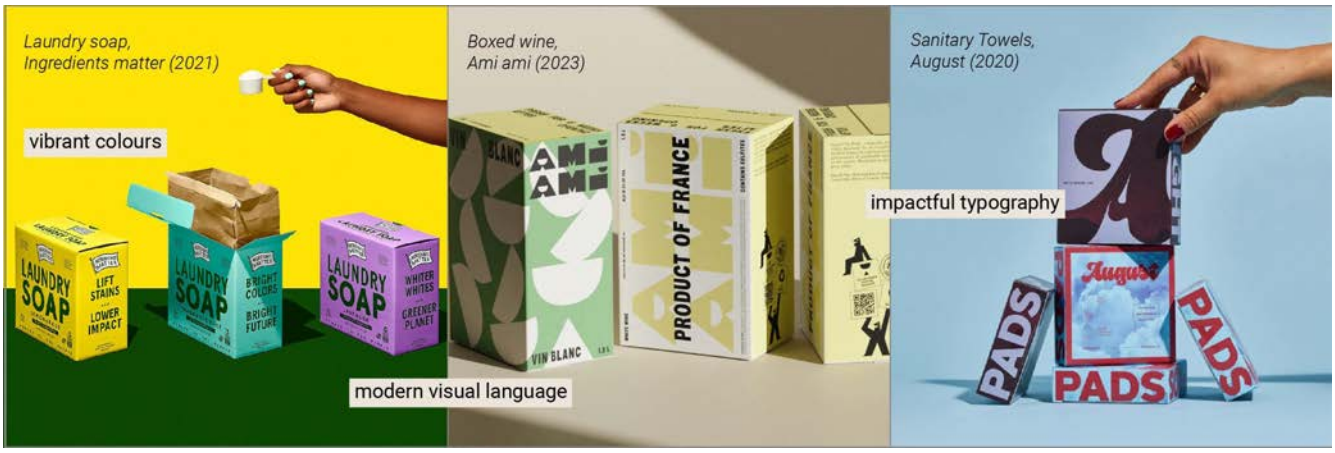


Figure 9. Some of the case studies in which specific design features open up the brand to new customer groups (with a focus on the age of the target audience). Credits: authors.

3. Future perspectives: implementation of an operational tool

Packaging transcends mere functionality; it acts as a visual storyteller, conveying emotions, values, and cultural narratives. Inclusive design principles form the cornerstone for creating packaging that appeals to a wide range of cultural backgrounds and identities. By incorporating diverse visual elements, designers can ensure that packaging speaks to a broad audience, fostering a sense of belonging and respect among consumers. This approach helps in building a positive brand image, as consumers are more likely to support brands that reflect their values and experiences.

Moreover, culturally sensitive packaging design can enhance the emotional connection between the product and the consumer. When consumers see themselves and their values reflected in a product's packaging, it creates a stronger emotional bond and can drive brand loyalty. This emotional connection is crucial for brands aiming to differentiate themselves in a competitive market.

The use of diverse cultural symbols and inclusive design elements also helps in breaking down stereotypes and promoting cultural understanding. For example, featuring a variety of skin tones and body types can challenge traditional beauty standards and promote a more inclusive notion of beauty. Similarly, using culturally significant symbols and colours can help in acknowledging and celebrating cultural heritage, thereby fostering a more inclusive society.

Incorporating these elements requires a deep understanding of the target market and a commitment to inclusivity. Brands must engage with cultural experts and diverse communities to ensure that their packaging design is not only inclusive but also respectful and authentic. This collaborative approach can lead to more innovative and culturally resonant packaging solutions.

The results of the analysis and mapping thus made it possible to critically assess the types of interventions that could contribute to a more culturally accessible packaging. Based on these reflections, the theoretical and methodological foundations were laid for the development of a tool capable of analysing the state of inclusivity of a packaging and monitoring its coherence in progress.

A brief description of the tool is therefore given below, which, in addition to the criteria of cultural accessibility, includes parameters of physical accessibility.

The development of the tool is therefore not the subject of the paper but a pre-existing element that can benefit from the outcomes of this new part of the research on cultural accessibility.

