

# Generation Create!

How Woolworths co-created better customer experiences in the metaverse

*Charlene Van Zyl*

*David Wright*

*Karlien Kriegler*

## **ESOMAR**

Office address:

Burgemeester Stramanweg 105

1101 AA, Amsterdam

Phone: +31 20 664 21 41

Email: [info@esomar.org](mailto:info@esomar.org)

Website: [www.esomar.org](http://www.esomar.org)

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## Contact us

### **ESOMAR**

ESOMAR Office:

Burgemeester Stramanweg 105

1101 AA, Amsterdam

The Netherlands

Tel.: +31 20 664 21 41

Email: [info@esomar.org](mailto:info@esomar.org)

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### Introduction

The beauty industry is on a strong growth trajectory. Definitions of beauty are changing, the value of sustainability and the importance of self-care are growing and the role of influencers is evolving. The industry's growth is further fuelled by advances in sophisticated online offers, social selling and omni-channel purchase behaviour, shaped by the COVID-19 pandemic (McKinsey, 2023). Against this backdrop, we see innovations across the marketing mix disrupting the beauty industry, leaving traditional retailers vulnerable to share losses if they do not innovate fast enough with smart omni-channel offers for beauty. Being a leader in retail innovation, Woolworths has had a strong focus on creating omni-channel experiences over the last few years. With the disruption of the beauty retail environment through social selling and superior online experiences, Woolworths wants to ensure they offer beauty customers the best possible buying experience at every step of the purchase journey. Woolworths, therefore, wanted to explore the possibilities and opportunities to offer metaverse beauty shopping, virtual avatar assistance, digital product recommendation screens and generative AI beauty assistants as opportunities to improve shopping experience among two core shopper segments.

Research on highly innovative products like these often happens quite late in the decision-making process. Many technology innovations that are good ideas are adopted slowly or not at all due to: the technology not being accessible to mainstream consumers; the presence of too many barriers to usage (e.g., early versions of Oculus with its prohibitive costs); they became obsolete; or they don't deliver to a longer-term consumer need (e.g., NFTs). The recent rise of generative AI showed the world that new technologies that are useful and highly accessible can have a very fast adoption rate if they can easily and affordably allow people to explore, experience and create. By using a combination of AI tools to create a replica of a flagship Woolworths beauty department in a metaverse environment, and three different AI and digital beauty assistants, it was possible to conduct very early contextual testing of beauty experiences that could lead to share growth, and very affordably. Qualitative research in this environment helped Woolworths first understand beauty needs better, then explore how different technologies and AI could play a role, rooted in meeting real needs rather than providing superficial entertainment that might not have real impact.

### Context

Woolworths is a premium retail brand in South Africa that offers high-quality food, clothing, beauty and homeware products. The South African population has a growing middle class in their late 20s to early 40s, who are an important target market for Woolworths. The Woolworths business has traditionally been driven

by its strength in premium food and high-quality, lasting clothing. However, in the last few years, Woolworths has put significant focus on growing their beauty business. Core to this focus has been expanding a curated range of beauty brands that meet a wider variety of needs—from affordable brands like Essence to mid-range mega brands like L'Oréal and Maybelline, to premium brands like Chanel and Lancôme. Woolworths has also been investing in their beauty department layout and finishes to create a superior beauty shopping experience. Excellence in customer service is one of the core strengths of Woolworths, and therefore the new beauty stores have a high number of assistants to ensure that consumers get the help and attention they need.

### *Research problem*

How can Woolworths expand market share by creating superior beauty experiences that address category needs? What AI and digital tools will have real traction and value for consumers? How can Woolworths remove the barriers to entry for these tools to ensure customers adopt them and find them valuable—with the ultimate goal of increasing market share?

## Methodology considerations and the value of early testing

The cost of metaverse and AI-related projects in the retail industry is high, and to ensure the right investment is made, Woolworths wanted to involve consumers very early on in co-creating solutions that genuinely improve the customer experiences. Testing of digital solutions often takes place as user experience-type studies. The focus is then placed on whether the solution provides an easy and seamless interaction. What is missing from this type of testing is context—what need will it provide a solution for and what contextual opportunities and concerns users might have. UX studies also mostly happen after purchase decisions have been made. Early testing in context, through simulation, means you can choose a solution that is fit for purpose, solves a real need and adds value to the customer. Because you are simulating, you can learn early on how customers would want to engage with a solution.

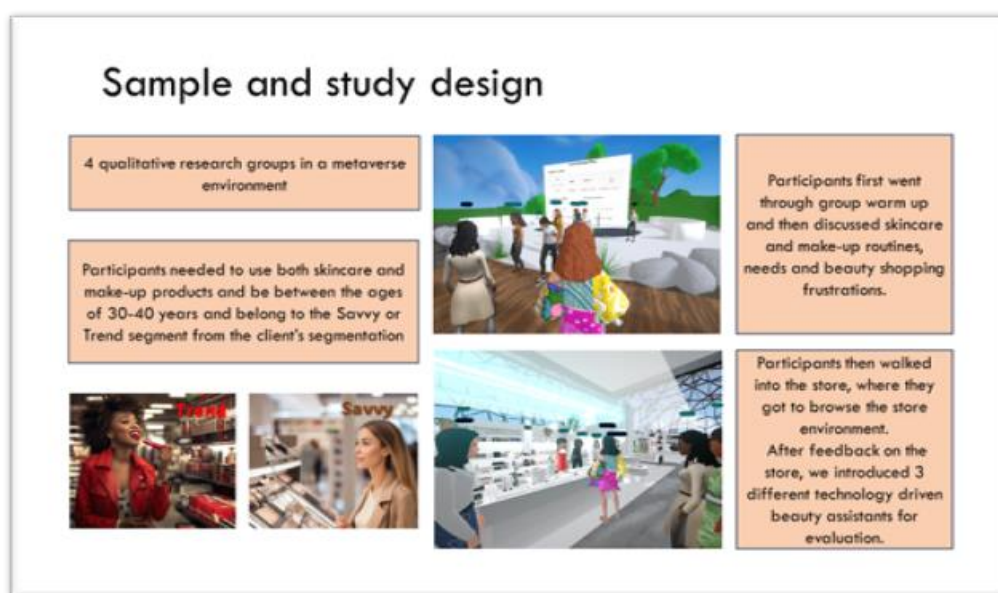
Hello Ara embarked on conducting qualitative research in the metaverse at the end of 2022. Through nine months of learning, building its own proprietary market research lab, and completing multiple testing and co-creating research projects, they gained invaluable insights. There are multiple benefits to conducting qualitative research in the metaverse. Through a metaverse environment, you can bring participants into a space that provides contextual experience for the research. Metaverse environments can easily be customised, making them very suitable for testing ideas, concepts and ads. The use of avatars that can be customised allows for a personalised experience for participants and the feedback from participants is always extremely positive about the user experience.

