

DESIGN FOR THE FASHION SYSTEM

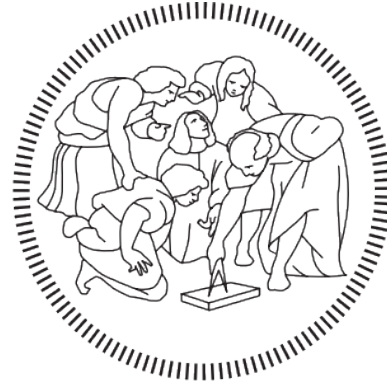


Politecnico di Milano

Erika Aline Rox

2023

THE X FILES: INVESTIGATING FASHION EXPERIENCES



POLITECNICO

MILANO 1863

DESIGN FOR THE FASHION SYSTEM



MSc Thesis degree

Supervised: Professor Bertola, Paola

Co-supervised: Vandi, Angelica

Erika Aline Rox

10754955

2023

DESIGN FOR THE FASHION SYSTEM



Politecnico di Milano

Erika Aline Rox

2023

THE X FILES: INVESTIGATING FASHION EXPERIENCES

Steli Efti

*Don't fall in love with your idea,
fall in love with the problem
you're solving.*

Acknowledgments



This work is a consolidation of the thinking of many minds. Although there is only one name on the authors' list, design is never individual. Beyond all contributors, I would like to especially thank my family and friends for always supporting me and listening to all my complaints, even if they might not understand what I am talking about.

I would also like to thank my supervisors, Paola Bertola and Angelica Vandi, for all their help, feedback, references, and guidance. To the interviewees, Adele Zavagno, Cinzia Magnani, David Chang, and all those who answered the surveys, thank you for sharing your thoughts and experiences.

Last but not least, I thank God for bringing me here.

For all the direct and indirect support I received on this work, I cannot take all the credit. That is why you will always see "we" throughout the text instead of "I". That is how I believe design works: with a lot of sharing, criticism, complementing, and flourishing.

I also say "we" thinking of you, the reader, so that you can be a part of this growth. You may not agree, and that is okay. In truth, we would appreciate it if you have something constructive to contribute so that we can all grow together.

ABSTRACT



Extended spaces for interaction are revolutionizing the way we live in this world and fashion consumers are eager for digital and interactive experiences. As designers, we can turn to other fields, gather valuable codes and information, and apply it to a new face of fashion design. User-centered practices can take center stage to enhance the customer experience in physical and digital spaces. This investigation demonstrates that designing for experiences means improving their components and interconnections. The Anatomy of Experience framework, developed from prior research, visualizes these components of interaction and how they intrinsically relate. Through an analysis of historical and cultural literature, case studies, and interviews, the research identifies elemental gaps and design opportunities for various pieces of fashion experiences, including wear, virtual wear, fashion shows, communication, and shopping. Furthermore, a new interpretation of the Triple Diamond, the FX Jewel, provides a toolkit for project development that aims to create seamless and engaging fashion experiences. This study highlights the importance of designing for experiences as a holistic system that connects touchpoints and stakeholders. By embracing this approach, designers can create experiences that are more meaningful and impactful for customers.

Keywords

fashion experience

digital factor

user centered design

FX Jewel

To come back here,
just click the **menu**
button in the header

MENU - TABLE OF CONTENTS

INTRODUCTION >

METHODOLOGY >

Process 13

Design system 14

1. ANATOMY OF EXPERIENCE >

Etymology 18

Erlebnis x Erfahrung 19

Components of experience 22

Persona 25

Interactive system 28

Engagement 34

Emotional response 41

Design for the experience 45

2. PIECES OF FX >

Fashion as experience 50

The digital factor 56

The wear experience 65

The virtual wear experience 77

The show experience 88

The communication experience 97

The shopping experience 113

3. LAYERS OF EXPERIENCE >

User Experience (UX) 130

Customer Experience (CX) 133

Omnichannel Experience 137

4. FX TOOLKIT >

The Design Journey 142

FX Jewel 145

Problem Inspiration 146

Discover 146

Define 152

Solution Ideation 158

Develop 158

Deliver 166

Implementation 170

Engage 173

Connect 173

CONCLUSION >

REFERENCES >

ANNEX >

INTRODUCTION

According to Bill Buxton (2007), the first function of any product or service is to engage us in an experience. For him, the actual outcome of designed pieces is “the behavioral, experiential, and emotional responses that come about as a result of its existence and its use in the real world”.

Fashion design is no different; it is a form of evolving art that can be worn as a means of experiencing and expressing oneself. People can express their personality, mood, culture, and individuality through fashion. It can be used to communicate with oneself as well as with others. It is also about how people feel and interact with fashion products. Putting on a well-tailored suit or a beautiful dress, for example, can make a person feel confident and empowered. Wearing something that does not fit well or does not suit their style, on the other hand, can make one feel uneasy. Browsing, trying on different items, and eventually finding something interesting can be a fun and rewarding experience. Furthermore, fashion can be used to connect with others who have similar tastes and interests. In general, it is a personal and social experience that can bring joy, self-expression, and connection to oneself and others.

The fashion industry, especially the high-end market, may have been hesitant to embrace technology. Possibly due to fear of changing the exclusive status quo or the contradictory massification of the industry potentialized by technology (Ward, 2017). However, as technology advances and becomes more integrated into our daily lives, all human aspects will likely evolve and embrace new technological innovations. As it happens, the need to understand both fashion and interaction design becomes important to create beneficial experiences.

Tom Ward (2017)

Fashion could be the stepping stone that bridges handheld technology and bionics on the way to synthesis between humans and machines.

Francis Bitoni, CEO of Studio Bitoni (cited in Ward, 2017)

Our products should create the next version of the human, not service humanity after it has evolved.

By combining UX principles, fashion designers can create new and innovative product systems that seamlessly blend technology and fashion. This bond can open up new opportunities for innovation and creativity in the industry, inspiring products and experiences that are both functional and aesthetically pleasing. Hence, this study investigates fashion experiences and how to design for them.

The first chapter focuses on the “Anatomy of Experience,” a contextualization of the matter taken from other disciplines. The literature review and its interpretation led to an authored framework for further analysis of the most common fashion experiences. In “Pieces of Fashion Experiences (FX),” five dimensions of the fashion phenomenon are holistically explored: the wear, the virtual wear, the fashion show, the communication, and the shopping experiences.

The sections briefly introduce each topic with a deeper analysis of the “digital factor,” an undeniable circumstance in our everyday lives. With fashion moving into the digital space, it becomes relevant to combine it with UX’s perspectives. In this sense, the “Anatomy of Experience” framework helps in visualizing the gaps and opportunities for providing better experiences.

“Layers of Experience,” the third chapter, explains the origins and differences between “User Experience,” “Customer Experience,” and “Omnichannel Experience.” As a result of the digital transformation that connects offline and online aspects of our experiences and inspired by a fictional story by designer Fei Ren for UXPlanet (2022), this study proposes the term “Omnispace Experience” aiming for a seamless flow across channels and spaces in the eyes of the customer.

The last chapter, “FX Toolkit,” presents a context of methodologies and processes that introduce Human-Centric and Experience Design as an evolutionary journey. This investigation culminates in an authorial interpretation titled FX Jewel, a guide of tools to design for fashion experiences. The evolution of such a framework shows how interconnected design disciplines can be and how they can benefit from each other’s knowledge, especially when entering other domains.

In summary, the work presents various case studies, interviews, surveys, tools, and possibilities to illustrate how the fashion industry can adapt to a future world where digital technologies will be even more intrinsic in human lives.

You might ask:

How do people see fashion as experience?

Author

To have a general idea of what people have been talking about it on the Internet, we can ask the Artificial Intelligence. Here we make use of the latest technology from ChatGPT*, check it out:





Author

INPUT: Explain experience

Generated with ChatGPT¹, 21/02/2023

Experience is the process of encountering, interacting with, and gaining knowledge or skills from a particular event, situation, or activity. It is a subjective and personal phenomenon that is shaped by individual perceptions, emotions, and reactions. Experiences can be positive, negative, or neutral, and can occur in a variety of settings such as work, school, travel, or personal life. They can be brief and fleeting, or can have a lasting impact on an individual's beliefs, attitudes, and behaviors. Experiences are important because they provide opportunities for learning, growth, and personal development, and can help shape a person's identity and sense of self.

Author

INPUT: Explain fashion experience

Generated with ChatGPT¹, 21/02/2023

Fashion experience refers to the overall sensory and emotional experience that individuals have when engaging with fashion. This can include everything from the tactile experience of wearing a garment, to the emotional experience of expressing oneself through fashion choices, to the social experience of being part of a fashion community. Fashion experience is highly subjective and personal, and can be influenced by factors such as individual taste, cultural background, and personal style. Fashion experience is an important part of the fashion industry and is increasingly being used as a way to differentiate brands and connect with consumers.



¹ **Chat GPT:** according to itself (INPUT: explain ChatGPT on 21 Feb 2023), it is an Artificial Intelligence text generator developed by OpenAI. It uses machine learning technologies to gather a great amount of data to create conversational responses.

METHODOLOGY

As is necessary for all design projects, this study started with extensive literature and fashion research to understand the core of human experiences. This resulted in a framework for analyzing fashion experiences and a kit of consolidated tools to be applied to fashion design, named FX Jewel.

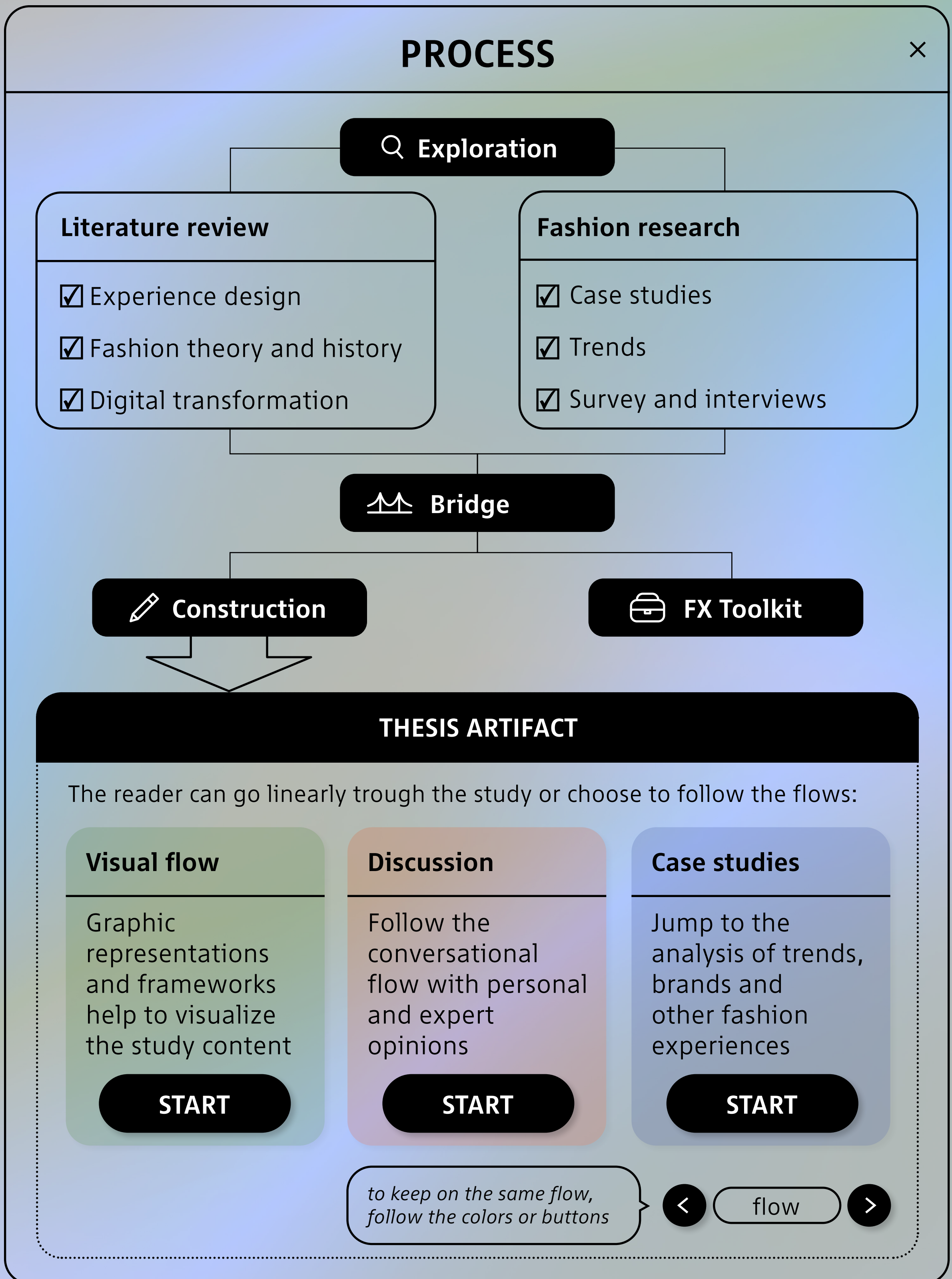


Figure 1: Design and research process. Source: Author

DESIGN SYSTEM

According to the Nielsen Norman Group, “design system is a set of standards to manage design at scale by reducing redundancy while creating a shared language and visual consistency across different pages and channels” (Fessenden, 2021). The present work system is formed by a style guide and a component library.

Style guide

CHAPTER

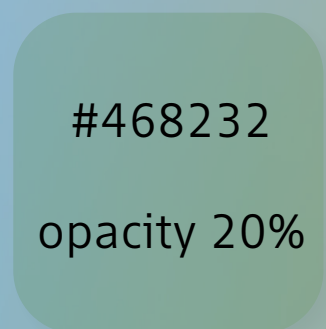
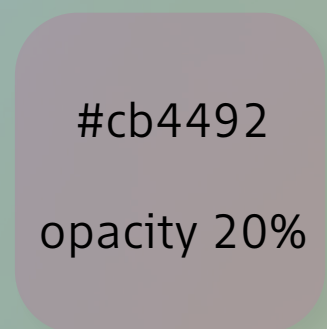
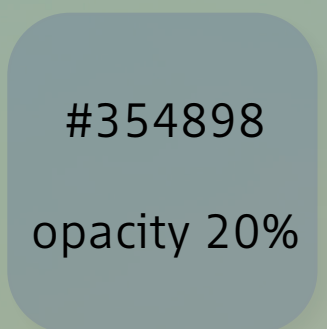
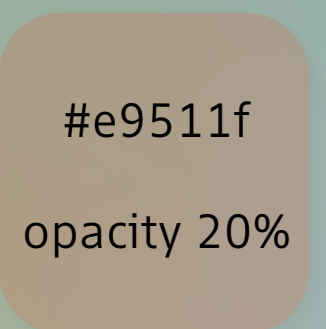
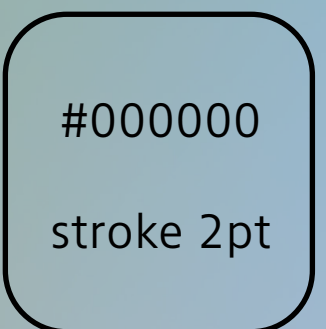

SECTION

Subsection

Font: **Dico Sans**

(Pieter van Rosmalen at Adobe Fonts)

Text title
Text
Subtext

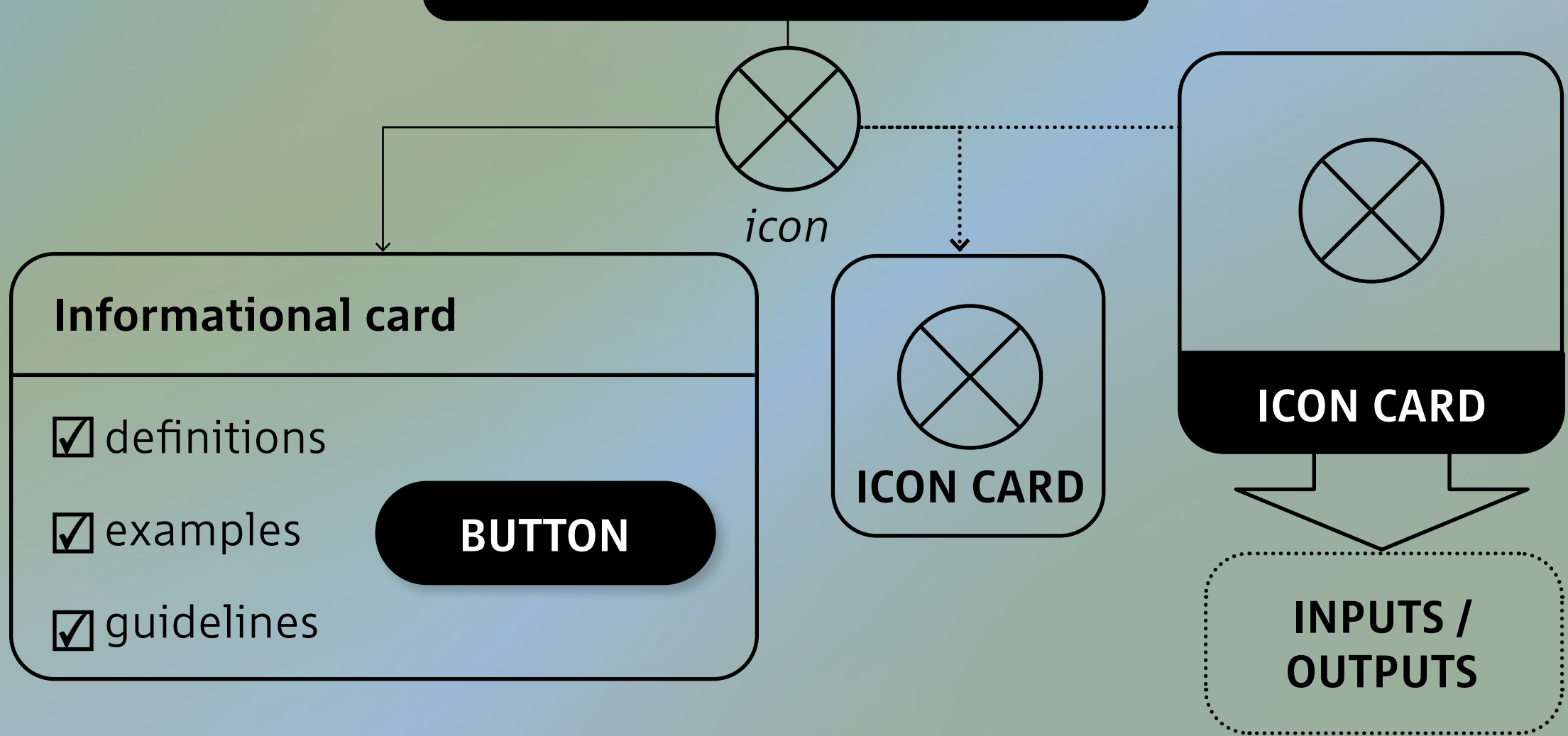
 <p>#468232 opacity 20%</p>	 <p>#cb4492 opacity 20%</p>	 <p>#354898 opacity 20%</p>	 <p>#e9511f opacity 20%</p>	 <p>#000000 stroke 2pt</p>	 <p>#000000 white text</p>
--	--	---	--	---	---

