WHITE PAPER
DIVERSITY, EQUITY & INCLUSION

Aptar beauty

FROM FIELD WORK TO PROTOTYPE
A COMPREHENSIVE GUIDE TO APTAR'S INCLUSIVE PRODUCT DESIGN PROCESS

As evidenced in Aptar Beauty's previous White Paper, The Role of Packaging Dispensing in Making Beauty More Inclusive, the question of inclusivity in the beauty industry is crucial today. To provide an optimal beauty experience, packaging must be easy to use. By adopting universal design principles, beauty brands can address the specific needs of the elderly or disabled people with fine motor disorders.

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CONTENTS

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INTRODUCTION

BY ADOPTING UNIVERSAL DESIGN PRINCIPLES, BEAUTY BRANDS CAN ADDRESS THE SPECIFIC NEEDS OF THE ELDERLY OR DISABLED PEOPLE WITH FINE MOTOR DISORDERS. AT APTAR, WE ARE CONVINCED THAT THIS APPROACH IS THE RIGHT WAY TO INNOVATE, WHICH IS WHY WE PARTNERED WITH APF FRANCE HANDICAP, AN ORGANIZATION DEDICATED TO SUPPORTING PEOPLE WITH DISABILITIES IN FRANCE.

We engaged with APF France handicap as part of our inclusive design initiative, which covers our range of beauty packaging in fragrance, color cosmetics, skincare, haircare and body care.

The objective of this collaboration was to conduct a co-design process with people with disabilities focusing on Aptar Beauty packaging to enhance the comfort, ergonomics and accessibility of our products.

APF France handicap, with their proven expertise in inclusive and universal design, supported us by integrating UX design and ethnography approaches to closely understand the realities and experiences of people with disabilities.

By adopting the philosophy of "design for one, extend to many", APF France handicap helped us create solutions that meet the specific needs of users with disabilities, while ensuring user comfort.

Estelle Peyrard

Head of TechLab and Associate Researcher at École Polytechnique

Q: You are the Head of TechLab at APF France handicap. Could you tell us more about your activities?

A: *TechLab is the Technological Innovation department of APF France handicap. We have three missions: to support companies in their inclusive innovation initiatives, to conduct research on inclusive innovation, and to assist individuals or employees in their access to digital technology.*

Q: What does the support you offer to companies wanting to provide inclusive products to their customers involve?

A: *Our goal is to acclimate companies to inclusive innovation practices, which means innovating with and for those whose needs are often overlooked. This mainly involves having these groups participate in the product and service design process. We organize product tests, interviews, or workshops with panels of people with disabilities, in the presence of the company's teams. This helps generate ideas for products that meet a broader range of users' needs and provide better comfort for everyone. Additionally, to ensure that inclusive innovation practices continue beyond the project support, we train marketing, design, and engineering teams in inclusive design and co-design with people with disabilities. We also help them establish design rules applicable to their field so that inclusive design becomes a standard practice.*

Q: What is your vision of the beauty packaging market in terms of inclusivity? What challenges remain to be addressed?

A: *The field of beauty packaging is crucial for inclusive innovation because it affects both the daily lives and self-image of individuals. It's a complex area as the requirements are numerous and can sometimes seem contradictory: environmental demands, constraints imposed by large-scale distribution or online sales, and the constant demand for innovation. However, constraints are a source of innovation!*

TechLab
Le hub de l'innovation technologique
APF France handicap

https://www.apf-francehandicap.org/

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PART I
INTERNAL AWARENESS CAMPAIGN

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The initial step involved an awareness phase on inclusive design for the Aptar employees participating in the project, who were designated as «Inclusivity Ambassadors.» This phase comprised two parts: a webinar and a sensitization workshop where Aptar employees experienced simulated disability situations.

Webinar

Titled «When Disability Inspires Innovation,» the webinar used numerous examples of consumer products - such as remote controls, cruise control, and Nike FlyEase - to help participants understand the challenges and principles of universal design.

It demonstrated that many innovations created for people with disabilities can be beneficial to everyone. The content not only introduced inclusive design but also aimed to change perceptions of disability.