The rise of online qualitative research during the COVID-19 pandemic has led to many digital cameras focusing on interactions with strangers. Research done by Stanford University coined the term "Zoom fatigue"; lengthy, camera-on meetings can cause cognitive overload, and the effect of having strangers stare at you can induce anxiety in many people. People are also not accustomed to staring at themselves all day long, and it is hard to read body language over video. Lastly, being on camera for extended periods means you

feel obliged to sit still. All these factors contribute to the fatigue people experience during camera-on discussions. The use of avatars means you avoid "the Zoom fatigue effect" (Bailenson, 2021), making participants feel freer to speak up, even about sensitive topics. The ability to use space and "move" adds another interesting dimension to research in the metaverse, helping to keep people engaged and better simulate the real world to test true behavioural responses. You can seamlessly test a variety of ideas without too many logistical challenges. People can focus and concentrate, and you can simulate real-world experiences, making early testing more affordable.

#### *Methodology description and benefits*

Research participants were recruited from Facebook and Instagram ads through a chatbot screener questionnaire. Participants were then sent a link to the metaverse environment, which they needed to access on a desktop or laptop. The group discussion first explored their makeup, skincare and fragrance usage, as well as their needs and frustrations in a lush, green outdoor setting in the metaverse. This served to put respondents in a relaxed state so that they felt comfortable discussing their beauty needs. Some of these needs are of a personal nature and, in previous beauty studies conducted by Woolworths in more clinical traditional research environments, consumers were not as forthcoming. Participants then moved from an outdoor setting to inside the Woolworths metaverse beauty store. This store was a metaverse replica of one of the new flagship beauty departments, which they could explore freely. Feedback about the store was collected, as well as perceptions of Woolworths's own beauty brand: WBeauty. The three different beauty assistant tools were then introduced in the metaverse beauty store and explored one by one. This included feedback on whether and how participants would find these tools useful, how they would want to interact with them, where they would want to experience them and what they would change. This method ensured that consumers were brought in very early in the process, allowing the real value and application of the different experience innovations to be assessed. Thus, consumers could contribute to the creation of the ultimate beauty shopping experience.



*Figure 1: Sample and study design.*

*How was AI invaluable in the creation process?*

The ascent of generative AI in 2023 has significantly streamlined research processes that were once costly and time-consuming. In this project, we utilised an array of generative AI tools to facilitate various aspects—from conceptualising the metaverse environment to enhancing our communication with the 3D designer and the digital touch screen. These AI tools served multiple functions, such as inspiring the creation of both the environment and beauty assistant, generating the assistant's visual image, animating her movements, managing her conversational abilities and aiding in the summarisation of group transcripts.

## Creating a digital twin beauty store and research environment in the metaverse

### *Practical design considerations*

One of primary reasons to build a metaverse environment for research is that immersive environments have been found to support a greater creative performance at an individual level, and can increase collaborative levels as well as enjoyment and fun (Bourgeois-Bougrine et al., 2022). In addition, an immersive environment brings people closer to the context you are wishing to research, whether that is a beauty department or the layout of a space station. Like a Disneyland ride, an intelligently designed metaverse environment can create a deep sense of fun and a shared journey for participants. However, there are practical limits. For a time-constrained market research project, the requirement to build a compelling environment requires you to balance aesthetics (an interesting and contextually relevant design) with the need for a rapid deployment. To do this, our learned design method requires at least one main and/or signature design feature which will ensure the environment has a delightful impact. However, beyond that the design is kept simple and free from distracting embellishments. Further to this, the environment must also be easy for a novice respondent to use, and with scale in mind, lend itself for reuse. Informed by our previous research presented at IIEE in March 2023, we have developed an initial set of usability guidelines for metaverse environments that we applied to the design of this environment.

### *Design process and brief*

The design brief was to partially rebuild the beauty section from Woolworths's flagship Canal Walk store in Cape Town (based on the actual store dimensions), and have a separate area (that hides the beauty section) for a focused discussion, where we would introduce participants to the study. We decided to create a simple but inspiring building, a cross between a gigafactory (we needed to house an entire beauty department) and a fashionable pop-up store, with its size dictated by the store dimensions. In addition to this main building, we created an outside area where people would first arrive in the environment and be greeted by the session moderator. The outdoor area needed to be modern, be compatible with the design of the main building and have natural elements (a pond and trees) to help put people at ease for the initial research discussion, and enable them to get used to moving and talking.