The tool consists of a detailed checklist organised by skill areas, each of which covers a different aspect of the physical or communicative accessibility of packaging. This tool has been designed to be used during specific action steps and with the involvement of different stakeholders, thus guaranteeing a systematic and collaborative approach to the process of evaluating and improving the product itself: this allows data and feedback to be gathered from different perspectives, ensuring that all skill areas are examined and improved in a coherent and integrated way.

The moment a company decides to take critical action regarding the accessibility (physical, sensory, communicative) of its packaging, the first step should be to interact with the designer expert in order to understand the scope and objectives of the project.: the specific products in question, current accessibility challenges and what the company hopes to achieve are discussed.

The next step should involve the designer gaining a deeper understanding of the products, the target market, and the social and cultural contexts of the area where the products will be sold. In a next phase, crucial in the methodological process, would be the organisation of dedicated focus groups with stakeholders, during which accessibility problems and points of specific design interest are noted. To guide this process, the designer can will use the checklist as an operational tool to support the critical analysis of specific aspects - examining both the physical, sensory, and cultural accessibility of the packaging - and to provide a general overview of the product, highlighting its strengths and identifying critical points, which can reveal new design opportunities. To go into more technical detail, this tool includes two specific devices: an evaluation form in the format of a checklist of criteria, useful as a pre-design tool (Badalucco, 2011), capable of returning the level of accessibility of the existing packaging analysed, and the indication of possible improvements related to the results of the analysis carried out. The purpose is to provide an objective assessment of packaging accessibility, guiding the designer in identifying solutions to enhance the packaging's accessibility, sustainability, and social responsibility, particularly concerning physical and cultural contexts.

The first form analyses physical accessibility characteristics, grouped into subcategories such as handling, opening, closing, and dispensing systems. It documents the presence or absence of these features and evaluates any complexities or difficulties in the physical interaction between the user and the packaging, considering factors like required force, number of movements needed, and the possibility of one-handed use, etc.

The second form considers the communicative accessibility characteristics divided into aspects of information, comprehension, identification, and cultural factors.

The forms (Figure 10) are graphically structured with four columns to enhance understanding and make completion more intuitive. The main column lists statements related to the characteristics being evaluated (e.g., "Cultural aspects"), offering specific references. To the left are the subcategory groupings, while the four evaluation parameters are to the right:

- "No" indicates the characteristic is not met for any user category.
- "In part" means the characteristic is met only for some user categories.
- "Yes" signifies the characteristic is met for most user categories, including people from various cultural and linguistic backgrounds, able-bodied individuals, individuals with physical limitations (e.g., motor disabilities, visual impairments, deafness, arthritis, colour blindness), individuals with cognitive limitations (e.g., neurobiological disorders, mild intellectual disabilities), and individuals with temporary

limitations (e.g., pregnant women, people with injured limbs).

· "N.A." (Not Applicable) applies if the characteristic cannot be evaluated for the specific type of packaging analysed.

The final column for notes is essential, as it allows for documenting observed criticalities, providing a useful basis for subsequent packaging improvement guidelines to be developed by the designer. The completion process can ideally be divided into two phases: after the initial analysis, which involves observing the packaging, filling out the various items, and writing notes, the number of ticks for each evaluation parameter is counted. This will highlight, using a "traffic light system", the subcategories that require more attention due to potential accessibility issues.



Figure 10. The structuring of the tool and an example of compilation. Credits: authors.

After this analytical session, the designer examines the results, extracting the critical issues related to the accessibility of the packaging under investigation and translating them into requirements for the re-design of the product. The designer then moves on to the creative phase, developing new design concepts that address the identified problems. These concepts are then discussed with stakeholders and technically developed until a design is achieved that best meets the needs expressed in the preliminary phase. These will be further tested through models, which are tested internally to ensure compliance with the required accessibility standards. After that, the company can develop prototypes based on the implementations proposed by the

designer. It would be essential to propose again at this stage a further heterogeneous focus group formed not only by the main stakeholders, but also by other subjects such as representatives from the company, cultural associations, accessibility experts, and other relevant entities that actively work on the topic of accessibility, in its different shades. The group members then evaluate the new packaging proposed by the designer - through the use of the checklist, which then takes on the function of a performance verification tool for the new product - providing valuable feedback on how well they meet cultural accessibility needs. Their insights should be carefully documented and analysed, leading to further refinements.