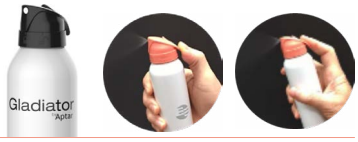
THE 7 PRINCIPLES OF UNIVERSAL DESIGN[1]

1. Equitable Use

- ✓ Wide actuation / opening area
- ✓ 1-handed operation possible
- ✓ Avoids cylindrical containers and favor curves / angles for a better grip

2. Flexibility in Use

- ✓ Usable by both lefties and righties
- ✓ Actuation can be done by fingertip or thumb
- ✓ Gradual dosing facilitated



3. Simple and Intuitive Use

- ✓ Make the Tamper Evident as intuitive and easy to remove as possible
- ✓ Reduce the number of handling steps as much as possible

4. Perceptible Information

- ✓ Make the areas of gripping, opening, actuating and dispensing the product easily identifiable to touch / sight: curved, textured, colored area, prominent spout…
- ✓ If lock/unlock positions: indications clearly identifiable by touch / sound

5. Tolerance for Error

- ✓ Ensure that the product can be used on a table in a stable manner
- ✓ Make sure that you cannot misplace the cap of the packaging

6. Low Physical Effort

- ✓ Choose the lightest materials possible
- ✓ Tamper Evident removal needs to be easy
- ✓ Avoid screw / twist type manipulations
- ✓ Keep the actuation force as low as possible
- ✓ For large formats, find a means of delivery that does not require lifting the product

7. Size and Space for Approach and Use

- ✓ Avoid elements that are too thin / small / flexible to make it easier to hold

[1] Story, Molly Follette, James L. Mueller, and Ronald L. Mace. «The Universal Design File: Designing for People of All Ages and Abilities.» (1998).

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Sensitization Workshop

For half a day, various disability skills workshops were organized at Aptar's premises. Using different tools, participants experienced simulations of various disabilities to better understand the challenges people with disabilities face when using hygiene and beauty products.

Here are some examples of the simulations we experienced:

- Simulating constant hand shaking with EMS gloves
- Simulating visual impairment using glasses that reproduce the effects of glaucoma or macular edema
- Simulating limb heaviness with weighted bracelets
- Simulating shoulder immobility with a belt tied around the torso to «trap» the arms
- Simulating hand stiffness by wrapping plaster around four fingers (excluding the thumb)
- Simulating blindness by wearing a blindfold

▲

1. Limb heaviness with weighted bracelets

2. Visual impairment using glasses that reproduce the effects of glaucoma or macular edema

3. Shoulder immobility with a belt tied around the torso to «trap» the arms (left); Constant hand shaking with EMS gloves (right)

4. Hand stiffness by wrapping plaster around four fingers (excluding the thumb)

PART II

EXPLORATORY STUDY

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Ethnological Study

To fully understand the relationship people with disabilities have with their hygiene and beauty products, we conducted an initial ethnographic phase to explore their habits and usage.

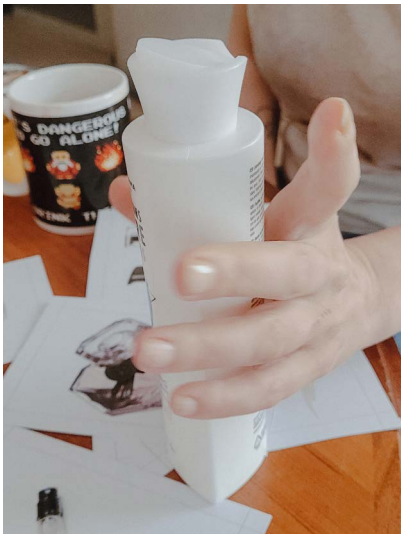
This involved seven face-to-face interviews aimed at delving deeply into the individual perspectives of participants with disabilities. The goal was to uncover their daily routines, opinions, and preferences to gain a comprehensive understanding of the subject. These interviews highlighted the daily challenges they face when using their hygiene and beauty products.

From this study, we identified the criteria for choosing products and the beauty routines of the participants.