## Generative AI as a design and communication tool

Apart from Woolworths's store plan to recreate the beauty department, the 3D designer required a visualisation of both the building's exterior and its surrounding outdoor environment. To meet this need, we employed Midjourney, a generative AI tool specialised in image creation, to generate preliminary design concepts. By leveraging generative AI technologies, we were able to effectively visualise various building design elements. This approach illustrates how generative AI can facilitate seamless communication between non-designers



and skilled designers. By converting abstract ideas into visual representations, the technology minimises the risk of communication breakdowns and provides designers with a clearer understanding of project expectations. Figure 2 shows how we fine-tuned an initial idea, based on design considerations and challenges, into a design that would meet all our aesthetic research requirements, practical considerations and budget.



Figure 2: Initial generated designs through to final generative concept.

The final piece to the design puzzle was the actual plan drawings Woolworths had for their retail store in SketchUp format, as these dimensions would dictate the dimensions of the lab environment building that would house it. We packaged these generative design ideas up for our designers with some additional guidance, with AI allowing us to create these ideas in mere hours (see Figure 3). The designer also wanted a rough floor plan to help guide them.

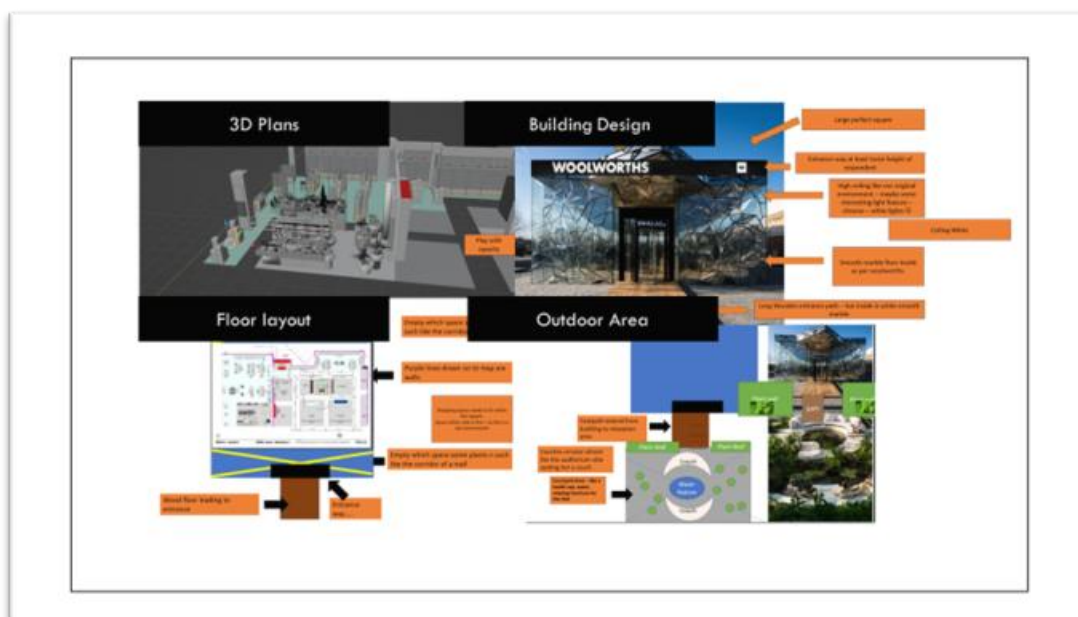


Figure 3: Final generative design elements sent to the 3D designer.