After incorporating the focus group's feedback, the designer finalizes the designs, and the company moves forward with production. But the process doesn't end there. Post-launch would be useful if the company and designer monitored the market response to ensure the new packaging effectively meets the cultural accessibility goals.

4. Conclusions

The explorations carried out lead in the first instance to the identification of two main project scenarios for increasing the cultural inclusiveness of packaging: (a) an approach according to which the packaging product can offer a differentiated experience to respond to different needs, even within the same object; (b) the definition of differentiated packaging, for instance different packaging solutions for the same sales content, thus able to adapt the performance provided to the specific cognitive needs of the user, through dedicated packaging.

In the context of the research, the implementation of the designed checklist is one of the main objectives, but it is not the only purpose of the work, that aims to enrich and expand the study and academic literature on a specific topic – that of cultural accessibility in packaging design - that, to date, has received a considerable lack of attention and feedback. This research theme follows the more central and debated strand of sustainable packaging design, which has been the main focus of study in recent decades, and from which it actually originates. In fact, accessibility is still a question of sustainability, where, however, the point of view varies from environmental to social.

The topic of packaging accessibility itself sees studies and insights, particularly into aspects of physical accessibility, less so into those of cultural accessibility, that, despite its relevance, has not been adequately explored in previous research. The aim is to contribute to a more comprehensive and detailed understanding of the topic of cultural accessibility in packaging design, providing new perspectives and information that can stimulate further academic studies and debates.

References

Alley-Young, G. (2014). *Advertising to Illiterate People*. Kingsborough Community College.

Badalucco, L. (2011). Il buon packaging. Imballaggi responsabili in carta, cartoncino e cartone. Edizioni Dativo. [Good packaging. Responsible packaging in paper and cardboard]

Barbero, S., & Tamborrini, P. M. (2018). Osservatorio Eco-Packaging (OEP): un mix di ricerca, didattica, progettazione e comunicazione. In S. Ferraris, & A. Vallicelli (eds). Microstorie di didattica del progetto. (pp. 389-399). Società Italiana di Design. [Eco-Packaging Observatory (OEP): a mix of research, education, design and communication]

Baule, G., & Bucchetti, V. (2015). Carta Etica del Packaging. Edizioni Dativo & Politecnico di Milano. [Ethical Packaging Charter]

Banerjee, N., Chatterjee, S., Bardhan, S., Mukherjee, S. (2022). Impact of Select Design Characteristics in Food Packaging on Consumer Behavior: A Study on Elderly Population in Kolkata. In Chakrabarti, D., Karmakar, S., Salve, U.R. (eds). Ergonomics for Design and Innovation. HWWE 2021. Lecture Notes in Networks and Systems, vol 391. Springer, Cham.

Berg-Weitzel, L., & Laar, G. (2001). Relation between culture and communication in packaging design. In The Journal of Brand Management. 8. 171-184.

Caputo, I., Bozzola, M., Oddone, M. & Volkova, A. (in press). Il packaging per l'utenza diversificata. Metodologie e strumenti per il design dell'accessibilità. In Design per la Diversità, SID Annual conference 2023. [Packaging for diversified users. Methodologies and tools for accessibility design]

Cerrina Feroni, G., Federico, V. (eds)(2017). Società multiculturali e percorsi di integrazione. Francia, Germania, Regno Unito ed Italia a confronto. Firenze University Press. [Multicultural societies and integration pathways.
France, Germany, the United Kingdom and Italy compared]

Coleman, R. (1994). The case for inclusive design – an overview. Proceedings of the 12th Triennial Congress of the International Ergonomics Association. Toronto: International Ergonomics Association.

De Giorgi, C. (eds)(2010). Packaging sostenibile? Metodo multicriteria di valutazione del packaging

alimentare. Poliedro - Pollenzo Index environmental and economics design. Umberto Allemandi & C. [Sustainable packaging? Multi-criteria method for evaluating food packaging. Poliedro - Pollenzo Index environmental and economics design]

De Mooij, M., & Hofstede, G. (2011). Cross-cultural consumer behavior: A review of research findings. In Journal of International Consumer Marketing, 23(3/4):181–92.