Component library

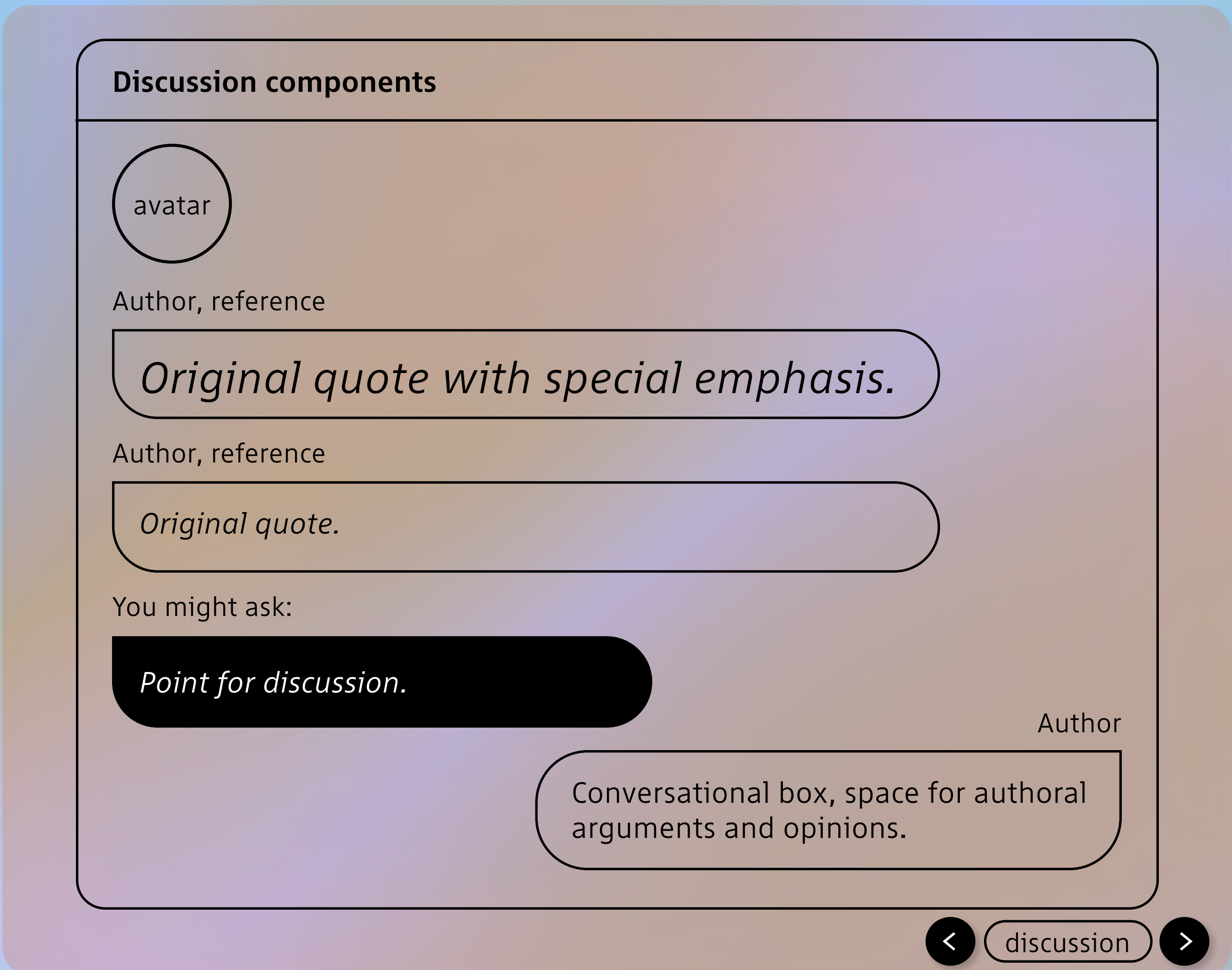
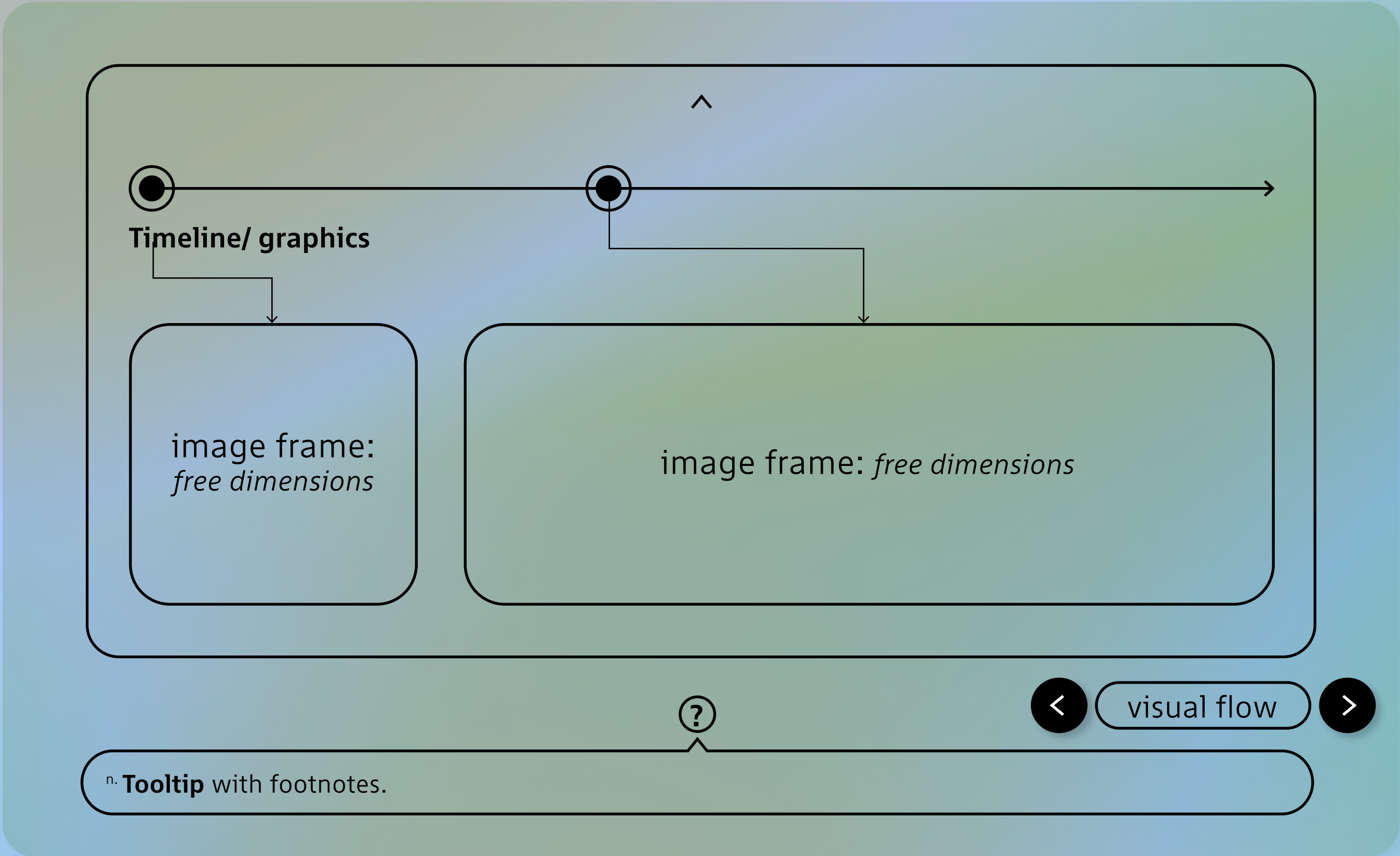
External link

Tags

GRAPHIC AND FLOW ELEMENTS



content continues in the next page





ANATOMY OF EXPERIENCE

ETYMOLOGY

Before we analyze fashion experiences, we must start by studying general experiences. However, this concept is not easy to describe. Hassenzahl (2011) summarizes it as a story that emerges from a person's action in dialog with their own world. It is created by connecting perception, motivation and cognition into an inseparable web of feelings, thoughts and actions, which in his words are subjective, holistic, situated, dynamic and worthwhile.

In English, the word "experience" can refer to different but somehow correlated meanings. According to the Merriam-Webster Dictionary and the Online Etymology Dictionary, the Middle English word, borrowed from Latin, means "testing possibilities, participation in events, a skill gained by practice".

experience

noun

- direct observation of or participation in events as a basis of knowledge
- practical knowledge, skill or practice derived from direct observation of or participation in events or in a particular activity
- the length of such participation (ex.: 10 years of job experience)
- something personally encountered, undergone, or lived through
- the conscious events that make up an individual life or the past of a community
- the act or process of directly perceiving events or reality

experience

transitive verb

experienced; experiencing

- to have experience of : undergo
- to learn by experience



visual flow



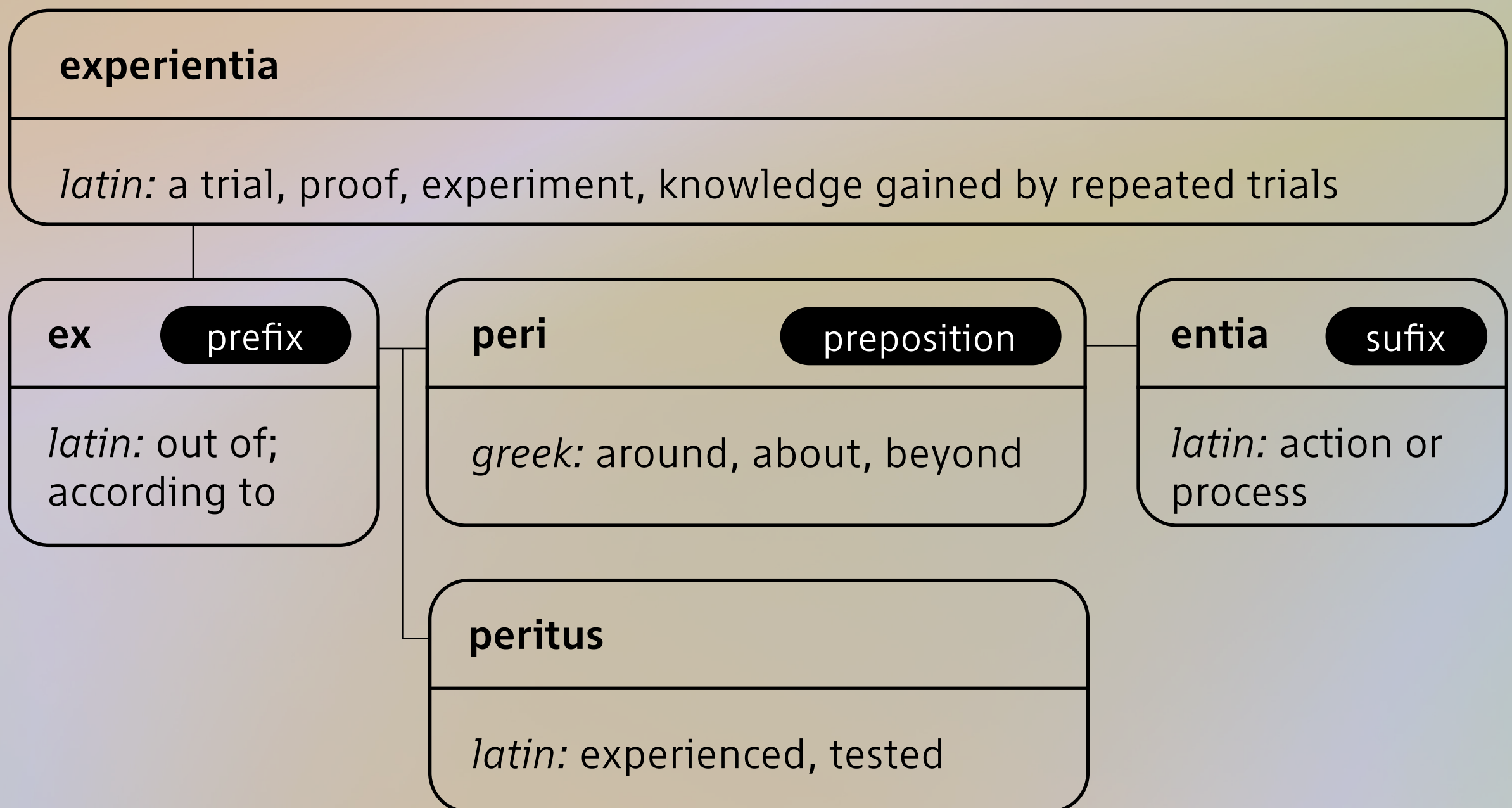
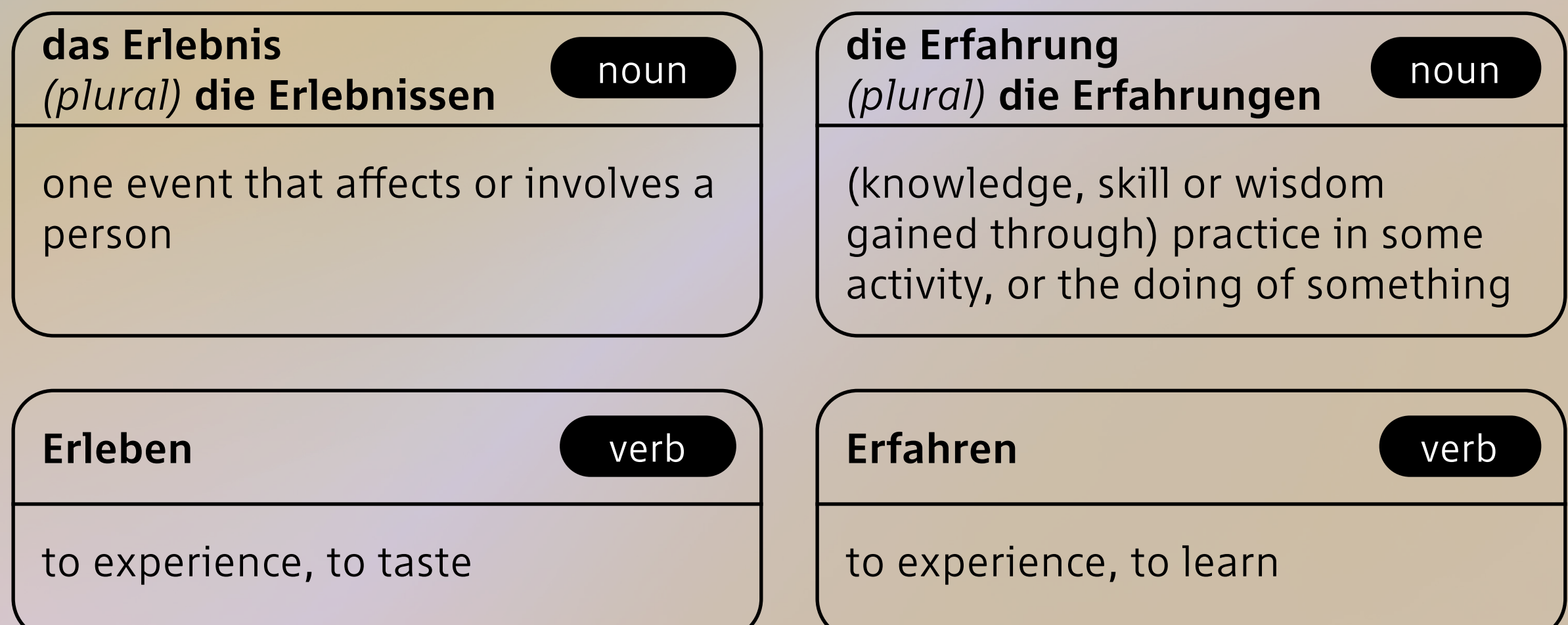


Figure 2: Etymology of experience
Source: Author, adapted from Merriam-Webster Dictionary

Erlebnis x Erfahrung

By analyzing the last scheme, we can focus the meaning of experience into two phases that are insightful to us designers. For clarity on this point, we can borrow the translation of "experience" from German, as the Cambridge Dictionary states:



We can also compare them along with the cognitive learning curve. It means the time needed for humans to assess new changes (Kupillas, 2018). Since experiences affect a person, they also mean some degree of transformation. When completely assessed, it can, then, become the learned experience, *Erfahrung*. The ability to process a change is as important for one-time experiences, as it is for repeated practices, remembering that the first *Erlebniss* will never happen twice. Fashion might be all about the new, but if a product does not bring a good experience, it will hardly be adopted by the audience and might drop the adoption curve at any point during the assessment.

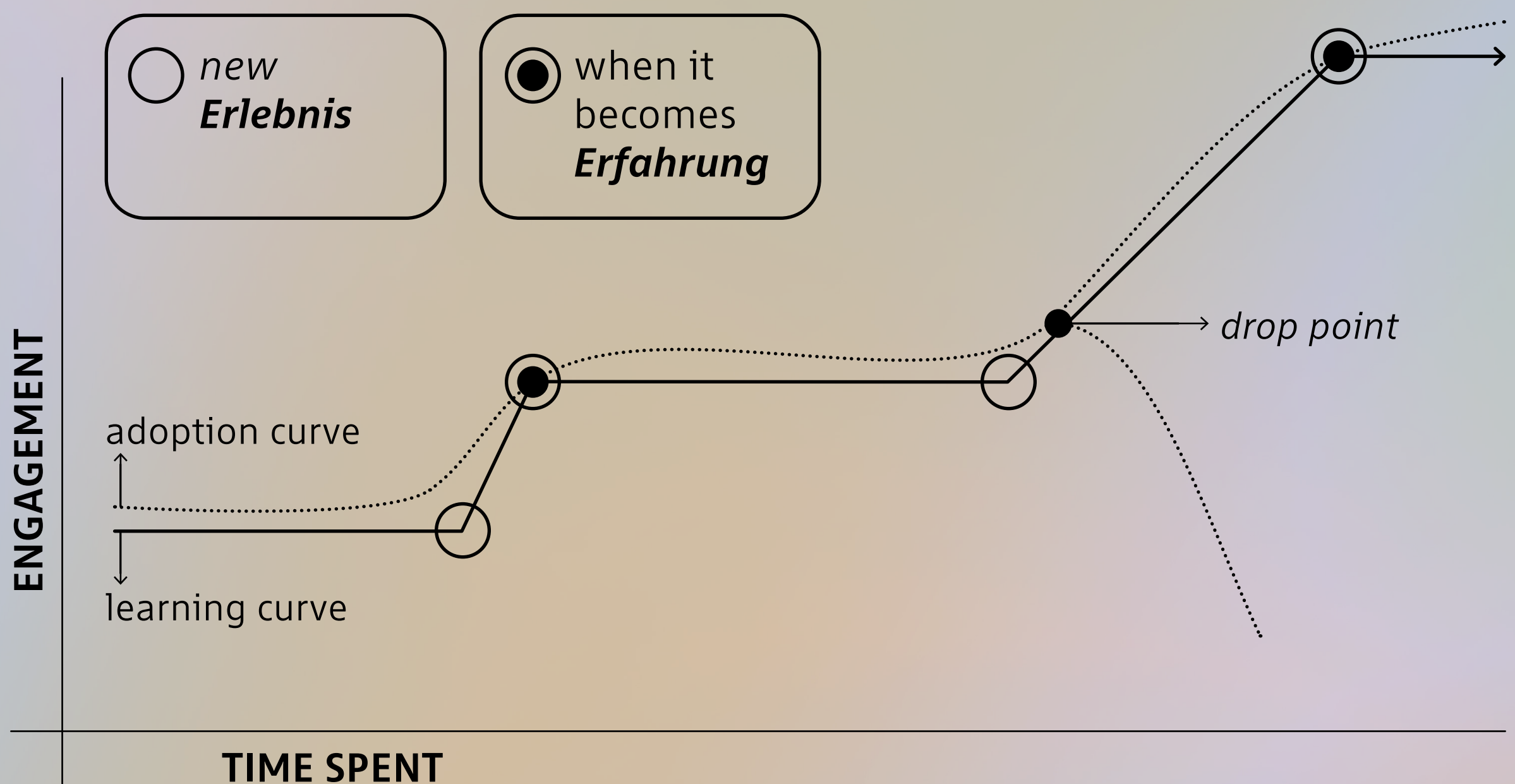


Figure 3: Comparing learning and adoption curves
Source: Author

For Hassenzahl (2011), the user experience (UX) that comes from the interaction with products and/or services, will always translate into a complete story of use and consumption. Because of how the *Erlebniss* can affect a more or less experienced person, it is vital to think about the complete journey. From before to after.

When it comes to fulfilling psychological needs, experiences tend to get better over time, when learned. As designers, we should aim to respond to human needs, and to do so, highly favorable and rich experiences integrate the best *Erlebnissen* able to become memorable *Erfahrungen*. It is also helpful to compare the different types of life experiences, as Desmet & Fokkinga (2013) have done in the following scheme:

ALL LIFE EXPERIENCES

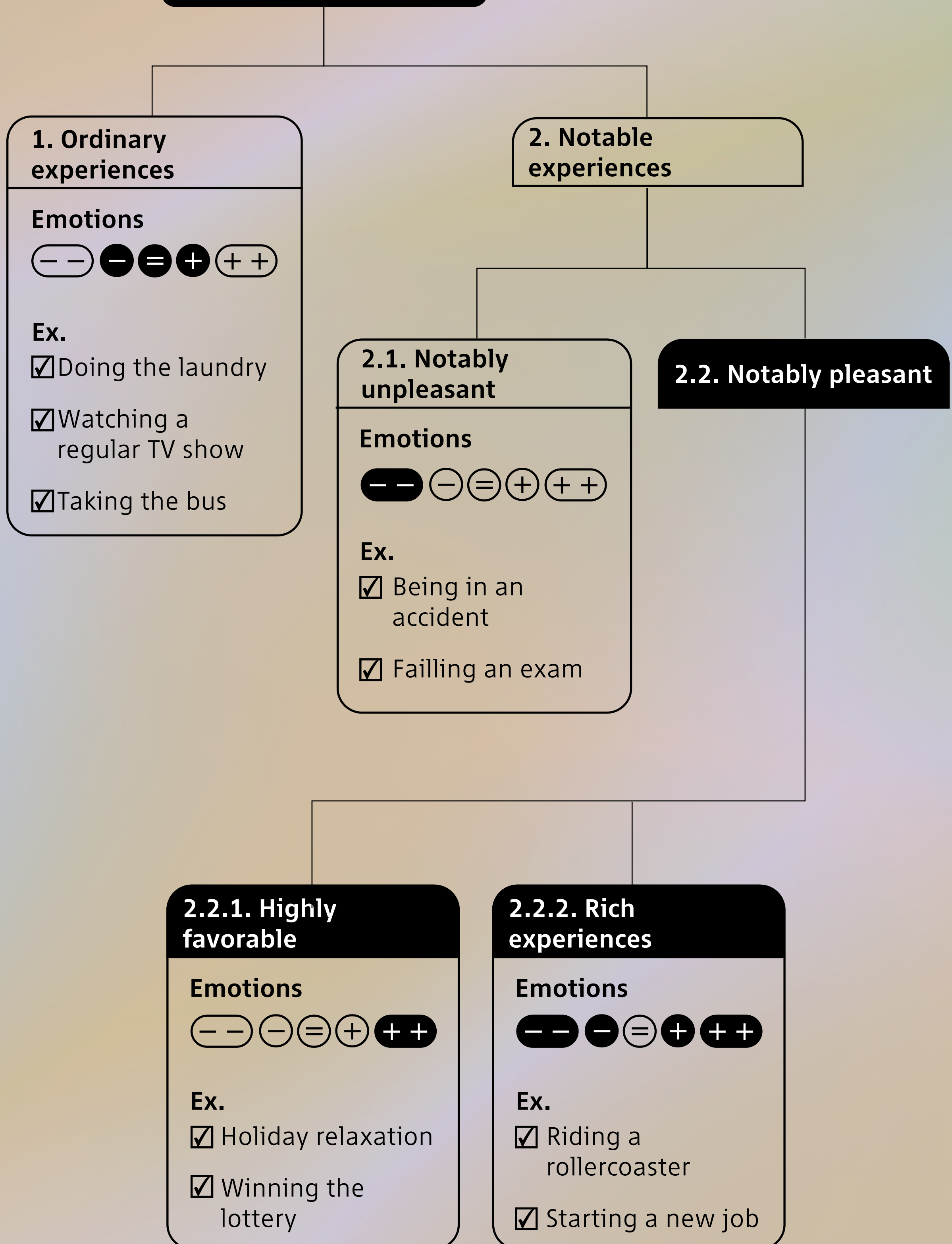


Figure 4: Rich experiences defined by comparison to other types of life experiences.
 Source: Adapted from Desmet & Fokkinga (2013)

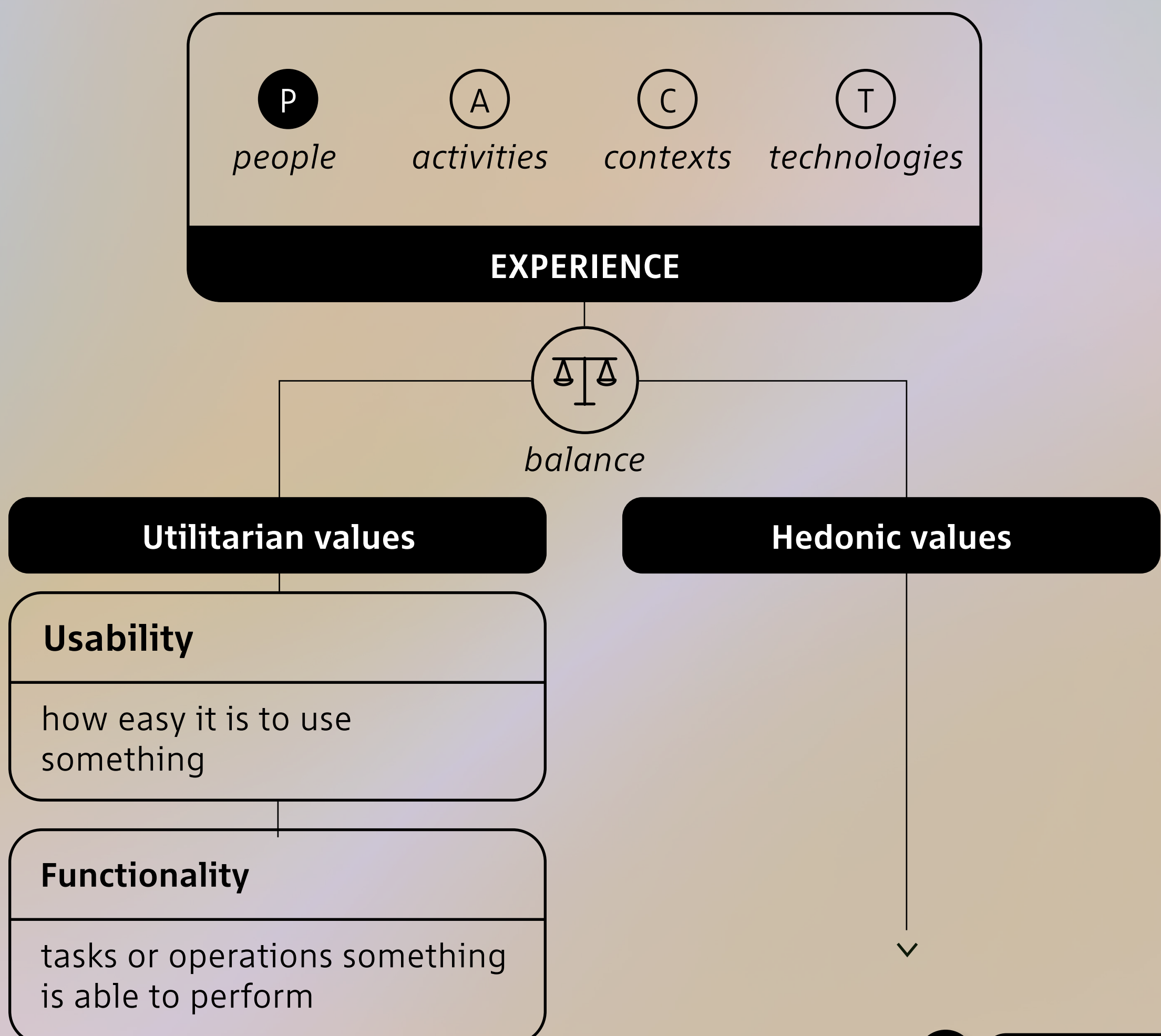


COMPONENTS OF EXPERIENCE

McCarthy and Wright (cited in Benyon, 2014) argue that an experience resides in the relationships between its parts and must be understood as a whole. On the other hand, as with most holistic approaches, understanding each component opens up several opportunities for improvement through design.