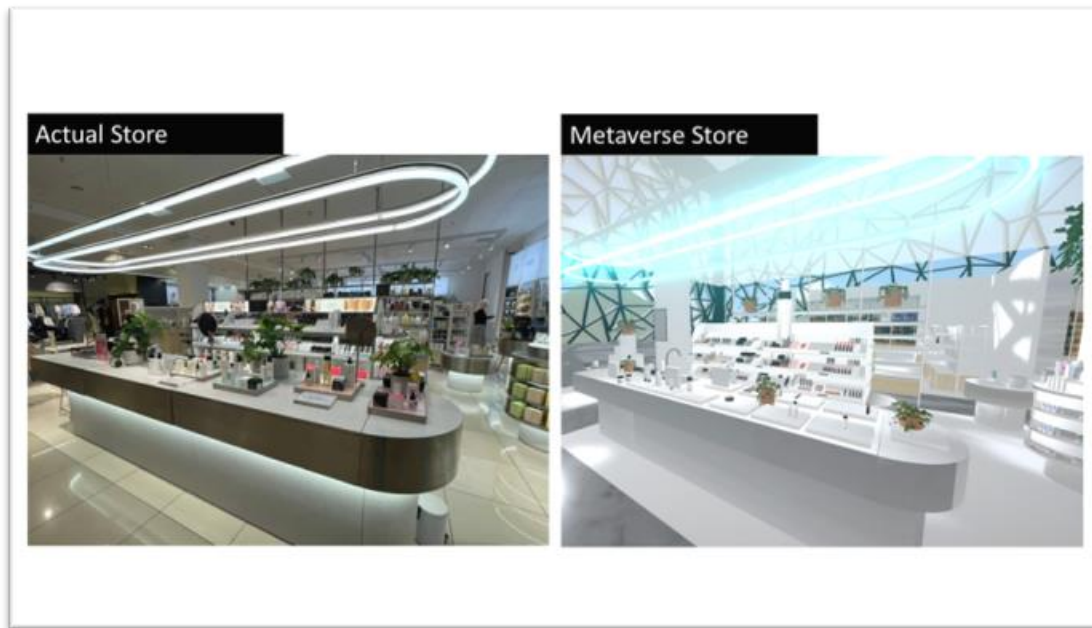


## The build

The complexity of our design became evident when adding interior details. Although the metaverse is often viewed as limitless, it has practical constraints like browser capacity, bandwidth and file sizes for the images and 3D objects you bring into the space. We had to remove objects (makeup product bottles/containers) from the original 3D designs provided by Woolworths as there were too many to show. In addition, we simplified 3D objects like lipstick models to reduce data usage. In practical terms, this meant cutting down the number of polygons in the environment—the fundamental units that compose a 3D mesh. Considering this is early testing, to maintain visual appeal without straining resources we used photographs to populate shelves that were not part of the WBeauty section. Unlike 3D objects, these photos have a minimal impact on computing resources. To complete the build, we fine-tuned the environment to enhance the user experience. We included a wire-suspended glass roof over the beauty department so there was a realistic ceiling height when in the retail store, we optimised lighting so it matched Woolworths's actual in-store aesthetics and we strategically placed "blockers" to make sure our participants did not get stuck behind an object or walk through shelves. We also added decorative plants to make a more welcoming atmosphere. Finally, the Hello Ara team conducted thorough testing to ensure usability.



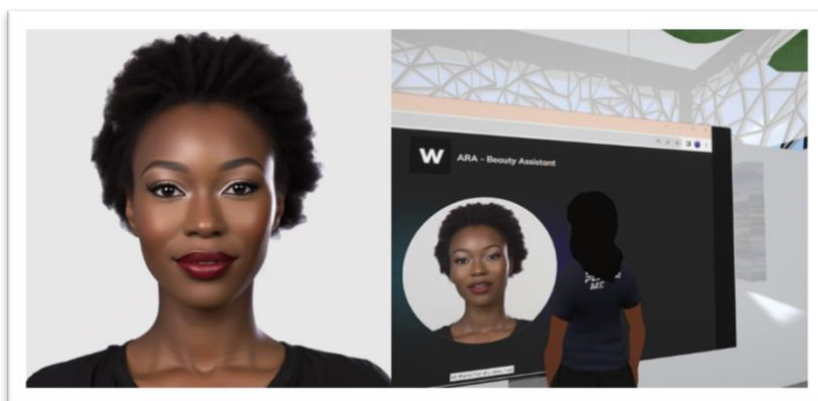
*Figure 4: The final metaverse environment.*



*Figure 5: The actual WBeauty department compared to the metaverse version.*

### Creating a generative AI beauty assistant demo bot

Within the metaverse environment, we aimed to evaluate an AI-based digital beauty assistant; thus, we designed and built Clara. The layout was designed with kiosk aesthetic to fit in a store environment, but she would also be compatible with mobile phones and PCs. By integrating her with the ChatGPT-4 API, she was able to respond intelligently to user inquiries. To create Clara's profile photo, we used generative AI software, Midjourney. We also fed a photo of an employee from Woolworths's website to guide the AI. Along with the example photo, we instructed Midjourney to: "create a portrait photo of a South African woman set against a plain white background". A plain background is crucial as it enabled the digital human platform we use, D-ID, to facilitate programmatic facial movements and text-to-speech synchronisation, effectively animating Clara's profile photo and bringing her to life.



*Figure 6. Original profile image and incorporated into the metaverse space.*

In addition, AI allowed us to give Clara a persona and a mission, by simply giving her text-based instructions. We did not need to create rules to the nth detail that covered every question a user might have (a

fundamental departure from the extensive scripting required when creating customer service bots). Clara was instructed as follows:

*{As Clara, Woolworths' South African beauty chat assistant, you swiftly address makeup and skincare queries. You should recommend items from the {programmatic knowledge base}, prioritising brands like WBeauty, Clinique, Clarins, Chanel, Dermalogica, Uriage and Elizabeth Arden. Briefly justify your suggestions and ask for customer feedback. Keep the conversation light and concise.}*

Clara's brain heavily relies on ChatGPT, a commercial large language model (LLM). Clara uses the ChatGPT API to respond to questions by synthesising answers based on: the user's question or probes; ChatGPT's significant language understanding capabilities and knowledge (the internet); the history of the conversation; and specific and detailed product information from the Woolworths website, which was put into a single file that we called "programmatic knowledge base". A fully commercial model might also be able to authenticate the user, and therefore have some profile information it could use to further personalise the conversation. Some examples of Clara's abilities include:

*You: my skin is dry and itchy what do you recommend?*

*Bot: Hi there! I'm sorry to hear about your dry and itchy skin. I'd recommend Dermalogica's Intensive Moisture Balance. It's a powerful moisturiser that helps combat dry skin and prevent moisture loss. It's also enriched with antioxidants to help improve skin's texture and elasticity. I believe it could be a great solution for your skin issues. What do you think about this suggestion?*

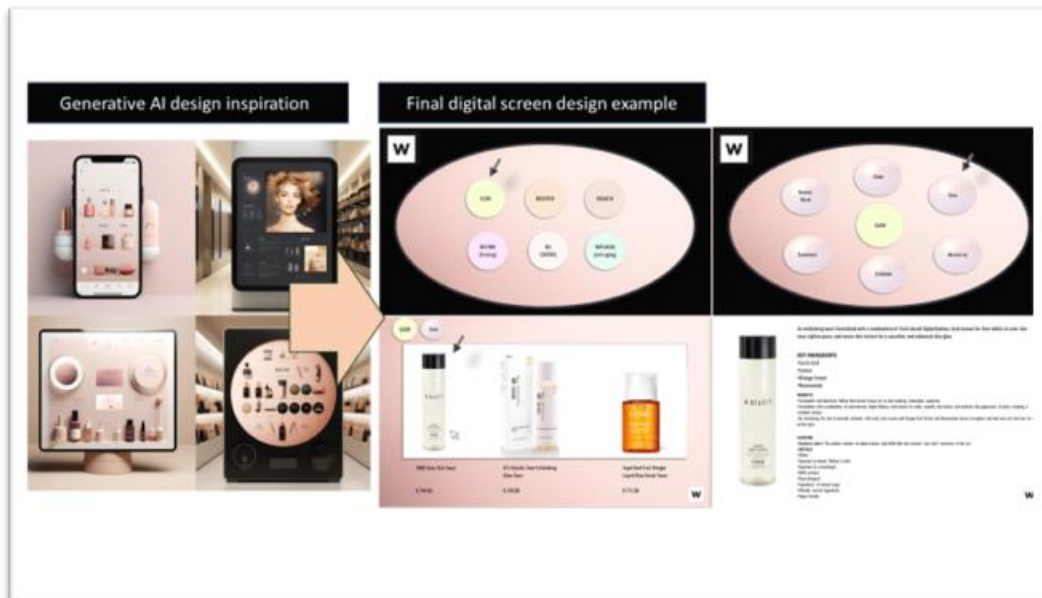
*You: Are the ingredients good for sensitive skin?*