Dimaandal, R. J. H., & Espineda, M. N. (2023). Gender-Inclusive Children's Toy Package Design: An Alternative Approach to Gender-Neutral Design Based on Children's Perceptions. In Archives of Design Research, 36 (4), 141-161.

Eurostat. (2023). Demography of Europe – 2023 Edition. From https://ec.europa.eu/eurostat/web/interactivepublications/demography-2023

Fain, B. (2018). Food Packaging Design Accessibility Guidelines. Arthritis Australia – Accessible Design Division. From https://arthritisaustralia.com.au/wordpress/wp-content/uploads/2018/01/Food-Packaging-DesignAccessibility-Guidelines_Arthritis-Australia.pdf

Gallavotti, B., & Pistoi, S. (2007). La comunicazione istituzionale della scienza: come evitare la deriva autoreferenziale (oppure la sindrome di Rain Man?). Analysis, 4, 20-23. [The institutional communication of science: how to avoid the self-referential drift (or Rain Man syndrome?)]

Goodman-Dean, J., Waller, S. D., Bradley, M. J., Yoxall, A., Wiggins, D., & Clarkson, P. (2016). Designing Inclusive Packaging. In P. Burgess (eds). Integrating the packaging and product experience in food and beverages: A route map to consumer satisfaction. (pp.37-57).

Guido, G., Pichierri, M., Rizzo, C., Chieffi, V. & Moschis, G. (2021). Information processing by elderly consumers: a five-decade review. In Journal of Services Marketing, 35 (1), 14-28.

Hornikx, J., Van Meurs, F., & Hof, R. J. (2013). The Effectiveness of Foreign-Language Display in Advertising for Congruent versus Incongruent Products. In Journal of International Consumer Marketing, 25(3), 152–165.

Huang, R. (2023). Packaging Design of Objects from a Gendered Cultural Perspective. In Journal of Sociology and Ethnology, 5, 83-90.

International Standard (2011). ISO 11156:2011. Packaging – Accessible Design – General requirements. From https://www.iso.org/standard/50175.html

Ji, L.J., & Yap, S. (2016). Culture and cognition. In Current Opinion in Psychology, 8,105–111.

Kiygi-Calli, M. (2019). Corporate Social Responsibility in Packaging: Environmental and Social Issues. In Altinbasak-Farina, I., Burnaz, S. (eds). Ethics, Social Responsibility and Sustainability in Marketing. Accounting, Finance, Sustainability, Governance & Fraud: Theory and Application. Springer.

Limon, Y., Kahle, L. R., & Orth, U. R. (2009). Package Design as a Communications Vehicle in Cross-Cultural Values Shopping. In Journal of International Marketing, 17(1), 30-57.

Mace, R. (1985). Universal design: Barrier free environments for everyone. In Designers West, 33(1), 147-152.

Ploom, K., Pentus, K., Kuusik, A., & Varblane, U. (2019). The Effect of Culture on the Perception of Product Packaging: A Multimethod Cross-Cultural Study. In Journal of International Consumer Marketing, 32(3), 163– 177.

Rossi, E. (2018). A comprehensive tool for developing new human-centred and social inclusion-oriented design strategies and guidelines. In Theoretical Issues in Ergonomics Science, 20(4), 419-439.

Świda, J., Halagarda, M., & Popek, S. (2018). Perceptions of older consumers regarding food packaging as a prerequisite for its improvement: A case study of Polish market. In International Journal of Consumer Studies, 42, 358-366.

Valdillez, K. (2012). Color and brand design for multicultural packaging. California Polytechnic State University.

Van den Berg-Weitzel, L., & Van De Laar, G. L. M. (2001). Relation between culture and communication in packaging design. In Journal of Brand Management, 8(3), 171-184.

Waller, S. D., Bradley, M. D., Hosking, I., & Clarkson, J. (2015). Making the case for inclusive design. In Applied Ergonomics, 46, 297–303.

Yoxall, A., Gonzalez, V. H., Best, J., Rodriguez-Falcon, E., & Rowson, J. (2019). As you like it: Understanding the relationship between packing design and accessibility. In Packaging Technology and Science, 32(10), 496-507.

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