Some authors have different classifications for the dimensions of UX and CX. Benyon (2014) for example, describes experiences as the result of people interacting with activities, contexts, and technologies, the PACT system (annex 1). In a space of interaction, many PACTs occur simultaneously and people move from one system to another depending on how engaging, pleasant, and meaningful their experience is. For an interaction to provide these types of beneficial or rich experiences, it must inspire some of the experiential core values mentioned above at a physical, behavioral, and social levels.

In a different way, Gentili, Spiller, and Noci (2007) distinguish the utilitarian values of an experience from its hedonic values and emphasize the importance of a balance between them. For them, the core components of CX can be classified as: sensorial, emotional, cognitive, pragmatic, lifestyle and relational.



Sensorial Component*Ex.: Lush stores*

when nurtured, affects the senses such as sight, hearing, touch, taste and smell to stimulate aesthetical pleasure, excitement, satisfaction

Emotional Component*Ex.: Kinder Surprise*

involves affection and can work on generating moods, feelings and emotions

Cognitive Component*Ex.: Barbie*

connects with mental processes by inspiring creative thinking

Pragmatic Component*Ex.: Apple*

this is related to the hedonic values of practicality and usability, applying design standards and best practices not only on post purchase but during all life-cycle of a product/service

Lifestyle Component*Ex.: no logo products*

relates to the statement of values and beliefs by making certain behaviors possible. Customers aim for a shared participation of the principles embodied by the brand

Relational Component*Ex.: Disney and Haute Couture*

encourages social relationships within a group or an ideal self. Works on connecting or creating communities with common interests or being a way for identity affirmation, provoking the sense of belonging or even distinction

Image 5: Dimensions of experience.
Source: Author, adapted from Gentili, Spiller, and Noci (2007)



From the intersection and interpretation of the literature, we can construct an anatomy of experience. See next subsections for further explanation.

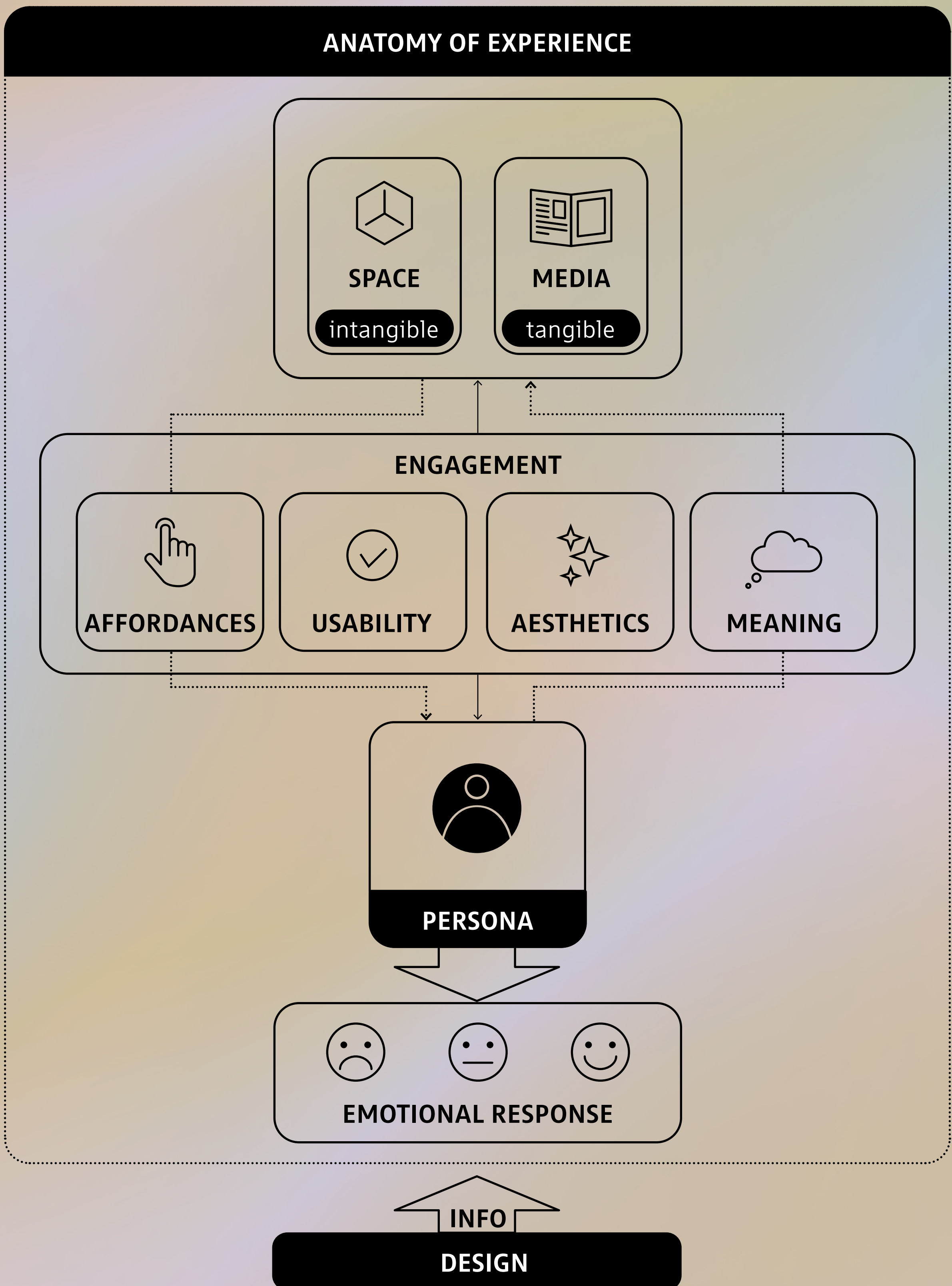


Figure 6: Anatomy of experience. Source: Author



Persona

Some times as user, others as customer or just consumer. The experience will always happen by and around an agent. Of course, the target persona will differ depending on the goal activities of the interaction. It is necessary to identify the agents for each type of interaction and apply adequate research to understand their needs and behavior. To empathize with a persona, we need to gather real data and ask questions. Donald Norman (2013), considered the father of UX, defends all types of human research, from quantitative surveys to qualitative inquiries and observations. According to him,



Don Norman, 2013

Customer research is a tradeoff: deep insights on real needs from a tiny set of people, versus broad, reliable purchasing data from a wide range and large number of people. We need both. Designers understand what people really need. Marketing understands what people actually buy.

Maslow has a motivational theory about human needs hierarchy. With a pyramid metaphor, he states that the base represents the most basic survival needs, and only when the lower levels are satisfied, a person is in a condition to seek higher satisfactions (Mcleod, 2022).

Sabine Seymour, a fashion tech pioneer, emphasizes user needs and the responsible usage of their data. For her, it is crucial to understand more than the data itself, but also the psychology of who is wearing a gadget that captures and shares information: “there’s too much focus on big data alone — the human behind the data is extremely important.” (cited in Pradeep, 2018) Despite the discussions about the ethical use of personal information, data can serve good purposes in understanding human behavior. Encrypting and decentralizing data is a way of protecting people’s privacy and ensuring anonymity.

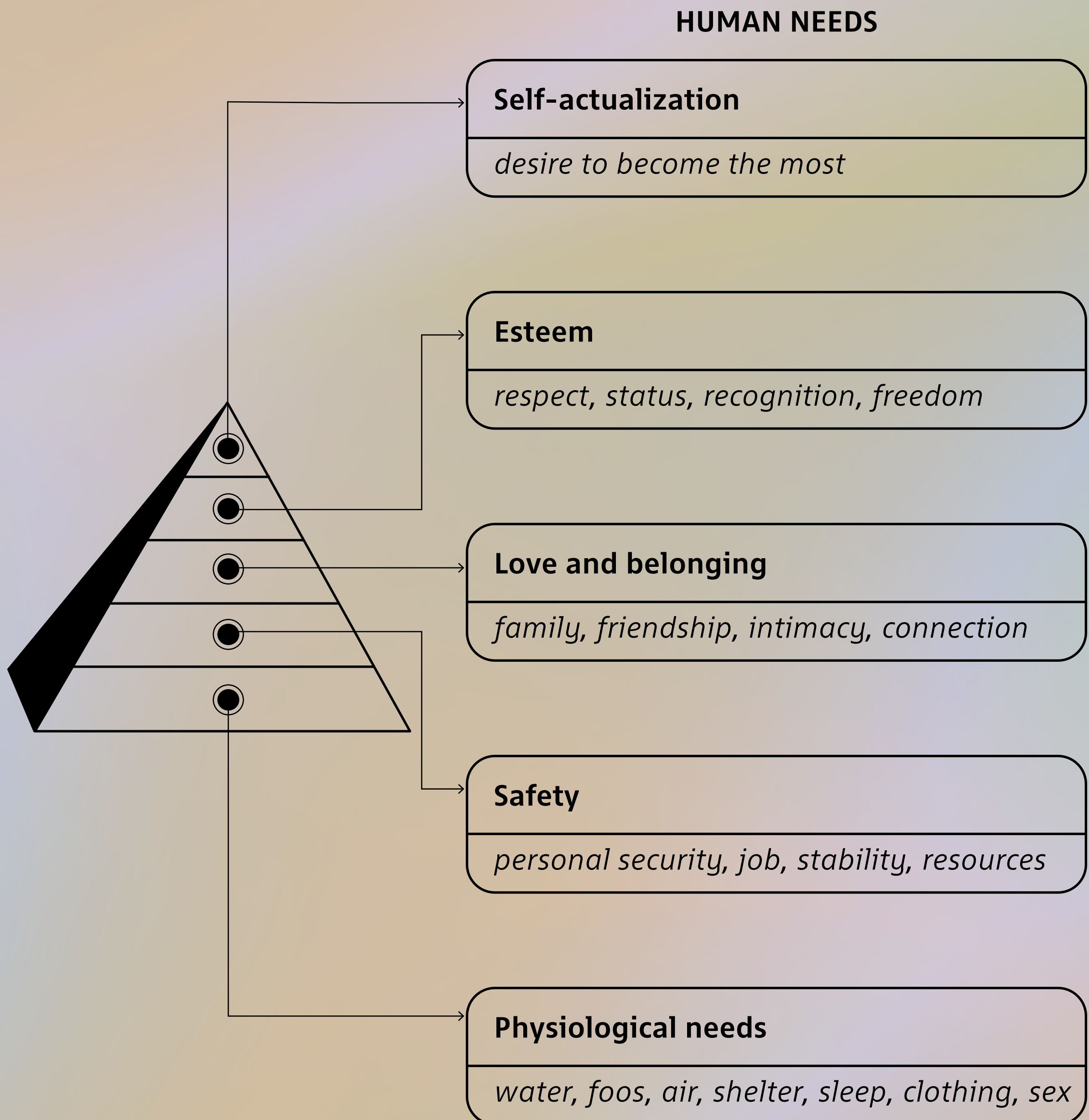


Figure 7: Maslow's hierarchy of needs.
Source: Mcleod (2022)



visual flow



Demo-, psycho-, geo- and technographic data are essential to identify a target persona, but they tend to be too broad. To embrace the particularity of the real users of an experience, we can use ethnographic research practices such as interviews, shadowing, and other daily life observations. All information gathered helps in identifying archetypes to whom designers can develop a sense of otherness and empathy.

The Archetype Model by Carl Jung represents 12 universal patterns of the collective unconscious² (Stadelmann, 2018). They relate to Maslow's theory on human needs and can define attributes for the customer and the brand in different ways.

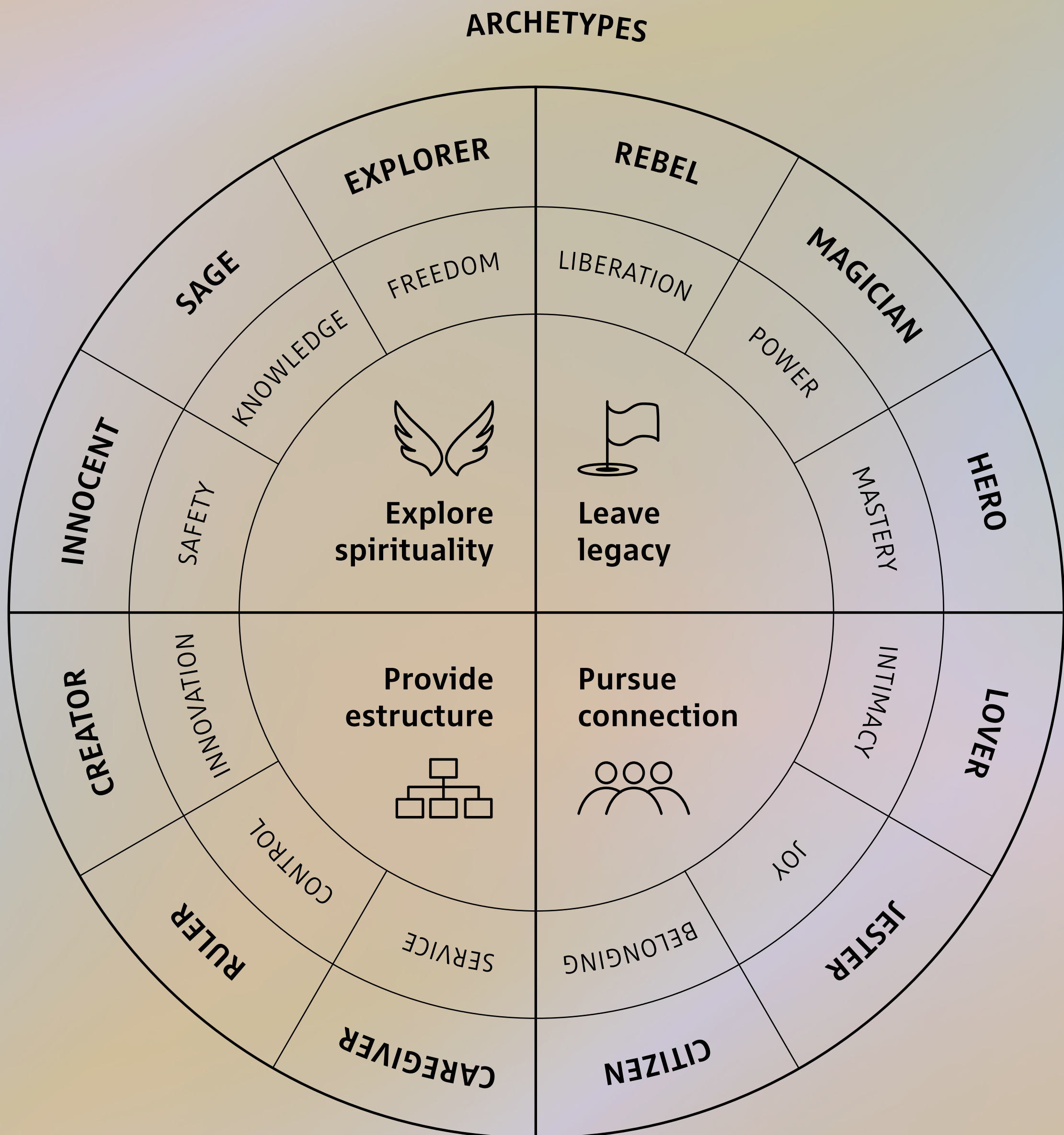


Figure 8: Jungian Archetype model.
Source: Stadelmann, 2018



visual flow



² **Collective Unconscious** is a theory of universal consciousness by which Carl Jung defends our deep mind as an archive of all humanity's memories (Gimbel, 2020). This can explain why we know exactly what to do in some life situations, even if not by personal experience.

You might ask:

Who can be a fashionable agent?

Author

Fashion is a social phenomenon, meant and moved by people. But considering Maslow's hierarchy of needs, fashion can tackle more than only social needs. Questioning and observing behavior brings insights into how to create the best experience values at any level. From the physiological need for clothing and protection to the sense of belonging or intimacy, each level affects, for example, a Rebel and a Lover in different ways. To reach fashionable agents, we can use any sort of media and unconventional strategies, in the physical or digital world. Archetypes, here, help on creating dialogue and storytelling.



Tim Brown, CEO of IDEO

Empathy is at the heart of design. Without the understanding of what others see, feel, and experience, design is a pointless task.



discussion



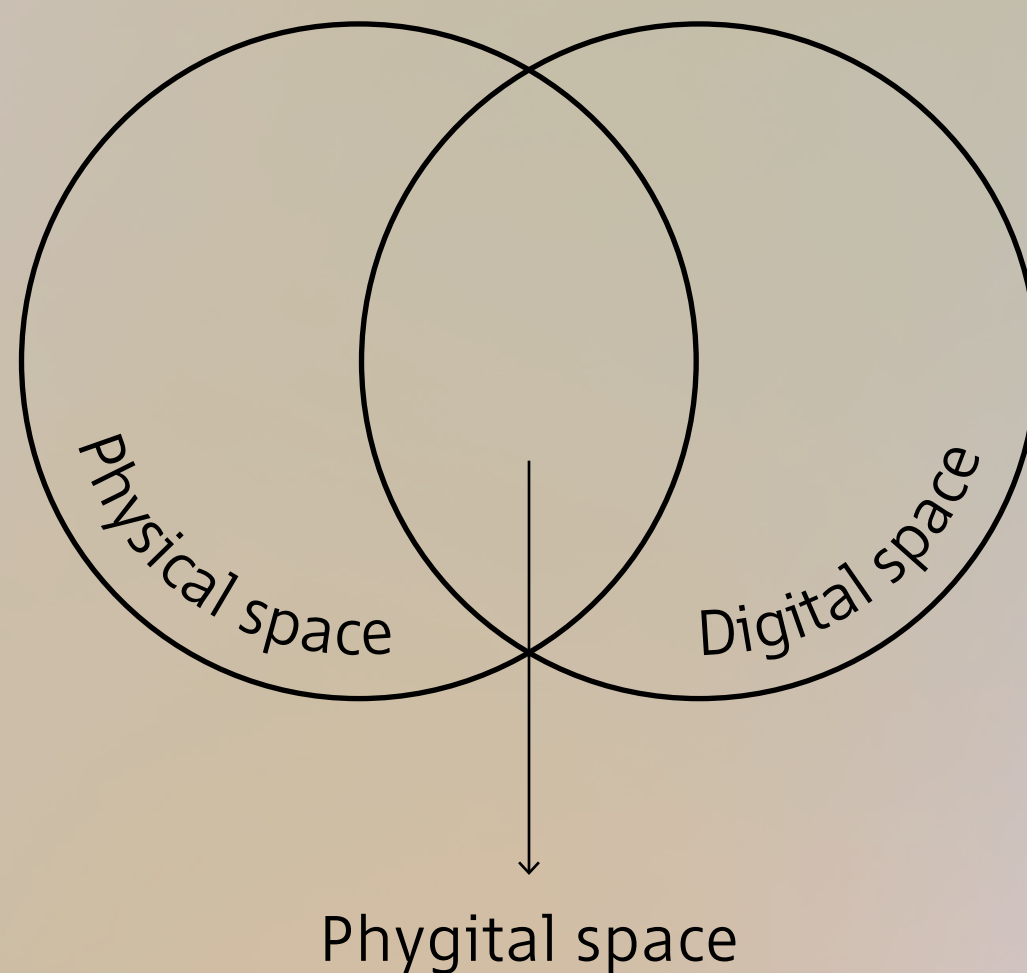
Interactive system

Feelings, thoughts, meanings, and actions arise from an individual or group's interaction with something that has touched their world. To describe this framework we have the interactive system. It is a passive system that integrates tangible and intangible properties. The interactive system can exist even without proper interaction, although it only gains value when it inspires some kind of engagement. To add value, it is possible to design services or artifacts for both composing elements of an interactive system: space/s and media.