*Bot: Absolutely! Dermalogica's Intensive Moisture Balance is formulated without artificial fragrances and colours, which is great for sensitive skin. Plus, it contains aloe vera, which is known to soothe and hydrate. It's a product that is designed with skin sensitivity in mind. Would you like to try it?*

As with the metaverse environment, significant user testing was required to ensure that the AI's responses are on brand, correct and not overly verbose.

## Creating a digital demo screen

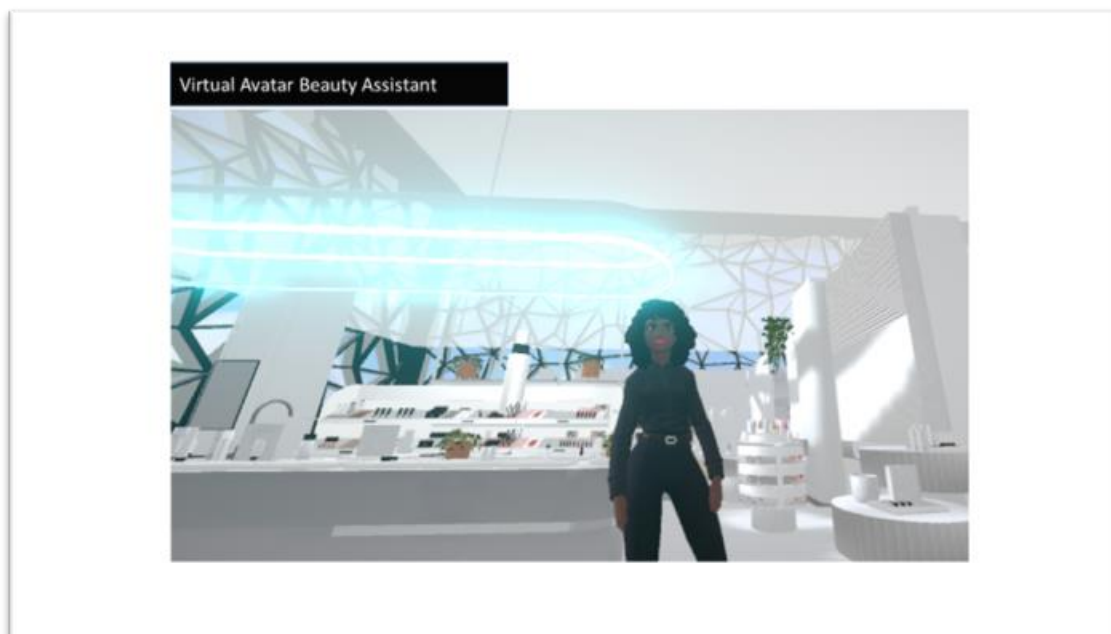
The digital demo screen was designed to help customers discover different products linked to skin condition or the effect they wanted to achieve. The categories used in the test example mirrored WBeauty product classification, as per their beauty assistant training guide. Generative AI again provided inspiration for the layout of the digital demo screen. A simple PowerPoint slide video was then used to create the demo screen example, with 3D dimensions to enhance the selection buttons. This allowed us to create a realistic-looking demo very simply and easily of what this innovation could look like for feedback from participants (see Figure 7).



*Figure 7: Digital demo screen inspiration and design example.*

#### *Creating the virtual avatar beauty assistant*

We created an avatar in the metaverse environment, which was dressed as a Woolworths beauty consultant. She was “trained” to provide information on two new lip products from the WBeauty brand. She introduced the two new products and gave information on the ingredients and their benefits. To save cost and time, we simply used a human voice to bring the avatar to life.



*Figure 8: Virtual avatar beauty assistant.*

## Discussion of the results

### *What does the target market need from their skincare and make-up products?*

When South African women in Woolworths' target market shop for skincare and beauty, there are a few foundational requirements. Products need to be reliable, and many prefer products that have been on the market for a while and are recommended by people they know and trust. Product ingredients are especially important, and many specifically buy products for the specific ingredient benefits that they offer. Linked to this, many believe they have sensitive skin and are therefore looking out for cues of dermatological testing and suitability for all skin types. The women in Woolworths' target market are likely to have a comprehensive skincare routine, including a variety of products. The concept of achieving a glowing skin or glowing look, was frequently mentioned by the research participants. At a low level, some are focused on using only organic or natural products, although the most important aspect was that skincare products should make their skin feel comfortable.