We thus pinpointed seven steps in using these products that could potentially cause difficulty or discomfort:

1. Identification
2. Gripping
3. Opening
4. Dosing
5. Application
6. Closing
7. Storage

The results of this study provided insight into the needs and expectations of people with disabilities regarding hygiene and beauty products. This enabled us to outline the conditions necessary for an optimal user experience.



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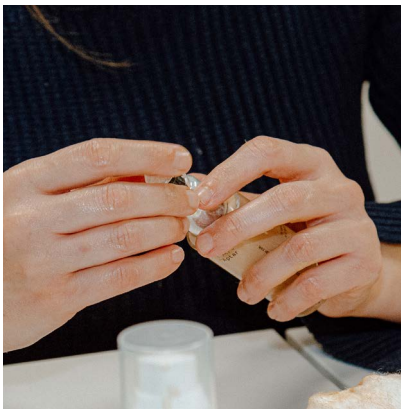


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Beauty Pack Evaluation Workshop

The objective of this initial workshop was to delineate the perception of our products and highlight the primary pain points.

To accomplish this, we convened a group consisting of 7 individuals with disabilities and 9 contributors from Aptar at the APF premises. Among the participants with disabilities were 3 individuals with partial or complete blindness, and 4 individuals with motor disabilities, either in wheelchairs or experiencing gripping difficulties.

Three zones were set up with selected Aptar products across various packaging categories. In the first zone we showcased pumps for viscous formulas, in the second aerosols and fragrance pumps, and in the last one alternative products such as droppers, hybrids, or soft packs. Over the course of three hours, the groups rotated between the zones, providing feedback on their experiences.

We gathered a certain number of insightful feedbacks.

ON ERGONOMICS OF OPENING, CLOSING, LOCKING, AND UNLOCKING

1. **Audible Feedback**
   Participants appreciated the audible feedback from specific locking gestures. This feedback likely provided a sense of confirmation and security, ensuring that the product was properly locked or unlocked without needing to visually check it.
2. **Integrated Cap and Bottle**
   Packaging with attached cap are favored because they ease the gesture and reduce the risk of losing the cap, which is a problem often encountered by people with visual impairments.
3. **Non-Cylindrical Top Caps**
   Non-cylindrical shapes for top caps were easier to grip and turn. This ergonomic feature is particularly beneficial for individuals with limited hand strength or dexterity, as it provides a better grip and requires less effort to operate.

ON EASE OF DOSING AND DISPENSING

1. **Stabilizing the Product** Many participants found it necessary to stabilize the product on a table or between their thighs to dispense the formula.
2. **Long Beak Pumps**
   Long beak pumps were preferred to short ones as they proved to be more stable and to make it easier to dispense the product without it dripping down down the side of the bottle, especially in a vertical position.
3. **Foam Products**
   Foam products were preferred which suggests that foam dispensers are more reliable and user-friendly, reducing leakage and ensuring a consistent dosage.
4. **Triggers and Two-Hand Gestures**
   Triggers, smaller products, and dispensing methods requiring two-hand gestures, such as droppers, were mostly rejected.

OTHER INSIGHTS

1. **Challenges for Blind Individuals**
   Locating certain formula exits was challenging for blind individuals. This highlights the need for a long beak when possible or for a textured tactile surface to assist visually impaired users in finding and using the product effectively.
2. **Hard Packaging**
   Hard packaging was liked better than soft packaging particularly towards the end of the product's lifespan. As the product gets depleted, it becomes harder to extract the remaining content, triggering frustration and potential waste.
3. Overall, it is important to prioritize **simplicity** and **intuitive design** to ensure accessibility for all users.

These insights emphasize the importance of user-centered design. By addressing these ergonomic and usability issues, products can become more inclusive and user-friendly.

At the end of this session, several areas for improvement were identified, leading to a decision to concentrate on two main areas of focus: enhancing our flagship product, the lotion pump, and improving the comfort and ergonomics of spray pumps.