Space: *the background for our interactions*



Spaces and time are intangible. Yet they form the background for our interactions. According to Benyon (2014), we have two main spaces of interaction: the physical and the digital. In between, there is the phygital or blended space.



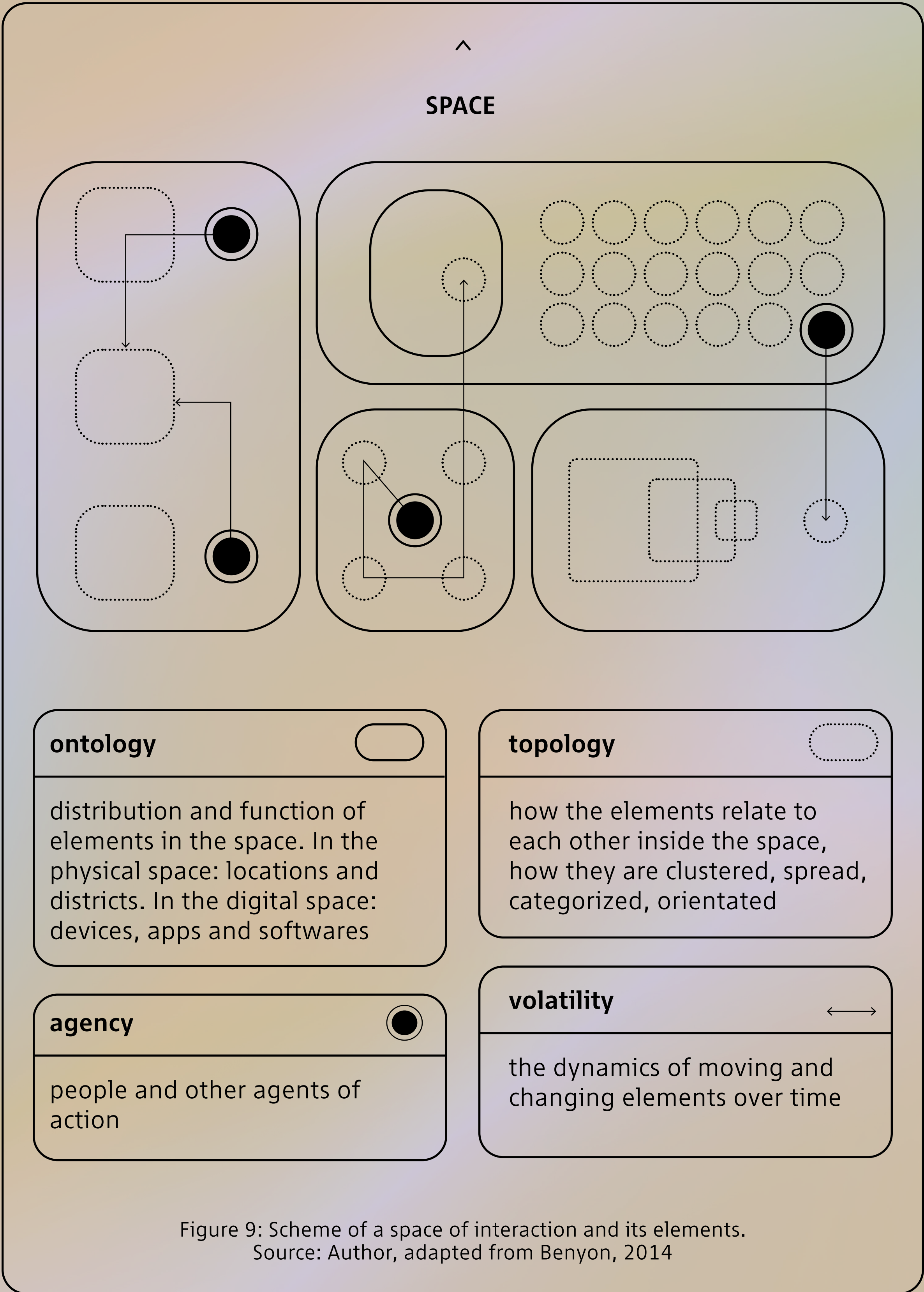
visual flow



The physical space is the human realm. It is where our bodies and concrete media, such as smartphones, books, clothing, and architecture, are located. In digital or cyberspace, we have digital media, such as the Internet, the cloud, and databases. The Internet of Things (IoT) and most extended realities (XR) such as augmented reality (AR), mixed reality (MR), and of course the metaverse take place in the phygital space.

Spaces are appropriated and perceived differently by people depending on how the tangible elements and information are projected around them. In this case, Benyon identifies four important aspects to consider when projecting a space: Ontology, Topology, Volatility, and Agency.





Media: context and technology



Media is the plural of medium, which is defined by Shaleph O'Neil (2008) as "a means of expressing ourselves or communicating with others". Other meanings of the word include: intermediary, go-between, middle, channel and vehicle. It can then be interpreted as something with the potential to carry or extend a message from the sender to a receiver. Unlike the space, media are tangible and "the physical elements and attributes of our relationship to the world that allow us to embed our thoughts and ideas in them in order to make them manifest". (Shaleph O'Neil, 2008)

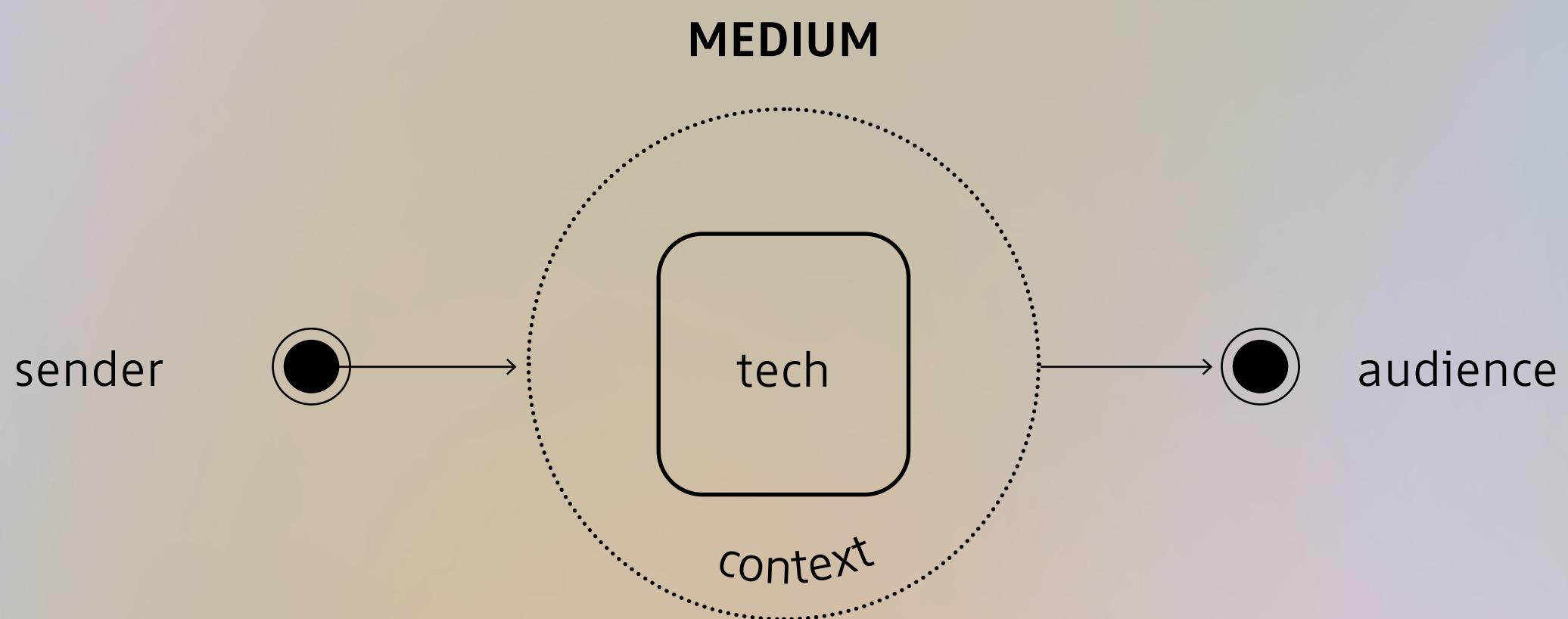


Figure 10: Simplified system of a medium.
Source: Auhtor, adapted from Benyon, 2014



visual flow



A medium needs context and technology, C and T from PACT (Benyon, 2014). Context is the situation that generates a message to be communicated and technologies are the ways to do it. New media and new technologies change the nature of the interactions, making it possible for people to extend themselves by creating and consuming fresh new content.

Technology does not necessarily mean something new. In fact, it refers to any knowledge that is applied to shape artifacts, materials and processes. Much of our culture is a result of technology. Music, art and fashion, for example are seen either as media (with specific Zeitgeists as context) or as products that rely on technology to exist. Smart technologies can enhance pleasure, simplify lives and improve safety. The challenge is how to help people on using them (Norman, 2007), and that's why we have designers.





There is a temptation to develop products as soon as new technologies emerge, but this should be first investigated by design researchers. New technologies offer people the opportunity to expand themselves, but it takes time for innovations to take hold. If a product does not tackle a human need or problem, it will be taken out of context and not make sense.

Norman (2013) compares two relevant forms of product innovation according to their potential for success: incremental and radical. In addition, Roesler & Woods (2008) propose design approaches to demystify the concept of innovation by having designers observe behaviors, research patterns, and explore technological possibilities to identify the ground conditions for innovation growth.

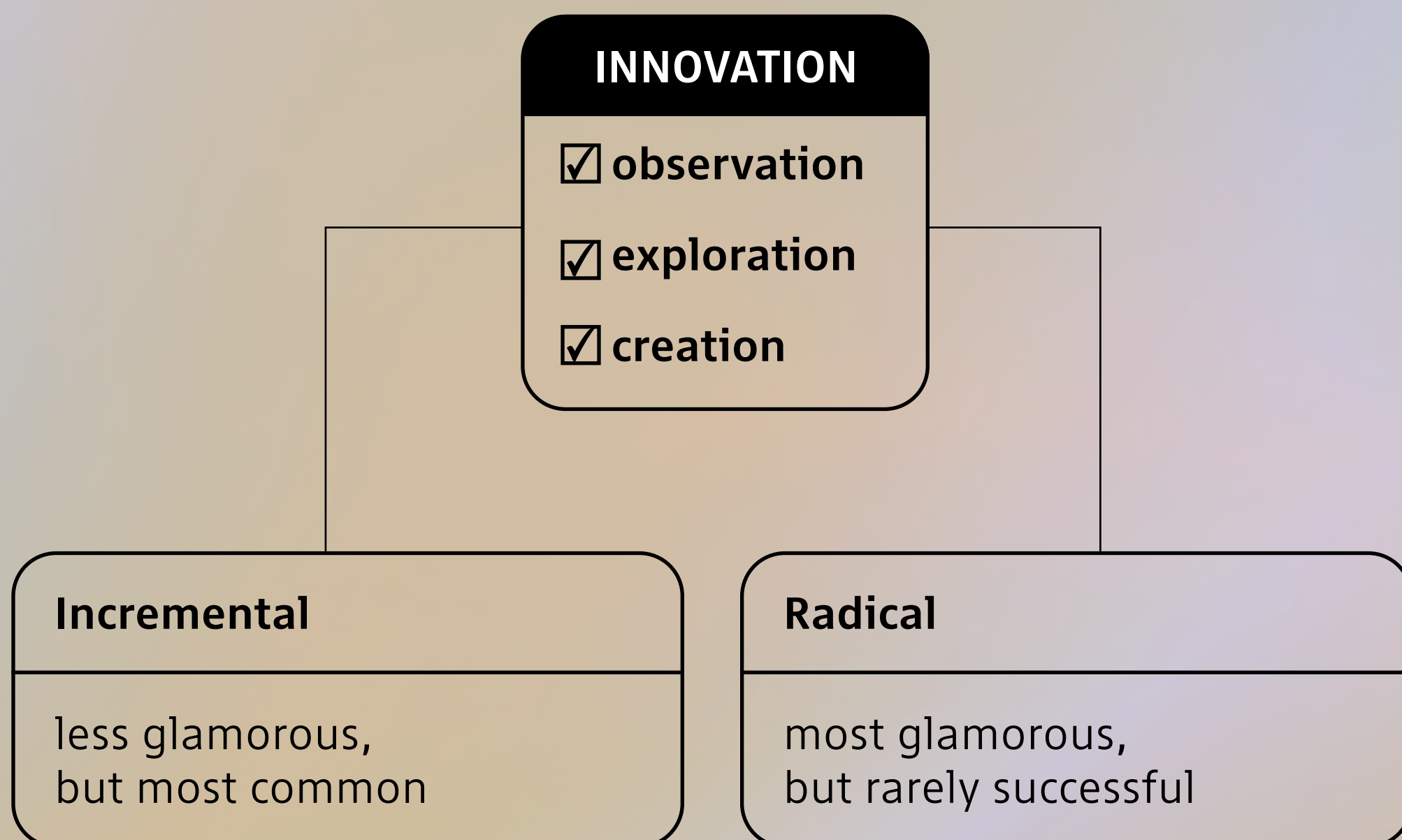


Figure 11: Forms of innovation growth.
Source: Author



visual flow



You might ask:

*What is a **fashion interactive system**?*

Author

Any system meant for people is interactive. Although not always providing the most favorable and inclusive experiences, fashion systems are no different. In physical space, human bodies are very dependent on something to wear. Clothes and fabrics are malleable, fluid and highly communicative. This means a vast opportunity of using garments as intelligent media beyond appearances and body protection. In fact, some people relate interactive clothes to wearables because this kind of fashion tech reshapes how we engage with what we wear. But as for most information technology, wearables need to provide meaningful and seamless experiences.

In the digital and phygital spaces, there is a disembodiment of garments. Here, fashion can follow its fast volatility without compromising the rest of the space structure. Here, users can even be creators of their fashion. That is the proposition of The Fabricant Studio, “a blockchain-based digital fashion platform where anybody can create, trade and wear fashion in the metaverse.” (The Fabricant, 2021). In the phygital space, XR technologies can help both IRL and URL fashion businesses to be more inclusive and assertive.



Amber Slooten, Creative Director and Co-Founder of The Fabricant, 2021

We buy fashion for two reasons: to protect our bodies and express our identities. When our identities live in the digital realm, why would we need physical fashion to exist?



discussion



Engagement

“Engagement is about making sure the interaction flows” (Benyon, 2014), people engage to show that their identity contributes to a particular narrative. Depending on the immersive potential of the interaction, it flows gradually and provides a smooth experience for all participants (Shedroff, 2009).

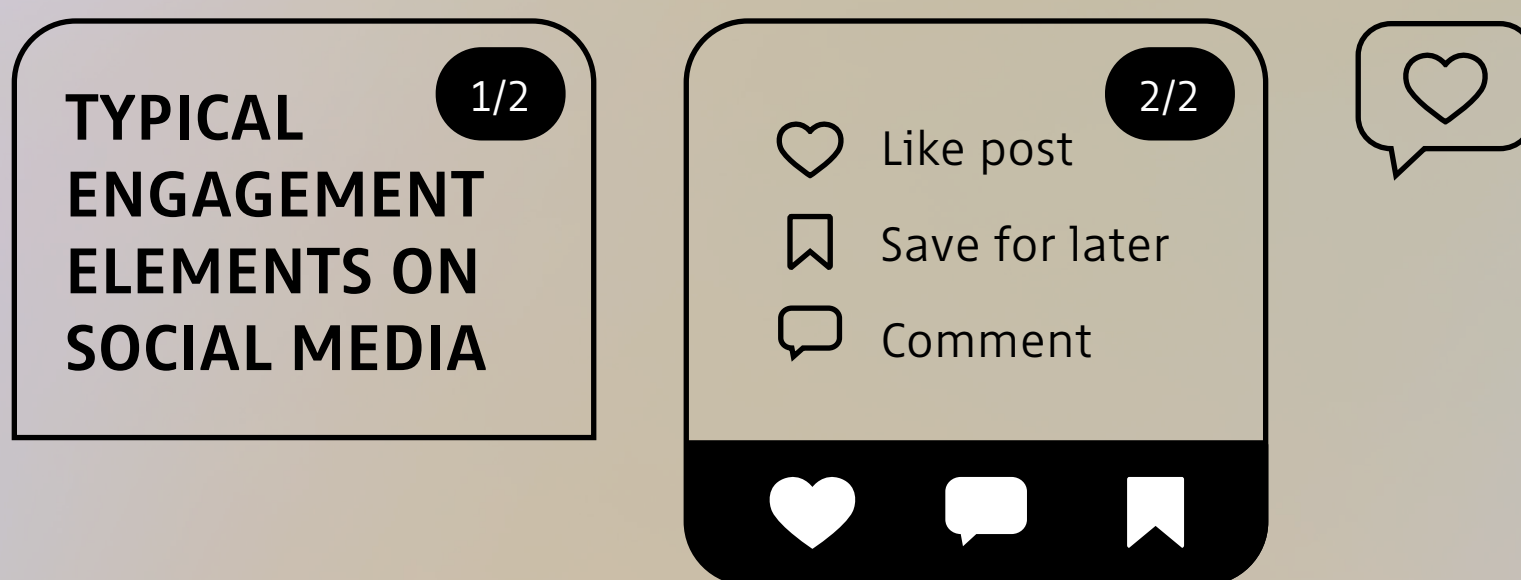
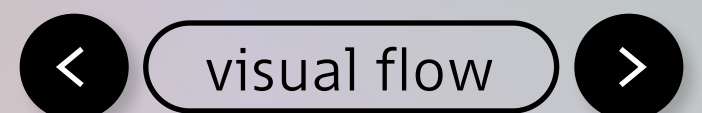


Figure 12: Typical elements of a post on Instagram or Facebook.
Source: Author



“Flow” is the state of mind of complete immersion in an activity (Csikszentmihalyi, as cited in Tan & Jansz, 2008). To put someone in a state of flow, the interaction must tell a meaningful story with clear goals and small achievements. The game industry has done a great job of understanding this concept. Players will engage in activities for as long as it takes to overcome challenges (Tan & Jansz, 2008). Because gamification³ builds loyalty, it is also used in other areas such as education, marketing, and retail.

Benyon also affirms that people are social beings who interact to share their thoughts and collaborate. Social media has revolutionized the way people engage with each other. They allow people to interact in digital spaces by creating intuitive information codes (signifiers). For example, reaction buttons allow people to express quick messages or opinions. This works because people understand and make sense of what these buttons can do (afford). Not to mention the aesthetic developments that make people more and more comfortable scrolling down the screen. This, of course, leads to new discussions about the healthy limits of engagement and the need for a balanced life.



³ **Gamification** is the application of game elements in other contexts that encourage users to complete tasks with a more positive and immersive experience (Walter, n.d.)

Affordance and meaning: *communication*

Affordance is a term coined by psychologist J. J. Gibson to define the perceived actions afforded by the interaction system, i.e., a person's perception of the world. Woods & Roesler (2008) further consider affordances as shared knowledge that supports cognitive adaptation, and Don Norman (2007) affirms that it is a passive-reactive form of implicit communication that allows people to know what to do in some life situations.

From a macro perspective, most affordances flow together with Carl Jung's Archetypes through the collective unconscious, creating similar meanings across cultures and generations.

Not always, of course. It is still important to presuppose that people have different meanings and learning curves for life situations. Here lays the importance of understanding the needs of who we want to communicate. If the narrative is coherent and the affordance is well-communicated through the form and informational signifiers, people can learn a new context of use. Visual affordances guide instinctive behavior and are especially important for new and technological artifacts (Norman, 2007).



The cart icon: affordance and meaning

As for most interface icons, the shopping cart is an icon that transits from physical to digital spaces with similar meaning and affordance: fill it with items to buy. Differently to Floppy Disks, which became CDs and later USB drives but are still used as icons for "save", the design of shopping carts does not vary much from place to place nor did in the last years since its introduction in the 1930s. It became a graphic commerce icon in 1995 when CEO Mark Mumma used it in his late Real Cart business. (Silverberg, 2021)



Usability: *easy to use*

Usability evaluates how easily the interaction flows. It is perhaps the most significant contribution design can provide to an interactive system, yet not very much thought. With the recent approximation of fashion design with interactive and digital solutions, a Heuristic Evaluation can provide a good start. Heuristics are not necessarily guidelines and do not substitute iterating with the target users, but they can identify up to 90% of usability issues (Fard, 2022). Jakob Nielsen's (2020) set of heuristics (see next page) is the most used for user interface design, although not always applicable or the best solution.