Where make-up is concerned, the most important aspect is longevity. The Woolworths beauty target market require that the brands they use for make-up stay on and look good all day. For a large proportion of the sample, full coverage foundation is crucial to deal with dark spots and uneven skin tone; these customers are also willing to spend much more on foundation compared to skin care in order to achieve the coverage and lasting power they require. When it comes to both foundation and lip products, the ability to moisturise, but also provide the perfect colour, is particularly important. The concept of skin-tone matching for foundation is key and this is also an area of vulnerability, because it is easy to get wrong and therefore waste money, especially when spending more to ensure the best coverage. Another concern for foundation is skin sensitivity, and how it interacts with other face care products. The texture that foundations create on the final appearance of the skin is the last concern. Women want to avoid clogged pores but also make sure that the texture (oil free versus water based) is the right one for their skin. These are areas where customers feel vulnerable and they need advice they can rely on to look their best and avoid buyer's remorse and wasting money.

It is important to note that skincare and make-up choices for many go hand-in-hand, both from a product interaction and a budget point-of-view. If we analyse the repertoire of the participants and listen to how they describe their various products and motivations for use, there is a clear pattern to spend more of their beauty budget on either the area they feel vulnerable or concerned about, or the specific area or attribute they feel confident about. "The makeup should last long because of my oily skin. I found it hard to find the right foundation for myself. It doesn't last. It should last. Lipstick needs to last. The higher the price, the more it lasts". The woman quoted here has skin blemishes about which she is concerned. While she uses a mainstream skincare brand (Garnier), and she will turn to Estée Lauder (premium brand) to ensure she has the right foundation that lasts longer on her skin, as this is her most important need, which also gives her confidence. Thus, although price is an important consideration, within the array of skincare and make-up products they use, they will make trade-offs on spending, more or less, depending on the importance of a product and its role in achieving their beauty needs. In addition, they have a range of stores that they use, look out for beauty specials and will then buy more of the products they know and use from special offers. Some also revert to buying from stores that provide credit when budgets are tight.

It seems that once they have found a skincare and foundation product that works for them, they prefer to stick to it—switching products can be a costly risk. However, when they struggle to find a product that works for them, it causes frustration and this is a time when they want expert, impartial advice as well as samples to try out. The other challenge with switching products is the potential interaction that different ingredients can have on each other. This is both from a safety concern, the impact on their skin condition as well as the potential interaction with their make-up and foundation. Thus, changing one product could result in an overall costly impact.

## Frustrations when shopping for beauty

When it comes to shopping for beauty, there are three key areas of frustrations or concerns. These include product availability, online shopping and in-store assistance. These can all lead to choosing products that do not work for a customer, which can be costly and frustrating. When products are unavailable and customers have run out of what they need it causes a real problem, as they then need to revert to buying something else that they have not tried before. Some customers feel frustrated by the lack of variety offered by some retailers and feel their unique skincare problems or preferences are not always looked after by the brands on offer. However, it is not currently that easy to understand new products, and few do extensive research on new products. Consumers also feel there are not enough tester products available to try before buying, limiting their ability to explore new products.

When it comes to online shopping, the biggest frustration is when items on promotion are out of stock—this is a frequent occurrence. When buying online, there is also a risk that the product will not work well with the consumer's skin and returning it can be difficult or impossible. The last frustration with beauty shopping is getting assistance in-store. It is clear that for the core skincare and make-up needs that either gives confidence or is an area of vulnerability, the right product solution is vital, and consumers are more likely to need advice. Many feel that there are never enough consultants in-stores to help advise them on choosing the right products. They talk about queuing up in-store to speak to a consultant. Many also do not have confidence that a consultant has enough knowledge and expertise to help them make a good decision. “Hard selling” is a concept that was mentioned as a concern; when a beauty assistant represents a brand, and will only push their product rather than really listen and assess to help the customer. They feel this often leads to a waste of money —especially when consultants try to outsell each other and the consumer's needs are of no importance. Lastly, some find beauty assistants impatient, or others feel ashamed or shy to expose their concerns in front of someone that has perfect skin and make-up. This adds to a stressful shopping experience.

Even if a beauty assistant is available, listens and is impartial to brands, a change of product can still be a risk because exchanges are not allowed. People are concerned about how products will react on their skin after a while, especially consumers with sensitive, dry or oily skin. With make-up products, the concern is that in-store products will look very different compared to in normal daylight.

## Reactions to the metaverse beauty store



Initially, the metaverse beauty store was not positioned as a place to shop virtually, but rather a replica of one of the new flagship beauty departments of Woolworths that wanted to get feedback on the store, after browsing around the store environment. Overall people found the virtual store to be classy and impressive, and most liked the size and how organised the products were. The store design and layout made the products appear high-quality and captured the interest of consumers. The store was seen as easy to navigate, with well organised sections. Some felt the store offered an exclusive, luxurious experience that also made them eager to explore the different brands available. For some, however, the store was too large, especially on the side of the store where the premium brands are stocked. Some prefer a more intimate beauty shopping experience.

### Feedback on the virtual avatar beauty advisor

The virtual avatar beauty advisor was positioned as a source of information about new products. She introduced the participants to two new lip care products, including their ingredients, colours and effect. Participants thought this type of virtual avatar adviser could be very convenient and helpful if they want quick answers. They liked the idea of having this type of avatar assistant both online and in-store, allowing for a more flexible shopping experience. This is a modern and innovative idea that consumers thought could possibly attract more customers to Woolworths beauty. It is also a great solution to avoid queues and deal with overcrowded store areas. There is a perception that AI could provide more accuracy and detailed information compared to some human assistants who might have limited knowledge. Some users were interested in the AI's ability to offer personalised recommendations based on skin type, allergies, etc. Although overall the perceptions of the virtual avatar were very positive, there were some potential concerns to take note of.