PART III

CO-DESIGN WORKSHOP & PRODUCT TESTING

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Co-design Workshop

This second workshop took place at APF, involving the same participants as in the initial evaluation workshop. To enable us to imagine how we would feel and act if we had a disability, we were temporarily placed in situational contexts. For instance, we were placed in a situation of reduced dexterity as if we had tendonitis or slippery hands from applying cream, and we experienced low visibility as if we were not wearing our glasses or if we had soap in our eyes.

The workshop was broken down into three groups:

- **Group 1** focused on the identification, handling, and repositioning of products. They based their proposals on feedback from user interview from phase 1, envisioning products with different shapes that are more stable, easier to grasp, and have textures that provide additional sensory information.
- **Group 2** worked on the opening and locking mechanisms of the products. They aimed to design a locking system that did not rely on rotation and could be easily identified without sight.
- **Group 3** addressed the dispensing process. They tackled issues related to delivering the right amount of product and explored alternative methods for using the product, considering that many users lack the strength to operate it with one finger.

Among the different ideas, the most promising ones were selected for further development during an internal brainstorming session.

The principles established through this process were aligned with the 7 Principles of Universal Design, establishing our guidelines for cosmetic design.

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Internal Brainstorming

In February, we organized a session at Aptar's InVision Lab in Louveciennes, bringing together experts to explore the selected concepts.

Three groups, comprising individuals with backgrounds in marketing, technical expertise, and design, were assigned to each route: identification, opening, and dispensing, which were used in the previous workshops.

The objective of this session was to challenge the quality of the user experience and to provide a more realistic perspective from a technical standpoint, thereby highlighting the true added value of the product.

Following this creative session, concepts with the greatest potential were refined by the design team and supplemented with new ideas, resulting in close to a dozen directions.

After an internal evaluation based on market realities, technical constraints, and the relevance of the solutions to user needs, a few products were selected for further exploration by the design team. Each of these products aims to adhere to universal design principles while enhancing the solution to specific challenges, such as facilitating the locking system using a gesture and a product architecture that helps to identify the position of the product.

From initial sketches to mock-ups, the design process progressed to yield satisfactory results, which were then tested with disabled users at the User Test of Mock Ups.

User Test of Mock-Ups

At the end of May 2024, we reconvened at APF. After a brief introduction, we were assigned to three stations, each containing mock-ups of two variations of the same concept. At each station, we had an APF representative supervising, two users testing the concept, and two inclusive ambassadors from Aptar conducting the Interviews.

Each of the concepts heavily focused on visual impairment perception, on the lock/unlock mechanism, or on the ease of dispensing, all three conceived in a holistic approach for us to consider all these aspects. At the end of the day, some concepts were identified as highly valued by users and selected as a solid foundation to develop a new standard at Aptar. The test concluded that the size, height, and diameter of the products are crucial for proper use of the actuator.

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KEY OBSERVATIONS & CONCLUSIONS

ONE-HANDED USE IS KEY

- **Width and Flatness of the Actuator:** It is advantageous because it allows users to operate the product with one hand which is more stable on a table.
- **Long Beak:** For an optimal use of the product, a long beak is preferable as it prevents the formula from leaking down the side of the bottle.
- **Shape & Weight of the Bottle:** This includes considering the shape, size, and weight of the product to fit well in users' hands.

BRING MORE GRIP

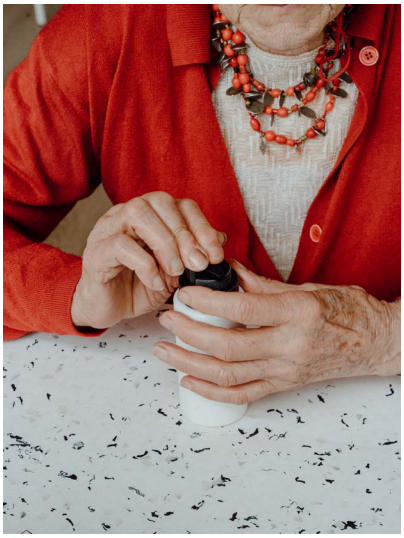
- **Square Bases:** Square bases are easier to rotate compared to cylindrical ones because the edges provide leverage points. This makes it simpler to twist or turn the product, which is particularly helpful for users with limited hand strength.
- **Gripping Texture:** Textured surfaces where fingers are placed enhance grip and control. This can prevent slipping and make the product easier to handle, especially for those with dexterity issues.