Iteration is one of the most important processes for design because it gives room for improvement. In designing clothes, prototyping is a phase for iteration not only to find the perfect pattern fit or material but also to connect the product with some users and test how they experience it. In product design, it is an ideal best practice to conduct usability tests in many phases, from very low wireframes to high-fidelity prototypes.

iteration

(Cambridge Dictionary, 2) **noun**

the process of doing something again and again, usually to improve it, or one of the times you do it

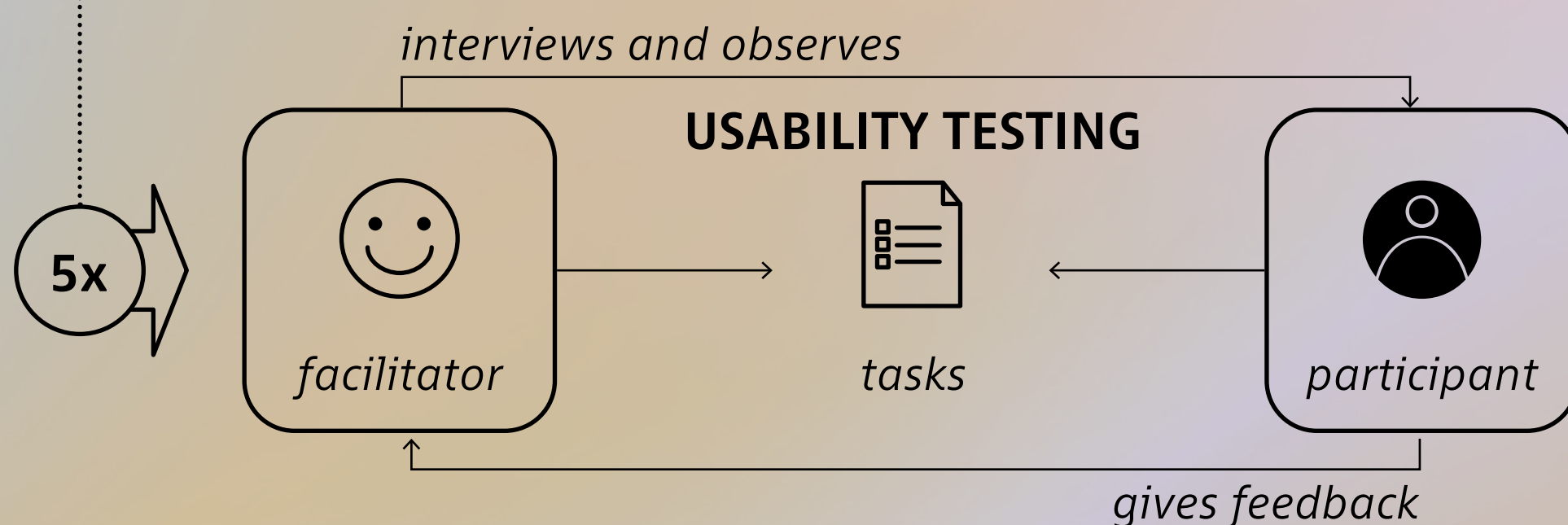


Figure 13: Flow of information for usability testing.
Source: Author, adapted from Moran, 2019

< visual flow >

Usability testing does not need a large number of testers. The undeniable truth is *zero testers = zero insights*. From the 5th user, we find more than 75% of the usability problems, and most of them start to repeat over and over. It is important to remember that any issue is the design's fault, not the users' (Norman, 2013).

NIELSEN'S USABILITY HEURISTICS

1. Visibility of system status

Tip: open and continuous communication



2. Follow real-world conventions

Tip: speak the user's language



3. User control and freedom

Tip: support "undo" and "redo"



4. Consistency and standards

Tip: follow established industry conventions



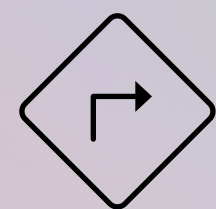
5. Error prevention

Tip: avoid errors and ask for confirmation



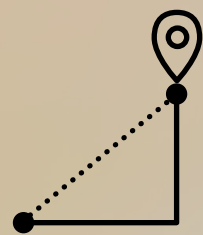
6. Recognition rather than recall

Tip: offer recognizable help in context



7. Flexibility and efficiency of use

Tip: shortcuts, personalization and customization



8. Aesthetic and minimalist design

Tip: focus on essentials



9. Help users with errors

Tip: show what went wrong and provide solutions



10. Help and documentation

Tip: present instructions at the moments needed



Figure 14: Usability Heuristics.
Source: Author, adapted from Nielsen (2020)

Aesthetics: *the nature of beauty*

The Merriam-Webster dictionary categorizes “aesthetics” as a subdivision of philosophy that deals with “the nature of beauty, art, and taste; with the creation and appreciation of beauty”. The Greek word “aisthesis” relates to recognition from sensory perception, showing that beauty is in sight, hearing, touch, smell, and taste. In other words, it is a source of informational values such as color, movement, smell, sound, shape, and proportion. Thus, it brings desirability being directly influenced by culture and cognition. As stated by the Interaction Design Foundation (3), “Usability is the minimum requirement for a decent user experience. Desirability is what separates a great product from an average one.”

Typical design aesthetic guidelines are the golden ratio, the rule of thirds, and the Gestalt laws⁴. Considered “the mathematical distillation of beauty”, the golden ratio is an ancient study based on natural patterns of rectangles, triangles, and line segments, all with the so-called divine proportion of phi (Berndt & Obermiller, n.d.).

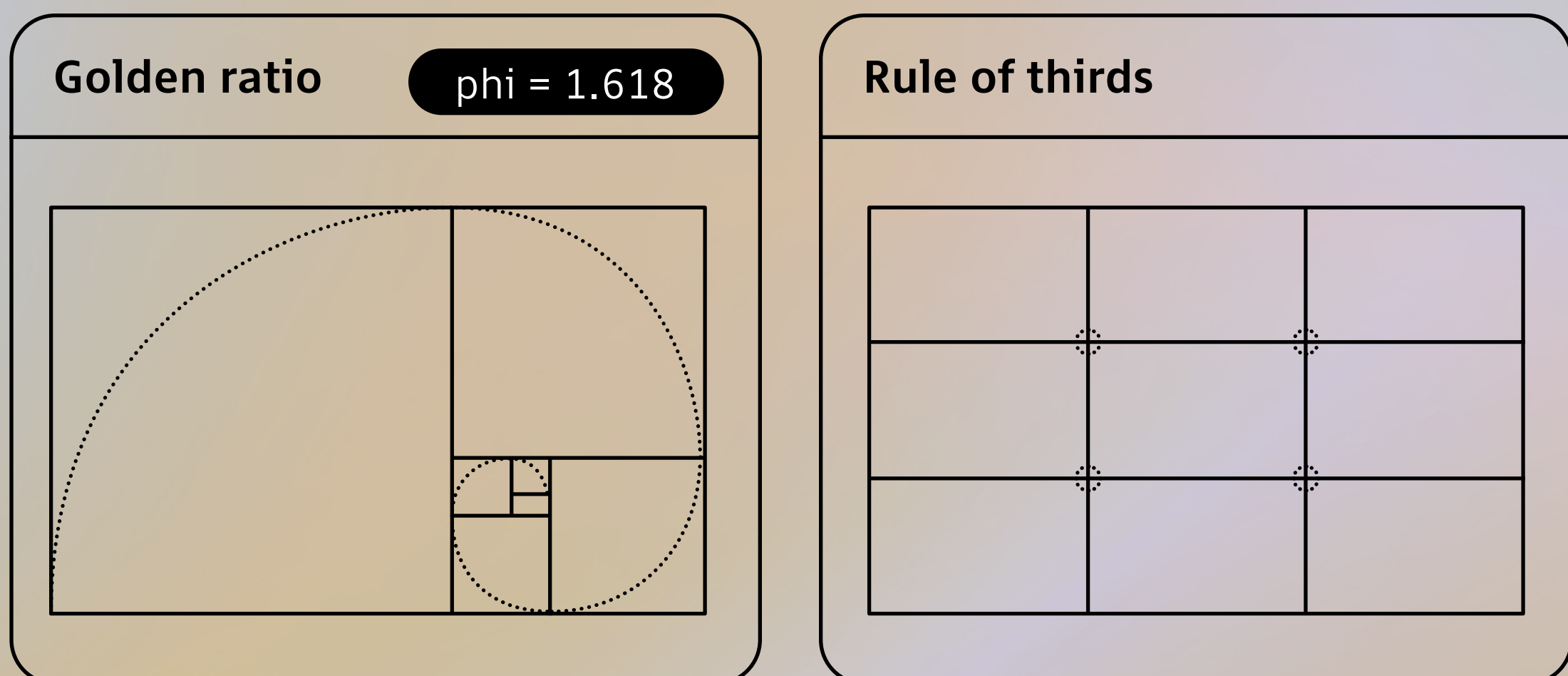


Figure 15: Aesthetic principles - golden ratio, rule of thirds.
Source: Adapted from Berndt & Obermiller (n.d.)



⁴ **Gestalt** means “unified whole” in German. In the 1920s, psychologists Max Wertheimer, Kurt Koffka, and Wolfgang Kohler identified more than 10 laws for how the mind perceives individual information as a whole (Interaction Design Foundation, 2).

Gestalt visual laws

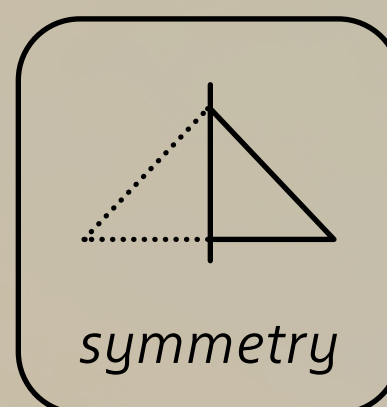
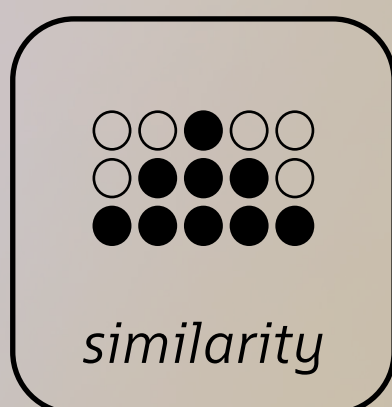
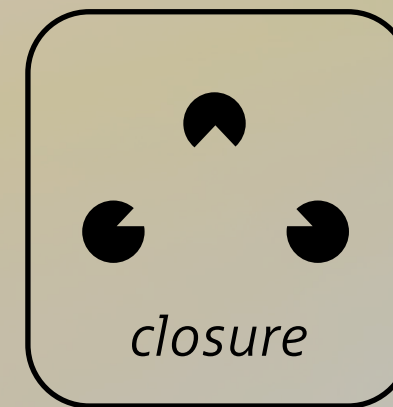
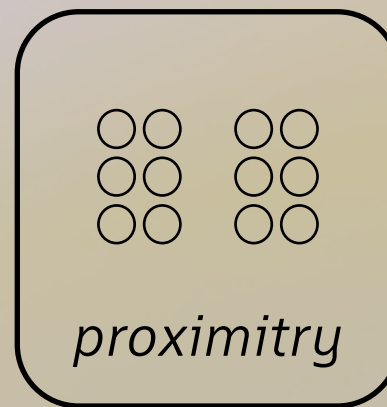
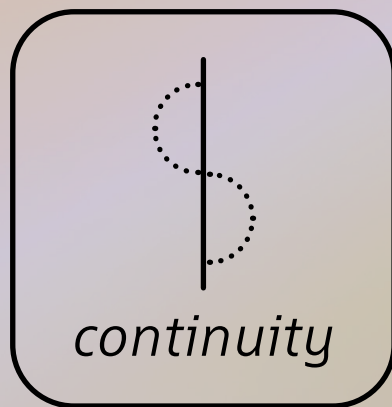


Figure 16: Aesthetic principles - Gestalt laws.
Source: Adapted from Interaction Design Foundation (2)



visual flow



Sense of beauty is unlikely to suffer big changes over time, so it builds identifiable cultural patterns. That is why Hekkert & Leder (2008) affirm that a designer's aesthetic perception is intuitive: the more we observe human psychology, biology, and neurology, the more we understand their artistic norms.

You might ask:

What would be fashion engagement?

Author

Due to social media, we know engagement is a value creator. We also understand that content needs meaning and aesthetics (think of the success of Canva and TikTok for democratizing audio-visual tools). And the chosen platform (or space) needs to afford ways to engage (like, share, comment).





Author

When we expand these elements to fashion systems, aesthetics is the main pillar. Fashion creates beauty. Observative designers can discover and guide new perspectives of aesthetic pleasure.

In practice, designers use aesthetic principles and color theory as visual guidelines, but if we abstract them enough to the other senses, we can find good comparisons in the foundations of music, gastronomy, and perfumery, for example. With this kind of abstraction, aesthetic perception can create semantics, affordability, and accessibility. As Kate Moran (2017) highlights about the Aesthetic-Usability Effect: “form and function should work together.” A beautiful design might hide minor usability or accessibility problems but does not work for deeper interactions.



Kate Moran, 2019

Even the best UX designers can't design a perfect — or even good enough — user experience without iterative design driven by observations of real users and of their interactions with the design.

Author

In fashion, we have extensive prototyping processes to reach the right fit. But except for tailor-made, these prototypes are not always tested on real people, but on lifeless mannequins. Nonetheless, putting it in contact with users brings valuable insights. As with many products, clothes can afford some functions not planned by the designer, e.g. a skirt used as a dress. Sabine Seymour equates garments as a direct interface of our bodies to the outer world, working as media for “emotions, experiences, and meaning.” In this way, garment manipulation can come from the wearer’s creativity, culture, and freedom of self-expression.



Sabine Seymour, 2008

While aesthetically pleasing design is an integral part of the success of a fashionable wearable, the context truly determines the functional and expressive definition of a fashionable wearable.



discussion



Emotional response

Humans are emotional beings and it is a quality. Because we have an affective relationship with the world, our behaviors, motivations, and thoughts are affected by emotions. Most importantly, emotions are always mixed and sometimes even antagonistic. Norman (2004) has a way of explaining our emotional response to interactions on three levels: visceral, behavioral, and reflective.

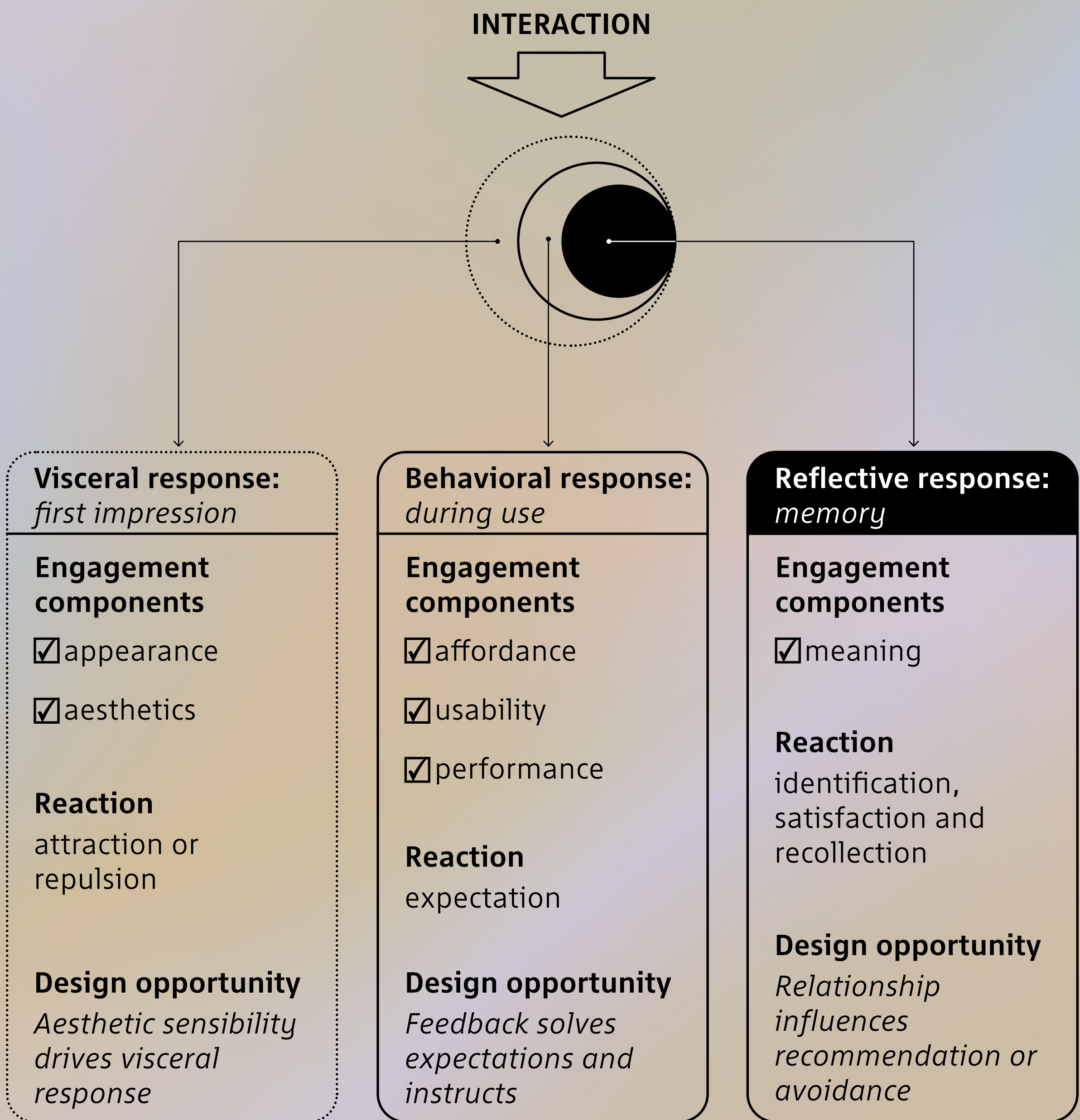


Figure 17: The three levels of emotional response.
Source: Author

Desmet, 2012 (2)

One person can be proud of a new pair of shoes...

Author

Being proud of a purchase is intuitive and visceral, we buy because we like new attractive things and it makes us feel good.

Desmet, 2012 (2)

at the same time irritated by the lack of comfort

Author

The lack of comfort appears in the first use, and because the user did not expect it, it can irritate. Information on the material's durability can make them feel prepared to wear it until breaking it.

Desmet, 2012 (2)

and afraid of damaging the delicate leather.

Author

After buying, the person starts to worry about how to care for the product. Tutorials or services can create a relationship with this customer.



discussion



As we already saw with Desmet & Fokkinga (2013), when experiences instigate positive emotions, they become pleasant: favorable, or rich. The paradox of rich experiences, as shown by Desmet's conflicting example above, is evoking positive and negative emotions together. It can be challenging, so the authors developed a framework of 10 rich experience qualities. They combined negative and positive emotions with what they call "protective frames". This approach transforms the agent's perception and attitude towards opposite emotions, creating memorable experiences.











Archetype	Rich quality	Emotions	Protective frame
 <i>The sadistic</i>	Using a mental or physical advantage to harm a person or object in a playful way.	<ul style="list-style-type: none"> − Maliciousness + Amusement 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Detachment <input checked="" type="checkbox"/> Safety-zone
 <i>The thrilling</i>	An immediate, exciting rush that makes people feel alive and very in-the-moment.	<ul style="list-style-type: none"> − Fright + Joy 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Detachment <input checked="" type="checkbox"/> Safety-zone <input checked="" type="checkbox"/> Control
 <i>The challenging</i>	A frustrating, yet engaging problem that people are determined to solve.	<ul style="list-style-type: none"> − Frustration + Satisfaction 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Control
 <i>The eerie</i>	Something that gives people the creeps but is also enchanting.	<ul style="list-style-type: none"> − Anxiety + Fascination 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Detachment <input checked="" type="checkbox"/> Safety-zone
 <i>The scandalous</i>	An outrageous, yet fascinating violation of social norms or values.	<ul style="list-style-type: none"> − Indignation + Fascination 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Detachment <input checked="" type="checkbox"/> Safety-zone
 <i>The grotesque</i>	Being simultaneously repulsed and attracted by something physically or morally disgusting.	<ul style="list-style-type: none"> − Disgust + Fascination 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Detachment <input checked="" type="checkbox"/> Safety-zone
 <i>The sacrificing</i>	Giving up current, temporary comfort or safety and being proud about it.	<ul style="list-style-type: none"> − Reluctance + Pride 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Perspective <input checked="" type="checkbox"/> Detachment <input checked="" type="checkbox"/> Control
 <i>The indulging</i>	A liberation from ethics and conventions that make people seek out pleasure.	<ul style="list-style-type: none"> − Shame + Desire 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Detachment <input checked="" type="checkbox"/> Safety-zone <input checked="" type="checkbox"/> Control
 <i>The unreachable</i>	A bittersweet desire for something that is currently or permanently out of reach.	<ul style="list-style-type: none"> − Longing + Dreaminess 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Control <input checked="" type="checkbox"/> Detachment <input checked="" type="checkbox"/>
 <i>The sentimental</i>	A touching experience that makes people perceive the world as a bit more beautiful.	<ul style="list-style-type: none"> − Poignancy + Enchantment 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Perspective <input checked="" type="checkbox"/> Detachment

Figure 18: Rich quality archetypes
Source: Adapted from Desmet & Fokkinga (2013)



visual flow



You might ask:

How is the relation of fashion and emotions?

Author

The power of fashion is not only over what others see of us but also over ourselves. Having a specific outfit on can be sentimental and influence behavior. There is a thought-provoking theory by Hajo Adam and Adam Galinsky (2012) about Enclothed Cognition. Their approach describes how clothes influence the psychological processes of the wearer. To test the argument, they analyzed the effects of wearing a lab coat, associated with attention and carefulness. In their study, whoever wore the piece described as a doctor's coat, increased attention. On the other hand, those who wore the same piece but indicated as a painter's coat and who only had it in front without putting it on did not have this change of behavior. Their findings relate to how the symbolic meaning of a garment can influence the physical experience of wearing it.



Maria Raveendran, 2018

We all have our own personal lab coats. We all have things that when we put them on, we feel invincible.

Author

The way people experience fashionable emotions is a limitless field of psychological study. We can see, for example, Desmet & Fokkinga's rich quality archetypes in sacrificing women who have used uncomfortable corsets all their life to fit in society codes. Or the eerie/ grotesque feeling that comes from alien beauty.

Check Fecal Matter on Instagram @matieresfecales



discussion



DESIGN FOR THE EXPERIENCE

It is critical to emphasize that experiences cannot be designed because, as stated by Benyon (2014) “it is individuals and groups who have the experience.” Yet, it is possible to design for experiences. While designers can create products, services, and environments, they cannot control the entire experience as it is subjective and influenced by the user’s perceptions, emotions, and context.

Given that people require information in order to perform activities, design can guide the interaction through intuitive, meaningful, and aesthetically pleasing instructions. Whether it’s through more obvious forms like text and images, or through shapes, colors, and other resources. Therefore, designers can only design for the intended experience and hope that the user has a positive experience.

Author

INPUT: Explain design for fashion experiences

Generated with ChatGPT, 21/02/2023

Design for fashion experiences is an approach that focuses on creating engaging and memorable experiences for consumers through fashion. This approach considers not only the aesthetics and functionality of fashion products, but also the sensory, emotional, and social aspects of the fashion experience. Design for fashion experiences involves a multidisciplinary approach that draws from various fields, including fashion design, product design, interior design, and marketing. It requires an in-depth understanding of consumer behavior and preferences, as well as an ability to anticipate and create experiences that meet the needs and desires of different types of consumers. Design for fashion experiences can be used to create immersive retail environments, interactive fashion events, and engaging digital experiences that go beyond traditional product offerings. By creating memorable and positive fashion experiences, designers and brands can build deeper connections with their customers and increase their brand loyalty and engagement.