Some consumers felt that more complex needs, like choosing foundation, would still require human interaction. Concerns were raised that older people, or those not tech savvy, might not be able to navigate the interface effectively. Consumers wanted the virtual avatar to do more than introduce new products. They would be keen to get advice based on skin type or skin concern from the virtual assistant. They would also like to ask the avatar questions, as they want an interactive experience. The last concern was the current avatar assistant's inability to visually assess skin problems, which might limit its effectiveness in recommending certain products.

### *Feedback on the digital recommendation screen*

Consumers loved this idea for its convenience. Without waiting for an assistant, they can get a lot of product information easily. This empowers them to shop at their own pace, without feeling rushed by human assistants. Another strength of this type of assistance was that consumers felt confident and comfortable to browse products easily, without the awkwardness of having to disclose their budget constraints to a human consultant. The recommendation screen was seen as clear and informative. The way the products were organised assisted people in finding what they are looking for. Some would use the digital screen as a first step in their shopping journey, doing their own research before speaking to a human assistant for specific needs.



Even though the feedback was very positive, some still felt the need for human assistance, particularly for complex tasks, like assessing skin types and for testing products like lipstick and makeup. One last concern is that the digital recommendation screen assumes the user already has a good understanding of their skin type and needs. Consumers had a few improvements that they would want to see on this type of assistance. For example, they would like a budget filter, allowing them to sort or filter products according to their budget. It would be important to include a comprehensive range of brands and products on the recommendation screen. Lastly, as a build, some would like “how to” guides for applying make-up on this screen, suggesting that there is opportunity to influence and create an experience beyond product recommendation.

#### *Feedback on the generative AI beauty assistant bot*

This was the most complex and novel idea, but was again met with enthusiasm from consumers. This assistant provides multiple benefits that meet core beauty buying needs: consumers can get a lot of product information and personalised advice. Consumers believed that an AI assistant could probably handle this in a more comprehensive way than a human. Consumers could see the time saving aspect of this assistant, not only negating the need to queue in-store to speak to a human, but even saving time searching online. Many expressed faith in the advanced technology, particularly those who are already familiar with their skin type and needs, while for make-up information all participants were excited about the ability to either have information about new products, or for people new to a particular brand or make-up product.

Being the most novel idea, the AI beauty bot also elicited the most questions, recommendations and a few concerns that people feel need to be addressed. A few (notably the comparatively older participants) thought the human touch was still needed, especially for more complex consultation like assessing skin reactions or getting personalised recommendations. Participants felt that the AI’s ability to “see” or physically examine the skin was a significant shortcoming. In the final group, we introduced a face scanning functionality for the AI assistant (this is existing technology used by big beauty brands). However, the face scanning element did not sufficiently address the need some have for a human to analyse their skin. From their point-of-view, the AI beauty bot would be more helpful for general consultation, product comparison and information needs. One participant came up with the idea of having a physical skin consultation by a human in-store, and then handing over to the AI beauty assistant, who could then support with extensive recommendation, advice, ingredient discussions, etc.; i.e., something that a human beauty assistant in their view would not provide as well as an AI could. At a low level, there were some privacy concerns linked to a voice avatar in a public setting, meaning your budget restriction or skin condition can be heard by others. Note that we were not prescriptive about where the AI beauty bot would be available, or whether she will only be voice or text; instead we wanted consumers to imagine this and addressed this later in the group discussions.

A few AI-specific flags were raised: people want the AI beauty bot to be brief in response, and allow them to steer the discussion, rather than receiving long paragraphs of feedback from the bot at one time. They want to feel in control of the amount of information they receive. If they have complex questions, they want concise answers and not too much technical details. However, if they want to know more they want to be able to dig deeper with more questions. Some consumers were sceptical about just how smart this AI could be in handling a variety of questions accurately.

## Would consumers adopt these alternative beauty assistants and what needs would be met?

The decision-making and purchase journey for beauty products includes several steps. Although the purpose of this research was not to explore this, in the context of the beauty assistants it is interesting to see what role each of the three options could fulfil. The three assistance types tested could play various roles including: information, comparison, recommending new or limited-edition products providing advice, creating personalised experiences, enhancing the overall store or online experience, providing entertainment and more. Our research participants were recruited from two main target segments: savvy shoppers who like to do extensive research before they shop, are less focused on their own needs than that of their loved ones and who are more impressed with efficacy than trend; and trend shoppers who derive great pleasure from shopping, want shopping to be a great and novel experience, like to indulge and spoil themselves and live to be early adopters. Each of the three assistance types can play a different role. For example, the generative AI bot assistant can help a savvy shopper with extensive and fast advice and recommendation pre-shopping. The digital assistance screen can help trend shoppers with in-store in-depth product information, while the avatar assistant can recommend new products or top celebrity product picks and enhance their in-store shopping experience.