MULTI-SENSORY STIMULATION

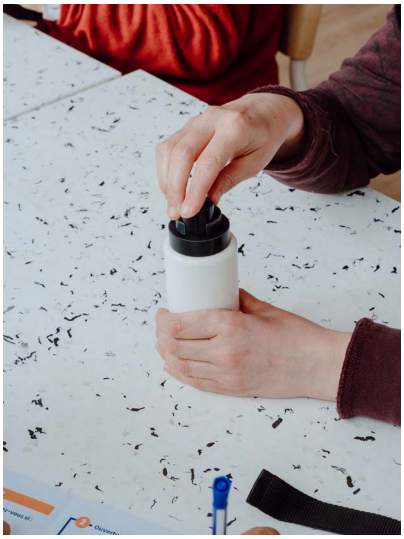
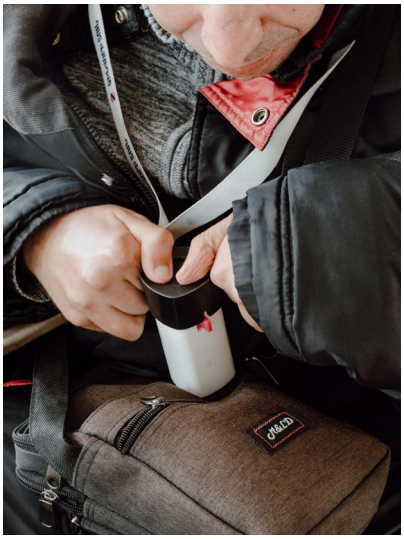
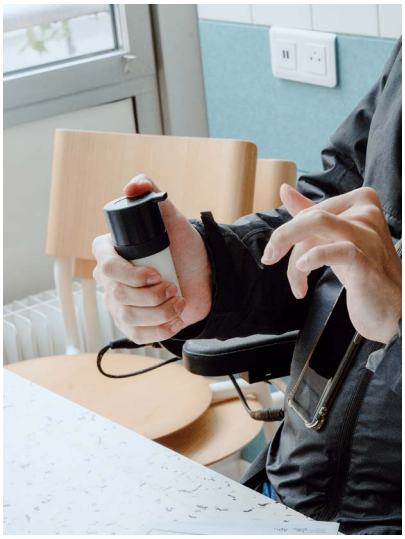
- **Visual Contrast:** High contrast between different parts of the product helps individuals with visual impairments distinguish features more easily. For example, using contrasting colors for the spray exit on a spray pump which is usually flat and monochrome.
- **Tactile Feedback:** Adding textures that can be felt by touch helps users identify different parts of the product without relying on sight. Raised patterns or different materials can guide users' hands to the correct positions.
- **Audible Feedback:** Sounds, such as clicks or beeps, can confirm actions like locking or unlocking, providing an additional layer of assurance for users with visual impairments.

By focusing on these aspects, our industrial designers can create more inclusive and user-friendly products that cater to the needs of a diverse user base.







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Photos taken during User Test with real mock-ups on May 28th at APF France handicap

PART IV

CURRENT INCLUSIVE DISPENSING SOLUTIONS BY APTAR

Aptar Beauty takes pride in offering a diverse range of inclusive products in our catalog. Designed to be user-friendly and enjoyable for all consumers, these five products in our catalog are especially valued by individuals with fine motor skill disorders due to their easy-to-use design:

- **GSA** dispensing pump with N4 or T8 Swan actuator
- **EuroFlow** with Falcon actuator
- **Vita** dispensing pump
- **Gladiator** aerosol actuator

These products comply with the 7 Principles of Universal Design.