Regarding his levels of emotional response (visceral, behavioral, and reflective), Norman (2013) has also developed a model based on human actions when pursuing a goal. The image (see next page) translates The Seven Stages of Action Cycle condensed with “Design Aids”, that are, according to the author, questions that a user should be able to answer at each level during the interaction with any designed product, service, or system.

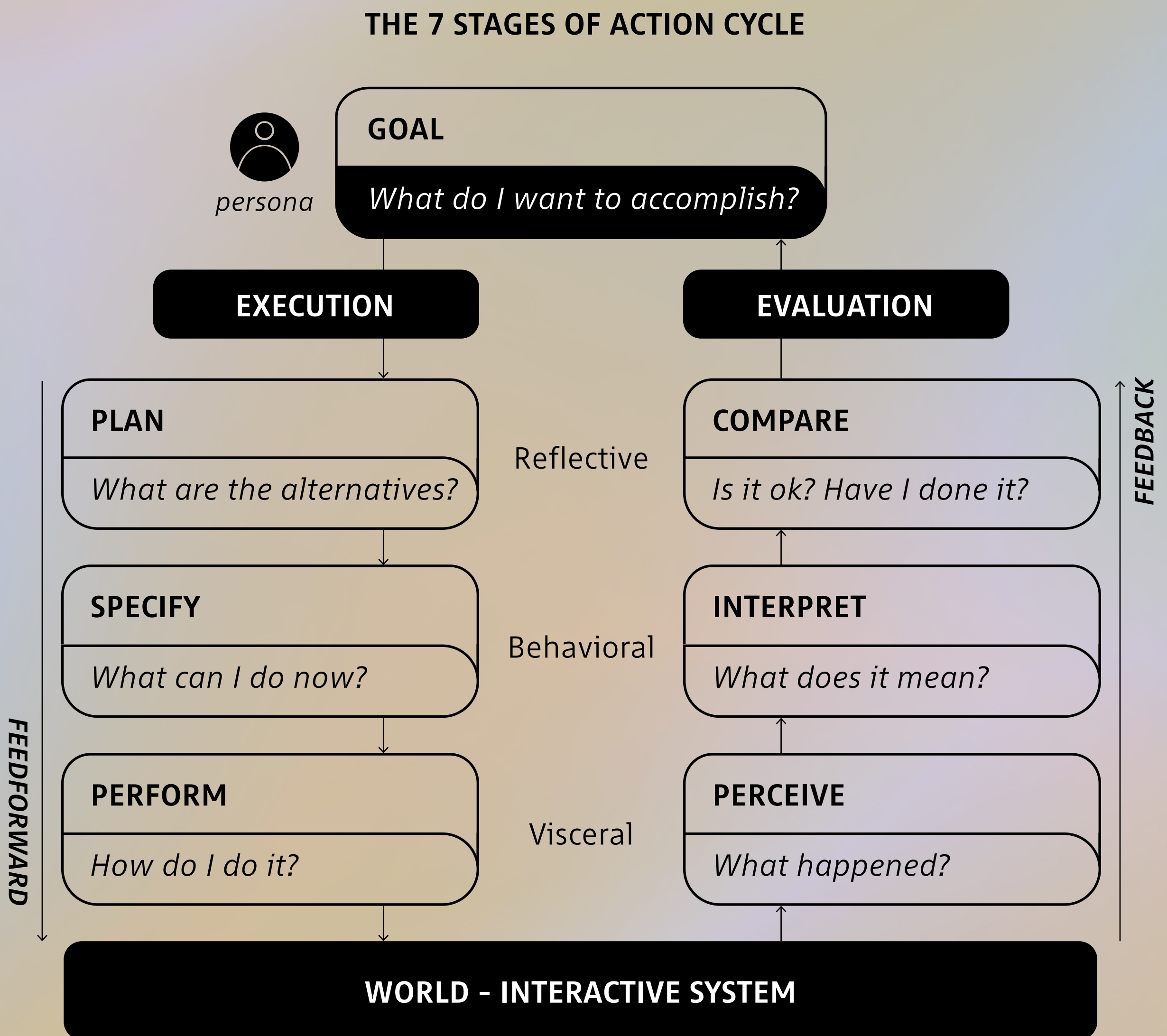


Figure 19: The Seven Stages of Action Cycle as Design Aids.
Source: Author, adapted from Norman (2013)

This model provided Norman with insights into seven fundamental design principles: discoverability, feedback, conceptual model, affordances, signifiers, mappings, and constraints.

Discoverability

make it easy to discover what to do with a product

Feedback

communicate action results and options in case of error

Conceptual model

display all the information needed to understand and control the interaction

Affordances

make it possible to perceive and execute desired actions

Signifiers

use text or sensible elements to provide easy information and feedback

Mappings

create good maps of the system to guarantee that all controls will work

Constraints

use physical, logical, semantic, and cultural constraints to guide actions

Figure 20: The Seven Design Principles. Source: Author, adapted from Norman (2013)



visual flow



Applying those principles is quite intuitive when we adopt a holistic approach. Yet, depending on the powers that influence a person's perception of the interaction, not all of Norman's inquiries or principles might apply, especially to such a psychological phenomenon as fashion. In the next chapter, we analyze pieces of fashion experience and, based on the Anatomy of Experience framework, identify the questions to answer and design opportunities guided by those principles.



PIECES OF FASHION EXPERIENCE (FX)

FASHION AS EXPERIENCE

In the last chapter, we saw that beneficial experiences do not come only from aesthetics, but also from affordances, meaning, and usability. With the connection of those components, design artifacts can go beyond beauty, create attachment, and last longer.

Although long-lasting is not always the purpose of fashion, we live with the consequences of careless industrialization and overproduction, so we must find sustainable solutions. The first step is to separate the need for novelty from the need for clothing. Jennifer Craik (1994) argues that even though history concentrates on the elite, fashion behavior is not so much influenced by the upper class as it is by culture. The author questions the “trickle-down” theory, which holds that fashion is solely dictated by the upper class. Because successful clothing codes are those that meet everyday needs, fashion becomes less exclusive, and the “trickle-up” effect, with new trends emerging from the streets, becomes even more influential. Politics, culture, comfort, and personality are the factors that matter the most. In Craik’s words, “all fashion systems demonstrate the cultural politics of their milieu.”

Teunissen et al. (2014) have a particular reflection on new types of fashion experiences in “The Future of Fashion is Now”. For them, “clothing tells a story that reveals the vestiges and emotions of its owner”. Thus, there is a very intimate relationship between the dress and the wearer.

Modern designers are aware of it. They merge local resources and craftsmanship with technology to create meaningful business models. A talk with Adele Zavagno explains this experiential approach in her upcycling project Offbeat District.

Adele Zavagno - Offbeat District

@offbeatdistrict 

interview

Adele Zavagno is co-founder of the Offbeat District, an Italian brand for upcycling and slow fashion artisanship. She experiments with digital technologies and researches ways to optimize the upcycling process. She started the project in 2020 by collecting material from friends and her fashion school to make garments and accessories. In 2021 she made a few product drops and now she is developing the brand as thesis research.

Adele Z.

I know most people that work with upcycling buy thrifted stuff from stores, which is cool, but I think we can also work in our community. We can make them participate, being part of the process somehow. I wanted to make a connection with people that live in my city and they are really happy to donate.



interview

Author

Author: Could you tell me more about your digital strategy and how did you start thinking about it?

Adele Z.

I am not exactly great at tailoring, so it really helps a lot. We don't learn a lot about pattern-making in fashion school so I made a lot of mistakes and had to make a lot of corrections. When I started to use CLO3D, it saved my life because I could make a prototype before actually sewing or cutting. This is very different from traditional fashion because you don't have a lot of materials available. Everything you use is one-of-a-kind. When you sew something is really hard to go back to the original or change its shape and do a second prototype because the material gets worse every time you work with it.

Another thing that I find useful is about communicating to people about what I do. This is important even if I don't have a lot of time to experiment with it. It takes so much to create the prototype and all the design process, I almost have no time to think about how to present it. But I am working on that now. So basically I created a 3D model, so I have a preview of the shape and the color combinations of the materials that I have. I use that to prototype in real life and once I am happy with it, I use the same model to create maybe a filter on Instagram so people can see it.

The statistics of my filters say they have been used quite a lot. I didn't have the time to talk to those people yet, but it's something I want to do. So far I used 3D models for bags that you can place on a table, for example.

v



interview

Author

Did you think about also selling your digital twins?

Adele Z.

I feel that the things that I create don't have the same surprise effect as the digital fashion that brands are selling right now, like these crazy materials and animations. I also don't need that in my digital twins, so far.

Author

How do you see the importance of digital transformation in supporting your business?

Adele Z.

I'm building a website now. The biggest help of digital technologies in my project is to track everything that happens in manufacturing the garment. So for example, I created a clone of an old jacket I had, because I like its shape. For the lining, I used fabric scraps to create the quilt and on the back, I placed an NFC tag. You can remove it to wash, but it's also waterproof. When you approximate it to your phone, it opens a link to the website, where I want to put a digital label of the garment. That is how the digital and physical will get together. In the digital label, I can use the digital model too, but trustability of materials and manufacturing is more important to me now.

I want the garment to be able to carry some information with it. So even if you donate it in the future you can still access some information. Because it is super hard to maintain this after a lifecycle of the product. I'm using these digital technologies, so the information stays there. It also helps with pattern grading, because it takes so much time in real life.

I think digital technologies will be helpful for individual designers and artisans to speed up their process and make it cheaper in the end.



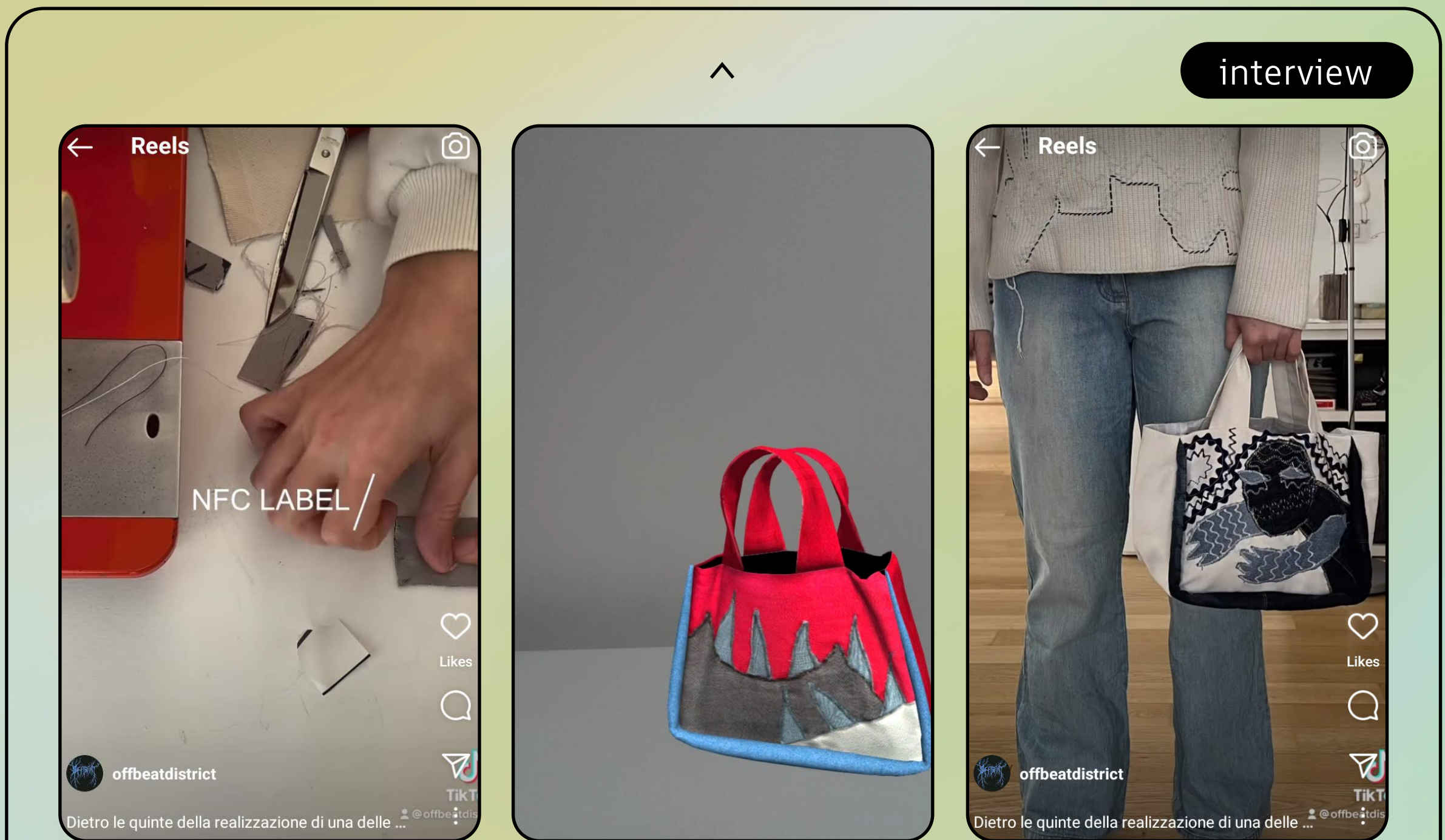


Figure 21: NFC label, digital twin Instagram filter and final piece.
Source: @offbeatistrict on Instagram

Author

What is the purpose of the website?

Adele Z.

I want to build value and not focus on pushing sales. It will be an e-commerce where you can see the whole process and a database of what I've done so far. I'm making some tutorials, like open-source design. I believe that, if I build the right knowledge, it can be taught to other people. I don't want to be a brand that is doing some kind of magic, keeping the knowledge to myself. It doesn't help sustainability in the end. With the digital label, I want people to be able to take care of the product or repair it in the future.

Author

Finally, how do you believe digital transformation is a great deal for fashion?





interview

Adele Z.

I think the best deal is because you can do a lot of tests, and it allows you to have a good workflow, especially if you don't have a big team working for you. Big companies have many departments taking care of different parts of the process, and everyone has their own experience in specific fields. Of course it's important, but smaller brands instead benefit from digital transformation because they can take care of a lot of aspects of the project, even in one or two people.

I also wanted to create digital twins to create an archive. That was one of the main reasons I started it. I completely lost track of some of the things I did but with digital twins, I can also take note of the upcycling process I used in every part of the garment. So I'm building some knowledge for the future.



discussion



Author

INPUT: What makes people most frustrated about fashion?

Generated with ChatGPT, 27/02/2023

There are several things that can frustrate people about fashion, including:

Lack of inclusivity: People may feel frustrated when they can't find clothes or styles that cater to their body type, skin tone, or cultural background. Fashion can sometimes feel exclusive, and many people feel left out when they can't find clothes that fit them or their style.





Generated with ChatGPT, 27/02/2023

Fast fashion: Fast fashion is the practice of producing cheap, trendy clothes quickly, and often at the expense of quality and worker's rights. Fast fashion can be frustrating for people who care about sustainability and ethical fashion, as it can contribute to environmental degradation and human exploitation.

Size and fit: Finding clothes that fit well can be a challenge for many people, especially if they fall outside of the "standard" size range. Limited sizing options can make shopping frustrating and time-consuming.

High prices: High fashion prices can also be a source of frustration for some people, particularly those who feel that they are being priced out of certain brands or styles.

Pressure to conform: Fashion can also be frustrating for those who feel pressure to conform to certain beauty standards or trends. This pressure can be particularly strong on social media, where influencers and celebrities often set the tone for what's considered "in" or "out" of fashion.



discussion



Back to the need for novelty, fashion is much more than clothes. It is an oscillating language of desire and a profitable form of business that also affects other industry sectors. In fact, Lipovestky (2009) stands that fashion has no specific content or object of its own, but it is a social device defined by temporality that can arouse many aspects of the collective life, e. g. art, architecture, manners, culture, and ideas.

In the current chapter, we identify and analyze this phenomenon as different pieces that can relate direct or indirectly to clothing systems, but with them as the research focus. The wear, the virtual wear, the show, the communication, and the shopping experiences are events that can stand alone or, better, compose an omni-space strategy. In all cases, we identify experiential gaps and frustrations but one point stands out as a motivator for change and improvements: the digital factor.



Figure 22: Pieces of Fashion Experience and the digital factor.
Source: Author

The digital factor

“The future of fashion is digital” has become a common slogan. According to the State of Fashion report of 2022, digital is the biggest opportunity for growth in the fashion industry.

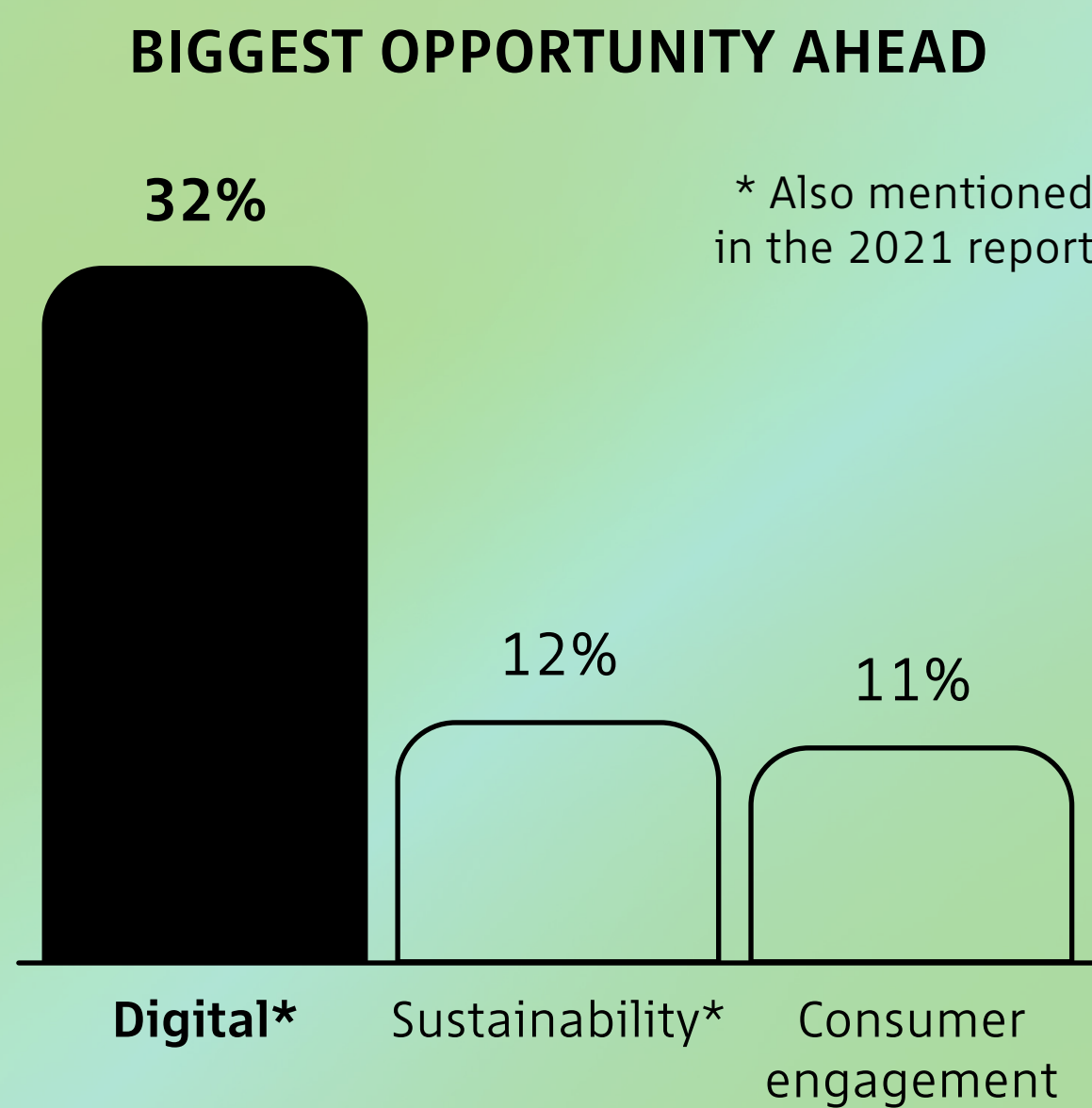


Figure 23: Biggest opportunities in the fashion industry.
Source: State of Fashion report, BOF & McKinsey (2022)

You might ask:

But what does it mean?

To the Cambridge Dictionary, it is a binary system of 0 and 1, i.e. a series of two unseen numbers that can communicate anything. Our own selves became extended by so many digital appliances that we live in a collision of spaces. It is not easy to interpret the “biggest opportunity” but we for sure see many gaps in online and web experiences, principally in fashion.

digital

(Cambridge Dictionary, 3)

adjective

recording or storing information as a series of the numbers 1 and 0, to show that a signal is present or absent

using a system that can be used by a computer and other electronic equipment, in which information is sent and received in electronic form as a series of the numbers 1 and 0



visual flow



As a phenomenon, fashion has its artistic value much more explored than accessibility and usability in the physical space. At the same time, most brands' websites keep missing a good user experience and the “je ne sais quoi” effect. Lack of enchantment would not be at all bad if the online experience had a concrete strategy and easy navigation.

Cinzia Magnani (2022), a fashion designer and front-end developer, analyzed some websites for the article “Revisiting Fashion Online: The Past, Present, and Future of Immersive Fashion Digital Experiences”. She concluded that, contrary to the physical experience, many fashion brands have similar and stagnant homepages. In her words:



Cinzia Magnani, 2022

our offline fashion experience is dramatically different from this static and repetitive framework. On the catwalk, or in shop windows, we hardly ever witness similar experiences across brands.

In the article, Magnani also suggests detaching the first impact of the brand to be more “magical” while e-commerce could stay focused on sales. On the one hand, coding is becoming easier to implement in more creative ways, engaging customers deeply into the brand values. Besides, proposing interactivity and gamification can be a measure also for online shopping, incorporating the audience as more than mere buyers.