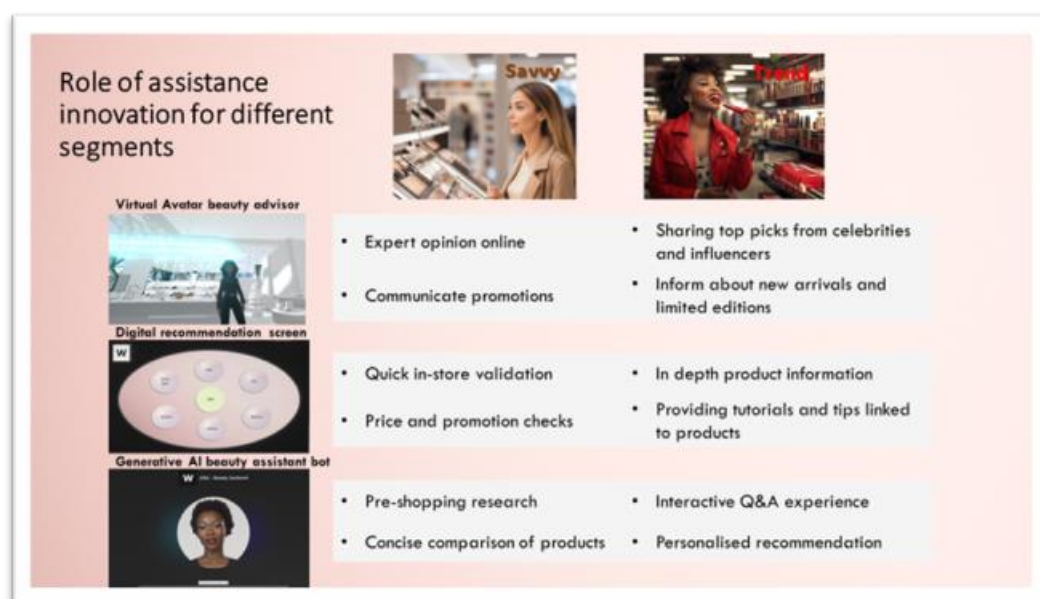


Figure 9: Role of assistance innovation for different segments.

## Conclusions

### *The business implications and value of the insights generated*

Woolworths has executed a number of beauty research projects in the past using traditional methods. While some of the same barriers identified in this research came up, they were never able to probe to this level

of depth, which has been enabled by this new method. Invaluable feedback has been provided regarding how Woolworths can best use AI-powered digital assistants and tools to augment and complement their existing human beauty consultants. This research has provided the direction that AI is a complementary tool to be deployed in a very considered way, and when done correctly can significantly augment the consumer's shopping experience and thereby increase loyalty and market share.

#### *The value of the research method into the future*

The research method developed and deployed here will be invaluable to Woolworths going forward, in order to test new store concepts, layouts, customer assistance AI tools and ideas that they are considering that can enhance the shopper journey. The method allows more real-world simulation to better explore barriers to usage and enable customers to co-create early, so that innovation is focused on making a real difference and design is focused in a way that customers can and will use it. The next chapter to this research, based on the learnings here, will be a new project conducted with premium customers in an older age group. The AI assistants will be optimised and trained based on what we have learned, and the research will explore how to deliver to a customer who would expect technical and expert assistance, as well as a deeper understanding of how different products will interact with each other. This will support share gains in the premium beauty market segment.

#### *Recommendations for the technology used in the beauty experience*

Our research project provided invaluable insights into the complexities of designing metaverse and digital assistant experiences, augmented by the capabilities of generative AI. The metaverse shopping environment felt realistic and engaging, making people likely to consider shopping there. They loved being able to see an extensive selection of products. A few concerns that were highlighted, include that navigation in the metaverse were challenging for a few, and a tutorial or guidance would be crucial. Some participants highlighted the importance of physical touch in shopping, and a few were concerned about how well skin colour matching could take place when choosing products like foundation. These factors would be important to address or incorporate solutions to a metaverse retail experience.

In the metaverse, users' special preferences diverged widely: some enjoyed the spacious, product-rich layout while others preferred a more compact and intimate setting. To cater to both, the entry area could be streamlined, featuring top brands and an awaiting assistant. For exploratory shoppers, signs could encourage further exploration, incentivised by discount vouchers to fully explore the environment. The metaverse can be a lonely, empty, vast place, without other people to interact with. Metaverse environments are best when there is a collective sense of discovery and collaboration. To mitigate feelings of potential solitude, we suggest incorporating scheduled events and a feature that allows friends to join the environment simultaneously. Events could include new product launches, beauty demo influencer appearances and beauty tips.

The design of digital assistants presents its own set of challenges. Clara, our prototype assistant powered by ChatGPT-4, demonstrated the feasibility of providing intelligent, contextual interactions within a metaverse environment. Using generative AI tools, Clara was visually designed to reflect the Woolworths brand, and her conversational capabilities were crafted to meet diverse user needs. However, to enable fast, affordable,

early testing, her knowledge was narrow. To develop her further, a specialised AI model could be trained to adhere to Woolworths's brand guidelines, while accessing a detailed product knowledge graph, allowing for more personalised and nuanced interactions. Again, for the beauty assistant, we had a dichotomy of views. Some respondents were concerned that an AI assistant would talk too much and would want it to quickly recommend a product, and complete the conversation. Others thought an AI would have a considerable depth of knowledge and wanted to be able to talk to it in more detail, and at their own pace. Linguistic analysis, which GPT is capable of, could determine whether a user wants a quick recommendation, versus a deep learning conversation. It would then dynamically adjust the tone and mission of the conversation. As with any AI, the more people who use it, the more data it would have in order to become better at its task. That said, it is important to generate delight at the very first interaction. The assistant should also have the capability to offer advanced advice on product ingredient interactions. For instance, identify products with similar ingredients when the user's usual product is not available to be bought.

Keeping content both fresh and useful should also apply to digital assistants. For instance, an AI could create and show new product demonstrations. The assistant should also have the capability to offer advanced advice on product ingredient interactions and host AI-generated video demonstrations, setting a new standard for what is achievable in virtual retail environments. Lastly, there were a few foundational learnings that would be crucial to get right—both voice and text options will make AI assistants more accessible to people with different accents. Offering both voice and text also negates privacy concerns for those who do not want to discuss personal skin issues or budget restrictions in a public setting. While some participants loved the idea of having an AI assistant in the metaverse, they also wanted the option to access it online and in-store, for wider accessibility and inclusivity.

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## About the authors

Charlene Van Zyl, Executive Head of Customer, Woolworths, Cape Town, South Africa.  
David Wright, Co-Founder, Hello Ara, London, UK.  
Karlien Kriegler, Co-Founder, Hello Ara, Cape Town, South Africa.