- **Principle #1: Equitable Use**
  Each product features an actuation / opening area that is sufficiently wide, allowing for one-handed operation.
- **Principle #2: Flexibility in Use**
  Whether through fingertip or thumb actuation, our products adapt to different user preferences.
- **Principle #3: Simple and Intuitive Use**
  All of these products can be easily understood and used.
- **Principle #4: Perceptible Information**
  The ON-OFF positions and the actuation and dispensing areas of these 5 products are easily identifiable by touch and sight.
- **Principle #5: Tolerance for Error**
  With no cap and the ability to be stably placed on a table, our products minimize the risk of mishaps.
- **Principle #6: Low Physical Effort**
  The low actuation force required ensures a comfortable experience for all users.
- **Principle #7: Size and Space for Approach and Use**
  The components of these products are large enough to be easy to handle.

These combined features create an optimal user experience.

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DISPENSING PUMPS

GSA Affinity with Swan and N4 actuator & EuroFlow with Falcon actuator

*Best-selling high performance lock-up **dispensing** pumps.*

GSA with N4 actuator; GSA with T8 Swan actuator; EuroFlow with Falcon actuator

Principle #1: Equitable Use

A wide actuation area designed for one-handed operation, even with wet hands, under the shower.

Principle #2: Flexibility in Use

An actuator with proven superior performance against water ingression with a large finger pad, providing enhanced, ergonomic one-handed dispensing.

Principle #3: Simple and Intuitive Use

The number of handling steps is reduced to a minimum.

Principle #4: Perceptible Information

Lock-up pump with clockwise & counter-clockwise opening.

Principle #5: Tolerance for Error

The dispensing system is sealed in open and closed positions.

Principle #6: Low Physical Effort

The design is used efficiently and comfortably which, along with its high performance, has greatly contributed to its success.

Principle #7: Size and Space for Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility.

Vita

*A one-hand **dispensing** pump with a unique design that offers a new, cleaner and easier gesture for cotton pad applications of water-like formulations.*

Principle #1: Equitable Use

Extra-large actuation area designed for one-handed operation.

Principle #2: Flexibility in Use

The actuation area is wide enough to be pressed indifferently by a fingertip or the thumb.

Principle #3: Simple and Intuitive Use

How the product should be used is very straightforward, all it requires is to be placed on a horizontal surface.

Principle #4: Perceptible Information

The twist-to-lock feature can easily be identified by touch and sight.

Principle #5: Tolerance for Error

The product has no cap to lose. The means of delivery does not require lifting the product.

Principle #6: Low Physical Effort

The actuation force is minimal due to the breadth of the actuator by design.

Principle #7: Size and Space for Approach and Use

The product has only one component which is wide and stable. There is no need to hold it and there are no components that are either thin, small or flexible.

AEROSOL ACTUATOR

Gladiator

*Playful and intuitive, twist-to-open, twist-to-close **aerosol** actuator, providing an easy-to-use, convenient solution for a variety of applications.*

Principle #1: Equitable Use

A wide actuation area designed for one handed operation.

Principle #2: Flexibility in Use

An ergonomic finger pad actionable with either an index finger or a thumb, by righties or lefties.

Principle #3: Simple and Intuitive Use

The number of handling steps is reduced to a minimum.

Principle #4: Perceptible Information

The areas of gripping, opening, actuating and dispensing the product are easily identifiable to touch/sight: curved, textured, colored area, prominent spout…The iock/unlock positions are clearly identifiable by touch and sound.

Principle #5: Tolerance for Error

The product has no cap to lose. The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Principle #6: Low Physical Effort

The design can be used efficiently and comfortably and with a minimum of effort.

Principle #7: Size and Space for Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility.

Aptar has now moved on to the next phase: the development of functional prototypes. These will be tested in real life situations at home. The expected outcome is the launch of a new range of inclusive packaging that is accessible to all.

"This second White Paper on Inclusive Design represents a significant stride in the realm of driving more inclusivity in the beauty user experience. This collaborative work not only sheds light on critical issues but also offers practical solutions. We believe that it is through sharing that the beauty packaging world can become more inclusive, fostering collaboration and innovation across the industry."

Xavier Joseph
Vice President Global Marketing & Innovation

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