Cinzia Magnani - Designer and Frontend Developer

interview

Magnani is an Italian designer currently based in the Netherlands. Her interest in the digital spheres of fashion led her to study development and move to digital design. She has interesting perceptions of the different approaches in both countries, where fashion and technology cultures are very distinct. The interview follows:

Author

You went from a fashion background to digital development. What made you change careers?

Cinzia M.

The change happened in stages in some years. I started by studying fashion design at the Politecnico of Milano. By the end of my study there, I understood I wanted to work in fashion, but not by doing clothes.

So, I decided to study fashion strategy at Artez. I liked the combination of fashion and technology, and for my internship I ended up a bit by chance in a digital company.

There, I discovered the digital world and focused my master thesis on sensorial experiences in the online realm of fashion. I collaborated with developers to make my master project. After graduating, I wanted to continue my project by learning how to code it myself.



interview

Cinzia M.

During the coronavirus pandemic, I started learning how to code, never went back to my master's project, but still learnt a lot.

Afterwards, I did a traineeship in UX / UI design, and now I'm working for my company as a frontend developer and ux/ui designer.

Author

Why do you think fashion brands still struggle so much with their web and online experiences?

Cinzia M.

At the beginning, I think fashion was truly afraid of technology. This was the case till 2018/2019. Of course, the pandemic changed things. Social distancing made it compulsory to give the online realm some attention.

I have the impression that there aren't many brands who push themselves and try to truly experiment with the online realm, and let fantasy run wild.

To some extent, many technologies are still picking up and only now there is enough maturity to actually start implementing things that before required too much power.

Author

From your experience of digital transformation, do you believe it is possible for the fashion industry to embrace this cultural change? How and when do you see this happening?



interview

Cinzia M.

To a certain extent, cultural change has started in the last few years. First, to seize the opportunity of e-commerce, and then with covid.

Maybe with further developments in the tech field and more intertwinement with the creative industries in general, it will become easier for fashion to get towards creating truly immersive experiences.

Working in the tech field, made me also understand that it's in the very nature of technology to make things more efficient and repetitive.

But in general, we need more daring brands like Gucci.

Author

And finally, as the traditional fashion industry doesn't always have an inclusive and co-creative approach, how do you see their entry into a decentralized Web3?

Cinzia M.

That's a very sharp difference between fashion and tech fields.

In the design field, and fashion in particular, everything is very cliquy and people really protect their designs.



interview

Cinzia M.

The tech field is different. A lot is being built as open source and there is still a very collaborative approach. Developers help each other rather than hiding their code from each other.

In a sense, this goes against the fashion principle of trickle down.

But maybe fashion will learn how to find its balance within its current and future approach.

<

discussion

>

Younger generations easily spend time and money on games and immersive platforms. They are also sometimes the co-creators of these platforms or their digital assets. According to the Metaverse Fashion Trends report from Roblox and Parsons (2022), people have been socializing and expressing their fashion inside the platform for more than a decade.

No wonder that big determinants in the Web 3 equation are those influenced by informational technologies since birth, the digital natives. Now we, as users of the Internet, can claim our power over data privacy and web manipulation through the blockchain. Digital transformation will be a new massive cultural shift, as happened with the beginnings of the Internet and e-commerce. There is, nonetheless, a demand for business reconfiguration and placement of the customer at the center of the process, something not always practiced by the industry in question. All the buzz with the Metaverse is valid towards this fluctuation, but simply holding a flag in this virtual space does nothing for the user if the rest of the experience is incongruent.

WEB STAGES

1989 - 2005



Web 1 - reading the web
passively reading and sharing information

2005 - now



Web 2 - interacting w/ the web
social connections and content creation

2022 +



Web 3 - owning the web
amplified decentralization, secure and better connected with the blockchain

Figure 24: Timeline with the stages of the World Wide Web.
Source: Adapted from WGSN



visual flow



You might ask:

Why should we consider the digital factor for fashion?

Author

Whether to optimize processes or strengthen customer relationships, humanity's digital transformation is undeniable. Anyone with access to the Internet has a digital presence and humans are more and more dependent on technological devices. The ace in the hole is how to turn this dependency around and become masters of this realm.

Fast (and ultra-fast) fashion has taken advantage of online platforms to research demands and spread the idea of a democratized fashion while other systems did not. It turned out to be very unsustainable. We need to encourage new changes and use digital transformation as a positive factor for sustainable development. With the digital factor, fashion can be more than a form of expression, it becomes an extension of ourselves across spaces.





Author

Of course, we cannot commit the same errors of the past with unsustainable business models. Digital fashion also has its degrees of damage. To cite some, the need for an enormous amount of energy and computing power, the pressure to keep up and produce so much every day, and the psychological effects of absorbing dense transit of information. For sure systems can apply solutions for these issues if they want. And fashion can finally be democratic.

You might ask:

And why is the metaverse so compelling for this industry?

Matthew Ball (cited in Collins & Li, 2023)

(The metaverse is) a massively scaled and interoperable network of real-time rendered 3D virtual worlds that can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence and with continuity of data, such as identity, history, entitlements, objects, communications and payments.

Author

As a concept, it is not new, nor only for sci-fi novels anymore. This phygital space is an under-explored layer of reality with huge creative, social, and economic potential.

With the blockchain, traditional issues such as copyright, authenticity, and ownership have legal solutions through encrypted tokens and NFTs, for example. Moreover, many experts are working to close the threads of interoperability and decentralization. The metaverse seems to finally be a possible scenario for the near future.



discussion



Still, of course, we cannot forget the needs in the physical space.

Most of our life and our bodies are still physical. But from now on, covering a human body can focus on extended performance and eco-friendliness while the ephemeral can transit between spaces. As exemplified by Bertola & Teunissen (2018), “we now might develop a new (dual) form of self-expression very likely to be blended in the user experience and innovative technologies/ business models associated to (fashion) 4.0.” The Netflix documentary “The Future Of Fashion” (2022) presents believable future scenarios for this.

The Future Of: Fashion - Netflix (2022)

documentary

“The Future of Fashion” is an episode of a documentary series on Netflix that explores the forthcoming world of fashion and the creative minds behind some of the industry’s most innovative designs. It brings to light the consequences of social media in the overproduction and consumerism of fast fashion products, especially synthetic materials and the spread of microplastics. Interviews with leaders and designers who are pushing the boundaries provide an overview of the fashion industry’s current state and where it is headed, exploring topics like sustainability, extended reality, inclusivity, and the intersection of physical and digital spaces. With a global perspective, it examines the role of technology in shaping scenarios for the near and far future.



IN THE NEAR FUTURE

We can virtually interact with potential products. Companies avoid the expenses of sampling processes while users can wear virtual clothes in digital spaces. Physical clothes can focus on eco-friendly solutions such as slow fashion, upcycling, and biomaterials.



IN THE FAR FUTURE

We will be able to 3D print personalized designs at home or in a local shop. These pieces will be made to fit the user’s scanned body with sustainable biodegradable materials. AR will continue to be important in experimenting with styles and 3D printing will turn digital clothes into reality.



case studies



THE WEAR EXPERIENCE

“There is no such thing as the average person,” wrote Don Norman in his book *The Design of Everyday Things* (2013). People need clothes to fit their bodies, not their bodies to fit in clothes. And people come in different sizes and shapes. Even if it brings a big challenge for designers, the best way is not always to standardize, but to listen to their customers and create forms for adaptation.

Touching and being touched, sensing the surfaces of the body interacting with the exterior is what makes people aware of their physicality. It is a needed form of engagement for physical and mental development. Clothes are, in fact, the medium we have between ourselves and the space around us. Manipulating the technologies and the context for this medium is what defines if this close interaction is beneficial or complicated. Some possibilities for the media components of clothing systems constitute:

CLOTHING AS MEDIA

TECHNOLOGIES

- fabrics
- trims
- patterns
- pockets
- belts
- labels
- electronics
- ...

CONTEXTS

- dress codes
- comfort
- freedom of speech
- performance
- affordability
- inclusivity
- ...

Figure 25: Examples of clothing as media resource.
Source: Author



visual flow



Philip Sparks (2020) challenges the concept of what is a good fit in his research *Missed Fit*. After studying exaggerated distortions of fit principles, the tailor moved his professional vision from the external imposition of a set of rules to focusing much more on how the person feels inside a garment. Sparks says it is still relevant to work with updated anthropometric data, but recognizes that the systemization of fashion is not inclusive.

Missed fit - Philip Sparks

exhibition

By questioning how a wearer feels inside a garment, Missed Fit investigates the process of designing clothes with the sense of fitting in. Phillip Sparks developed unconventional versions of classic pieces, e.g. the shirt, and presented them to the public divided into four questioning sections:

How do you find fit?

How do you fit in?

How do you feel when someone who doesn't fit in enters the room?

How do you experience fit?

After seven days of public interaction, the main conclusion was the overlapping of personal identity and body proportions while experiencing fit. Sparks now defends a more experiential and individual approach to finding fit.



Figure 26 and 27: Exaggerated fit experimentations.
Source: Sparks, 2020



case studies



Philip Sparks, 2020

As a researcher, I learned that good fit is determined by the wearer and is different for every individual.

From Missed Fit, we see how designers should focus on the individual comfort experience before the external perception of fit. Well-being is a complicated inconstant in fashion, too many times sacrificed for the social pressures of appearances. Yet, it is not impossible to create beautiful pieces that are wearable and fashionable at the same time. De Looze & Vink (2008) say that products are not comfortable or uncomfortable, but they can become with use. Then, why not test the wearer's experience during first impressions? Why not use this moment to discover what makes it become comfortable or the opposite?

Great fashion designers like "cloth engineer" Jean Muir, surrealist Elsa Schiaparelli, and Nanni Strada with her "ethnological" fashion, made their names from researching the wear experience as much as the outside look of their creations. Among many others, they had a particular way to revolutionize and empower different women in fashion. Nowadays, we have designers and brands caring for inclusivity. Different body shapes or disabilities should not be an obstacle to living this kind of experience in the best way. And that is what artist Michaela Stark and the lingerie brand Liberare work for.

Miriam Stoppard (Women's Journal, 1991)

I wear Jean Muir Clothes, they don't wear me. They bring you confidence, an inner sureness.

Nanni Strada (Franceschini, 2014)

My intention, then and now, is to untie the dress from its tailoring origins and from its subjection to the body and to fashion and its rules. I deal with the creation of dresses with a methodological approach typical of industrial design practice."

Furthermore, studies about soft electronic interfaces, like Loomia, able the wear of intelligent interactions. Wearables are a revolution because they connect us with our daily digital extensions through systems such as the Internet of Things. The Teslasuit, for instance, is the materialization of many possibilities a wearable garment can enhance to a human body and mind.

Seemingly, the application of wearable technologies in the fashion field is much behind, still missing some fundamental points like usability and meaning. To another extent, other tech industries, for example, healthcare, wellness, and sports use this kind of technology for meaningful appliances, but unfashionably in most times.

Elsa Schiaparelli: surreal yet practical

designer

One of the most fearless designers of all time, Elsa Schiaparelli was also very innovative. Her playful practicality was obvious since the first “simple” sweater with a knitted *trompe l’œil* bow made her popular. She diffused the use of optical illusion and zippers in high fashion (Uncommon Creators, 2022). Schiaparelli also created versatile capsule collections with reversible easy-to-match pieces for traveling women.

The designer would take her inspiration from walking around the docks while visiting her favorite English pub and eating fish and chips among the sailors. For her, the simplicity of the working class was insightful exactly for the comfort and necessity. (Watt, 2012)



Elsa Schiaparelli (Watt, 2012)

I kept in touch with the needs of women who trusted me and tried to help them find their style.



Figures 28 and 29: Schiaparelli`s bow sweater (up-right) and magazine add presenting the versatile “Constellation Wardrobe” capsule collection from 1946 (down).

Source: Schiaparelli website, n.d.



case studies



Michaela Stark: body morphing

artist/ designer

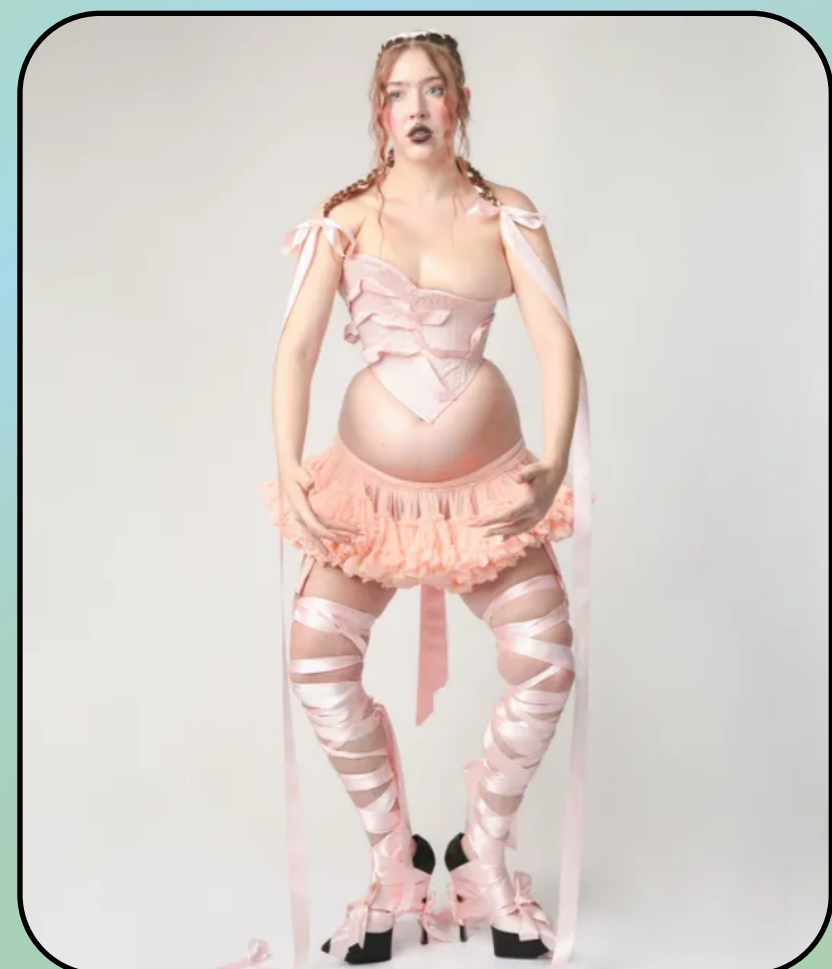


Figures 30: Corset, underwear, and ribbons by Michaela Stark.
Source: Document Journal, 2023

Corsets and structured lingerie have always been a complicated debate surrounding women`s fashion and bodies. From painful “grotesque” beauty to size-inclusivity, Michaela plays a question to the body sculpting qualities of corsets with a reinvented and societal shifting vision. For her collections, she has exquisite attention to the curves of the clients, making tailored pieces and creating lookbooks on possibilities to wear her pieces.

Michaela Stark for The Cut, 2022

Other pieces in my work have to be made in person because they are pieces that are made specifically for the curves of the individual wearer. You have no idea how squishy someone is or how their body moves and works just from measurements alone. But I spent a lot of time on these styles making sure they can be made for anyone.



Figures 31: Self portrait.
Source: The Cut, 2022



case studies



You might ask:

Can we spot good examples of UX design for wearing experiences?

Author

Sportswear is a great industrial example of UX design applied to fashion. In the interest of performance, usability is required even before style, but hardly the aesthetical part is left behind.

In universal and inclusive design, the focus on designing for people with special needs benefits everyone. When a product is accessible, it embraces the main population plus those with special necessities. We see that even in the quite extreme case of Michaela Stark, it is possible to express art and make it adaptable. The key here is providing flexibility beyond standardization.

Wearables are also another example. Because they focus on the interaction with new technologies, the need to test with users is more obvious than for ephemeral dresses. They are more present in functional fields such as sports, wellness, and health care, many times lacking aesthetics and desirability.

The biggest successes are smartwatches and fitness trackers because they have functionalities people use daily and are (almost) as simple as a digital watch. Technologies for interactive electronic fabrics are still under development, and the industry is struggling to figure out how to work such a malleable media interface. When it does, it will open unlimited possibilities.



discussion



Liberare: inclusive lingerie

adaptive brand

"Everyone deserves to feel beautiful." Liberare is an inclusive brand selling functional and fashionable underwear for women with disabilities. With a team of disabled and non-disabled women working closely with their customers, the brand brings innovative openings with magnets and snaps that are much better than traditional bra hooks.



Figure 32: Instagram posts from Liberare.
Source: @liberare.co/ Instagram



case studies



Loomia Electronic Layer: a step for soft electronics

smart fabrics

The sewable and washable electronic material comes in different shapes for use in diverse industries. A flexible circuit, the Loomia Electronic Layer (LEL) can be integrated into textiles to create smart garments. The launch, in 2019, of a heated jacket powered by a plug-and-play rechargeable device showed how Loomia and other e-textiles can fill up a gap in the industry: wearables can be more than only hard accessories (Mcdowell, 2019)



Figure 33: Loomia H1 heated jacket. Source: Mcdowell, 2019

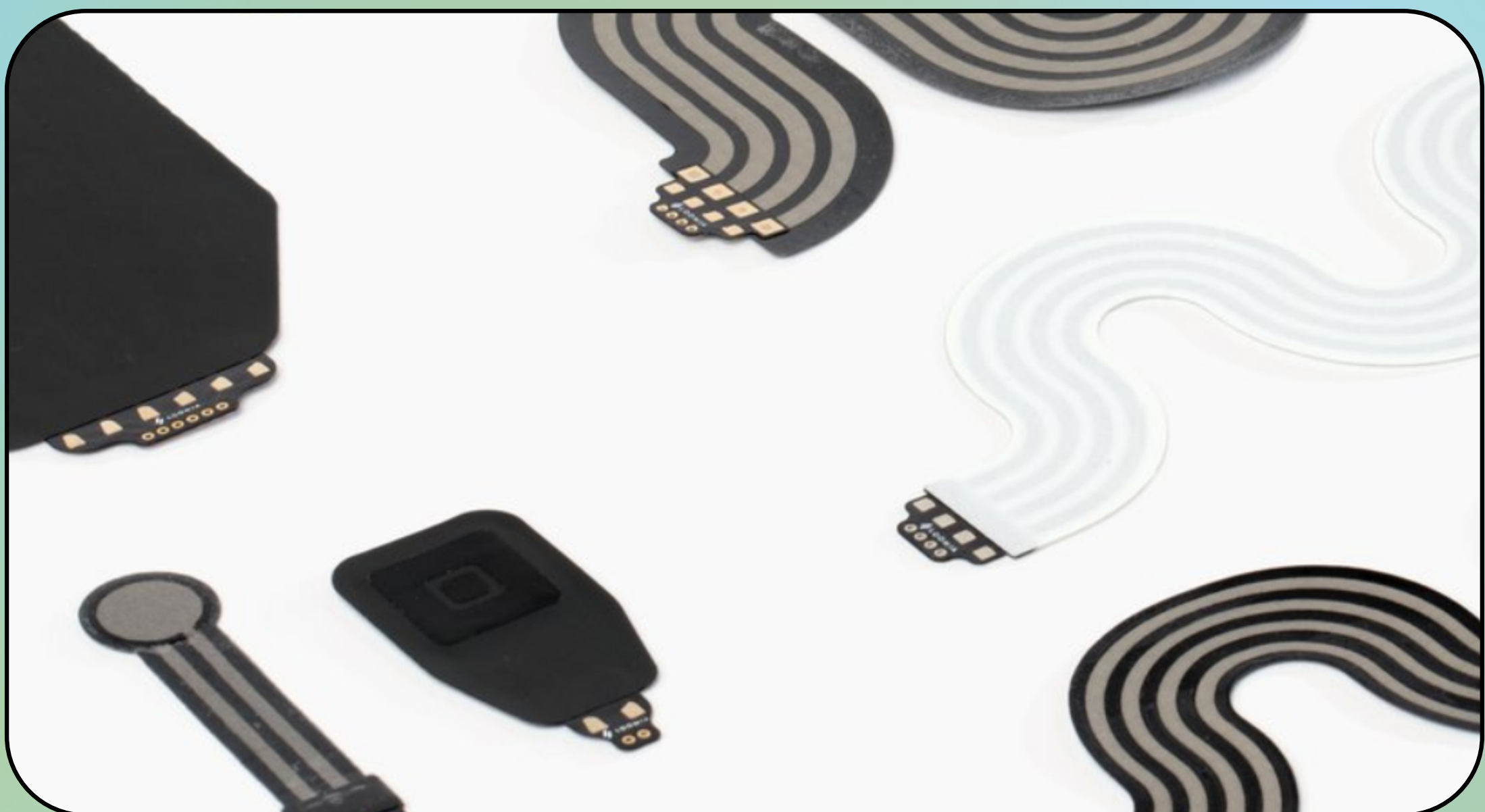


Figure 34: LEL circuit products. Source: Loomia website



case studies



TeslaSuit[Watch video #1](#)teslasuit.io[omnispace](#)

As stated at their website, Teslasuit is a full-body sensory suit that gives haptic feedback to the wearer. It has sensors that detect and transmit biometric, motion, and temperature data, while the feedback technology allows the wearer to feel vibrations, pressure, and temperature changes.

It is intended to provide a more immersive and realistic experience in virtual and augmented reality applications. In gaming, the suit can enhance the sense of touch and in training simulations, it provides a more realistic and immersive experience.

In 2022, Teslasuit partnered with the platform Somnium Space in the arrangement of the first VR fashion show in the metaverse. Using the suit, wearers could also try on the collection inspired by Thierry Mugler and phygitaly experience the catwalk sensation.



Figure 35: Teslasuit and
Source: Teslasuit website

[case studies](#)

To better understand how fashion consumers relate to the wear experience, a qualitative survey was conducted through Google Forms and social media. In total, it got 36 respondents, mostly women (90%) from Latin America (55%) and Europe (35%), from 21 - 55 years old.

QUALITATIVE RESEARCH - wear

insights

95%

Think clothes are easy to match and manipulate

What do you think makes (or could make) clothes easier to wear?

pictures

tips

references

visual instructions

label

trims

versatility

adequate sizes

Thinking about the body first, and self expression later. Maybe a mix but always keeping in mind that the clothes have to dress a body

What makes wearing a specific outfit a good experience?

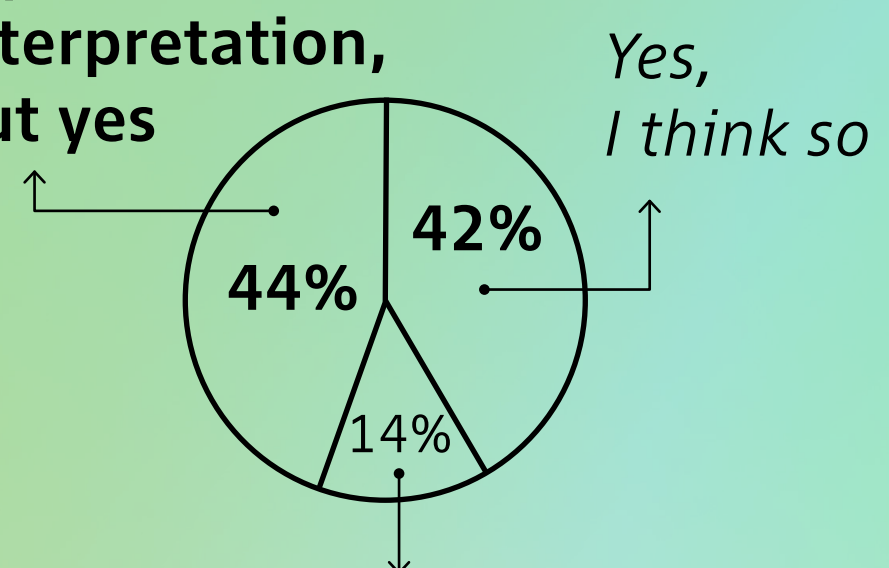
It needs to fulfill my needs, which could be different everyday

When it fits properly, looks cool and I feel comfortable

When it reflects my own style, fits the environment where I'm going

When trying on a new piece, do you always understand how to wear it?

It might be my own interpretation, but yes



Not always, I wish some pieces came with instructions

How do/would you feel if you can't figure out how a piece of clothing works?

Sad, frustrated

Confused and thinking the designer didn't do a great job at designing at least a label with instructions

Really uncomfortable and confused but sometimes it's fun to explore how I could put it on

I would probably lose interest in the piece if it was something too complex to wear

Analysis of common wear experiences today through the anatomy framework

AFFORDANCES

Not a problem for most fashion products, since users might use their interpretation and infer new affordances

USABILITY

Considering the lack of inclusivity, fashionable clothes are not always easy or comfortable to wear

AESTHETICS

The main component for fashion products, aesthetics is not a problem unless for some wearables or functional clothes

MEANING

it is highly subjective, but fashion itself can be seen as meaningless for some people

RICH QUALITIES TO BE EXPLORED

thrilling (fright + joy)
eerie (anxiety + fascination)
indulging (shame + desire)

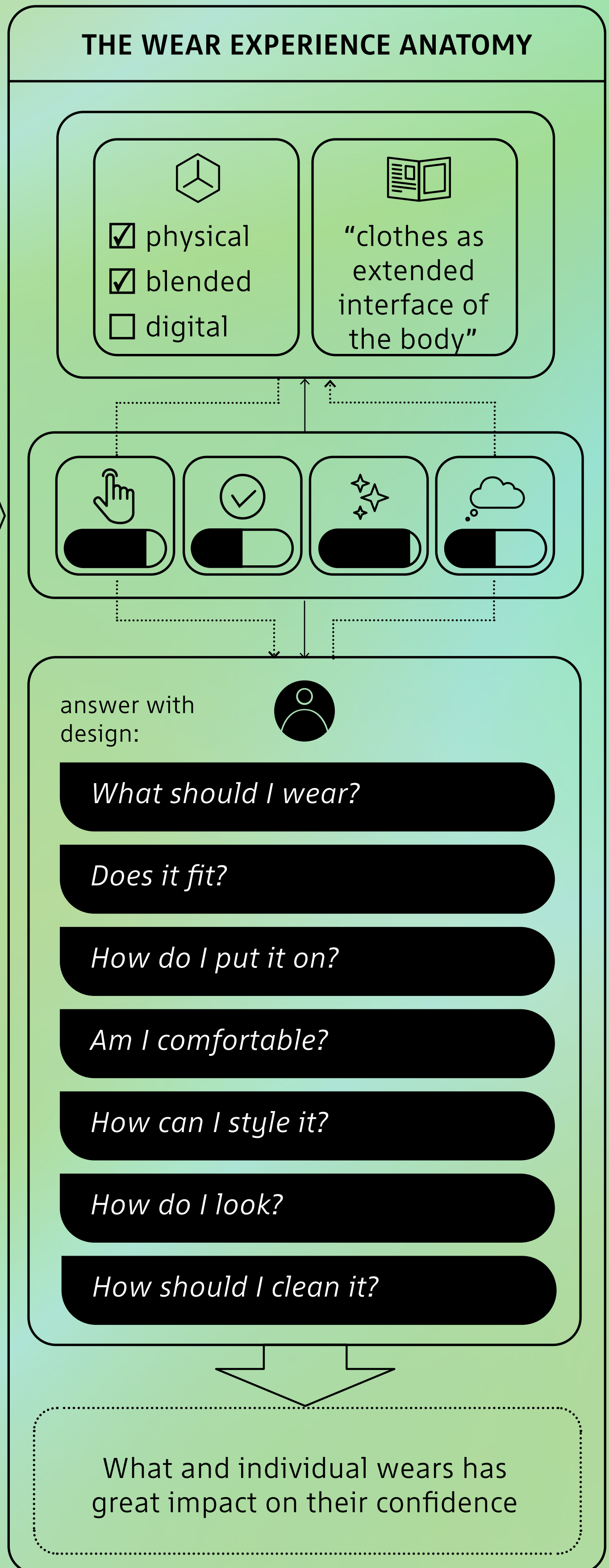


Figure 36: Anatomy of The Wear Experience. Source: Author

GAPS

Some clothes are highly exclusive of bodies that do not fit standarts

There is internalized lack of comfort, which can also be a rich experience (fetish), but is not always planned that way

High rates of over-consumption, especially related to unvaluable and low quality products generated a lack of attachment

DESIGN OPORTUNITIES

DISCOVERABILITY

Add accessible information and functionalities by using the piece itself (affordances and aesthetics) or improving labels

CONCEPTUAL MODEL

Affordances can be the user's interpretation, so allowing creative freedom inspires innovation and versatility

SIGNIFIERS

Combining wellness, sports, entertainment and healthcare elements into fashionable-tech

MAPPINGS

Work the patterns like dimensional maps of real bodies, with accessible cuts and techniques that ease the use by any individual type

CONSTRAINTS

The touch with fabric makes people aware of their bodies, making it possible to engage in rich experiences



visual flow



THE *VIRTUAL* WEAR EXPERIENCE

If the physical wear experience is a complex essay, virtual wear is a question mark. Luke Leitch writes when covering Anrealage's spring 2022 collection for Vogue Runway (see more in The Show Experience), that fashion lays between human psychology and human form with fabrics acting as a façade for both. "Because humans inhabit the "real" world, fashion feels fundamentally analogue - because you can't download a dress, right? And yet increasingly, fashion is migrating with the 5 billion humans who now live partially online to evolve new forms in that "unreal" world." (Leitch, 2022)

Digital fashion is not a new thing. With different codes and meanings, designing skins and accessories for games has been an extended practice for decades. Different from art and luxury, the creation of these digital assets is popularly decentralized, i.e. anyone in the community can do it. With the entrance of top brands in the game, the market of skin trade can grow potentially more.

Game skins: quick overview

[trend](#)

Skins are "in-game graphics that you can apply to your characters in the video game" (Nanda, 2022). You can win a skin by completing challenges or purchase it with real money.

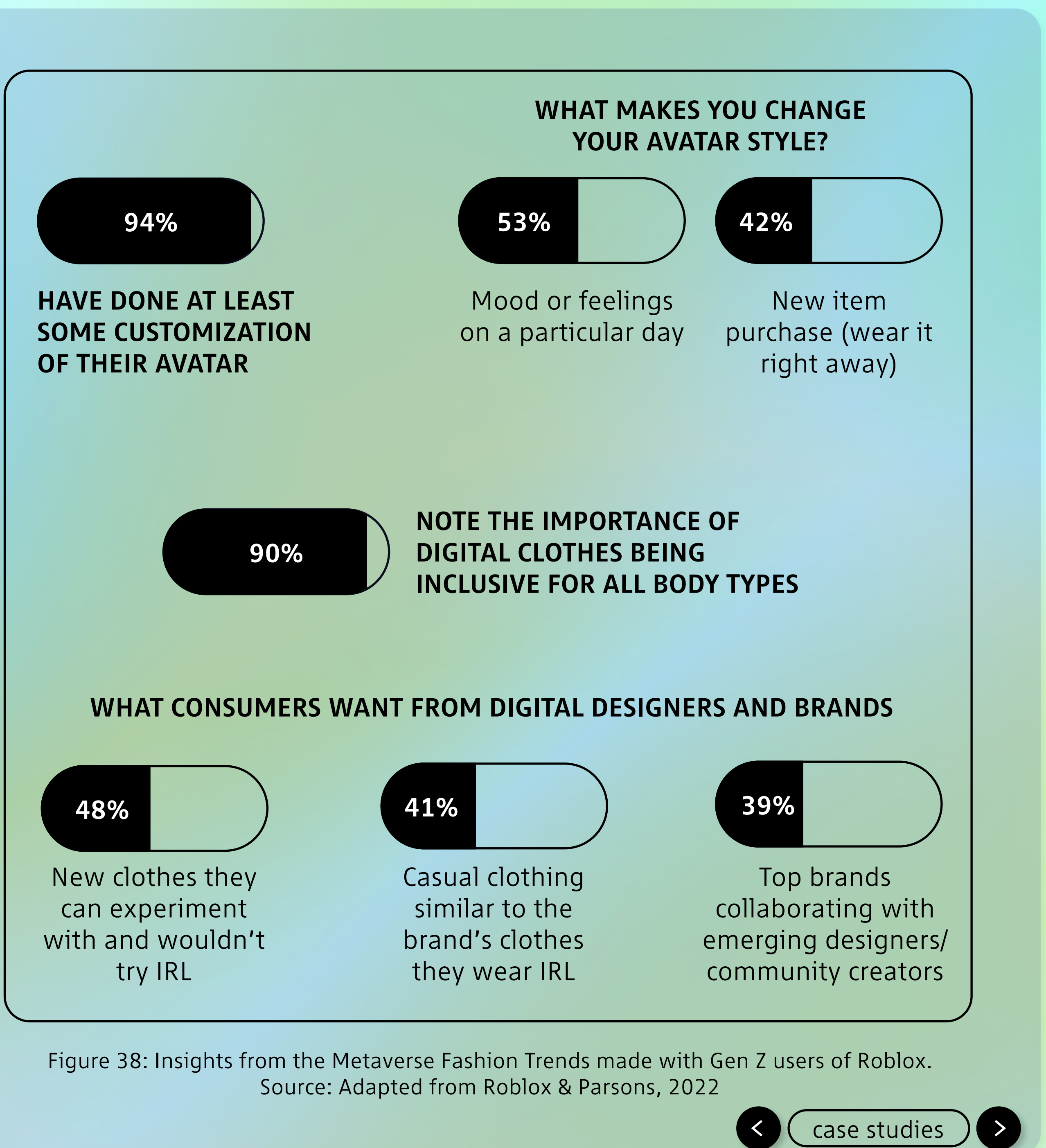
Because of the need for real-time players, many companies switched strategies from selling games to making it available online for free and selling character skins and accessories. This is what happens, for example, with Fortnite and other games in the target for fashion brands. According to Naysmith (2022), the estimated market size for this kind of gaming cosmetics is \$50 billion.



Figure 37: Christmas costumes for Sonic Adventure 2 (2001), one of the first cases of gaming skins. Source: Sonic Retro

[case studies](#)

Social interactions are fashion's main trigger, and online platforms play a significant role in enhancing it. Users are influenced by the digital community as they are in the physical space. For 42% of the Gen Z respondents of Roblox's 2022 trend report, self-expression in the digital space is even more significant than in-real-life (IRL). Moods and feelings influence 51% of them when dressing their avatar. As consumers, they are especially looking for clothes they wouldn't try IRL (48%), branded clothes like what they wear IRL (41%), and collaborations between top brands and community creators (39%). It is important to note that customization and inclusivity are essential for these users, recalling the need for flexibility. Roblox's layered technology is a response to this issue, bringing the possibility for the same piece of clothing to fit all avatar bodies.



Layered Clothing: Roblox's tech for inclusive clothing

flexibility

Since 2022, designers can create hyper-realistic clothes that fit all avatars in the platform, independently of shape or size. It is possible due to the layered clothing technology, which permits pieces to stretch over the avatar's body and other underlayers.



Figure 39: Diversity of digital avatars at Roblox. Source: Roblox & Parsons, 2022

For the Carolina Herrera Spring/Summer 22 collection, a collaboration with Karlie Kloss and Roblox creator @Lovespun, showcased a floral dress worn by the model on both the physical catwalk and on her avatar at the metaverse platform. The digital piece was on sale for only a few hours and now became a collectible item (Roblox & Parsons, 2022).

The piece was developed as a layered clothing and shows how high fashion has a huge value also outside the physical space. Even if it is not their place of expertise, top brands can help on the empowerment of community creation by collaborating with these skilled digital designers.



Figure 40: Physical and digital versions of the Carolina Herrera's dress.
Source: Roblox & Parsons, 2022 (first figure) and @karliekloss



case studies



Brachem & Stübbe (2022) have attempted to differentiate three different ways of wearing digital clothes: assembled, simultaneous and omni-virtual.



Brachem & Stübbe, 2022

While we are perceiving our omni-virtual, assembled, or simultaneously fashioned selves, we try to make sense of the embodiment we are experiencing.

Assembled experience

photo dressing

In this kind of wear experience, there is the addition of a piece of digital garment as a layer to a photo or video (Brachem & Stübbe, 2022). This is made-to-order and less immediate, once there is need for post-production. But it can also be the most emotional by creating surrealistic personal content with non-existent dresses.

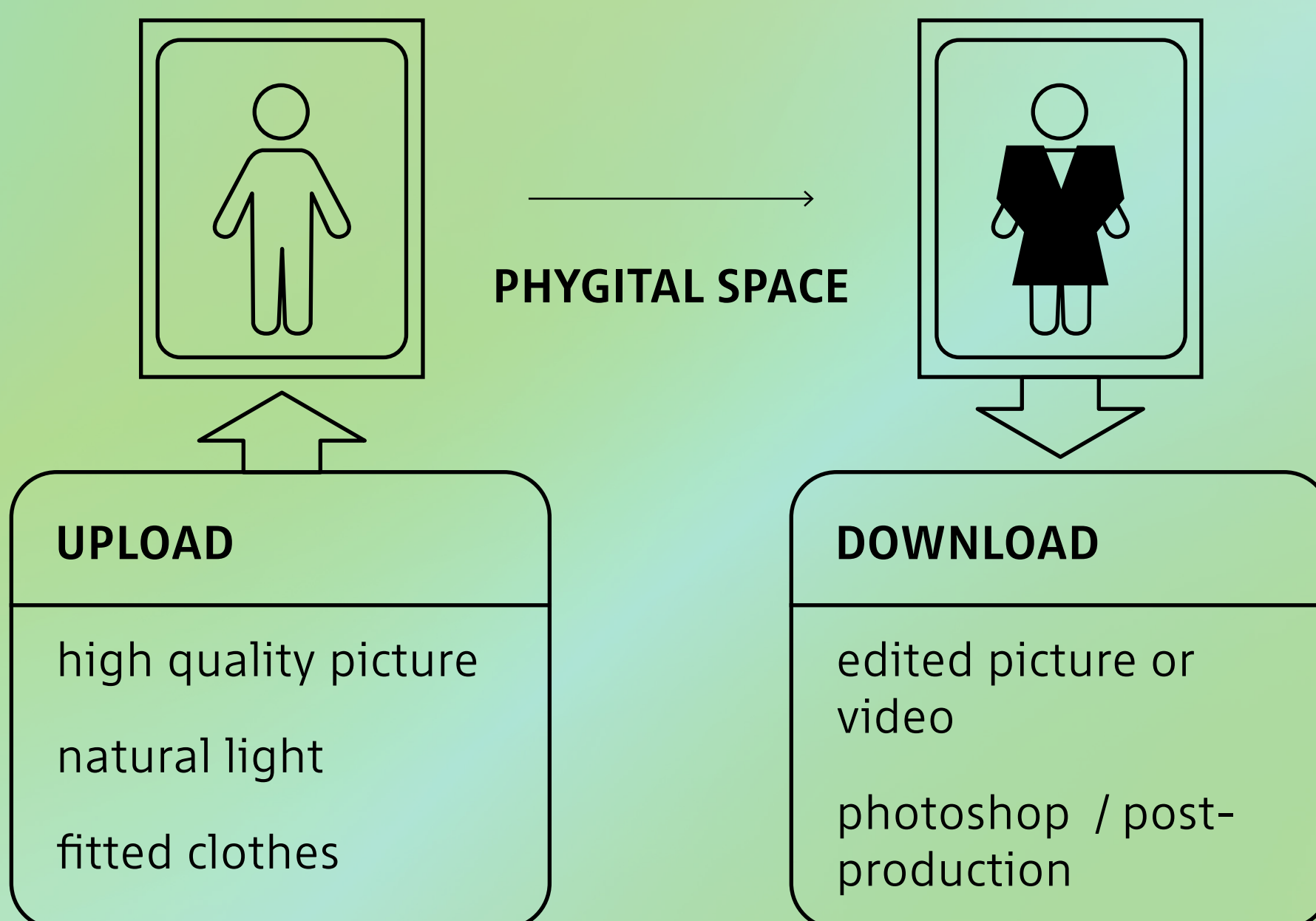


Figure 41: Process of the assembled virtual experience.
Source: Author

Simultaneous experience

AR

This experience represents the try-on of virtual clothes through augmented reality filters or apps. According to Brachem & Stübbe (2022), it combines physical and real perceptions at the same time. Rigid accessories, shoes, and puffy jackets tend to look more realistic than apparel, making the most successful experiences. The biggest challenges are obeying the laws of physics and tracking the target body with accuracy, without colliding or looking like it is flying around the wearer. Fabrics and other malleable simulations are still tricky and under development, but improving day by day. (MCDOWELL, 2021)

**PHYGITAL SPACE -
AR APP OR FILTER**

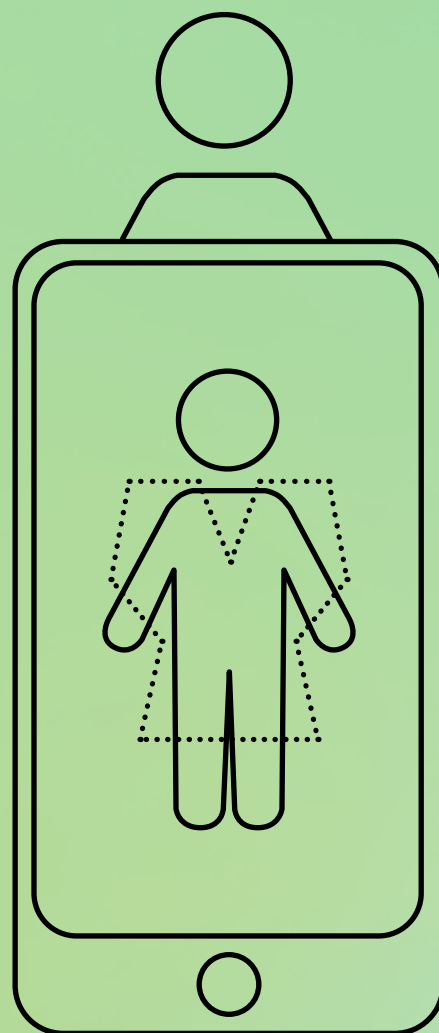


Figure 42: Process of the simultaneous virtual experience.
Source: Author



visual flow



Benoit Pagotto, co-founder of Rtfkt (cited in MCDOWELL, 2021)

The problem is always the same. Fashion brands are doing it just to say, 'I am doing it and innovating', and they are not investing in [the capability] long-term. You need the talent inside [the company]. The talent is with video game people, but video game people don't want to work in fashion.

Safiya Nygaard: I Wore Digital Clothes For A WeekWatch video #2 [↗](#)

Youtuber Saiya Nygaard (2021) has tested both the assembled and simultaneous experiences for one week. She got the pieces from Dress X spending from \$30 USD up to \$1050 USD per look. In her words, the most intriguing part of the experience was to guess how the outfit would look after the photoshop. She also thinks that playing outside reality constraints, e. g. video looks and fantasy, is one of the potential advantages of digital fashion. Yet, it will not replace real fashion in her opinion. Opposed to most of the Instagram positive engagement she shows in the video, the comments on YouTube present a very skeptical public. Arguments are around the bad editing quality and the environmental issues surrounding NFT (non-fungible tokens) minting.

assembled



simultaneous



Figure 43: Assembled and Simultaneous experiences of same look.

Source: Nygaard channel on YouTube, 2021



case studies



Omni - virtual experience

direct to avatar

The direct-to-avatar experience embraces a virtual self completely detached from the physical space. Here, the limitless imagination also extends to our digital bodies. “Will our virtual fashion and our virtual selves remain distinguishable from one another?” (Brachem & Stübbe, 2022)

The Omni-virtual wear includes dressing up for the metaverse. Based on Roblox’s activity in 2022, there were 200 times more fashion creators for the platform than physical fashion designers in the US. This shows the decentralized aspect of digital product creation (DPC) but also how much easier and quick it is to create digital assets.

One of the current challenges is for digital products, NFTs or not, to work across platforms, i. e. interoperability. For the metaverse to work in a seamless way, this “ability to interact, exchange and make use of data and resulting information to enable movement, transactions and participation across systems, platforms, environments and technologies”, needs to operate in various degrees. (Collins & Li, 2023)

It involves various kinds of data, but for the only issue of digital fashion interoperability, solutions such as the Metaverse Converting Service from CLO-SET, can help unify this experience. It offers the conversion of assets made with the software CLO3D for use in various digital spaces such as Roblox, Zepeto, Decentraland, and VR Chat. The process, made through the cloud CLO - SET CONNECT, includes the services of sizing, rigging, level of detail (LoD), and UV mapping.

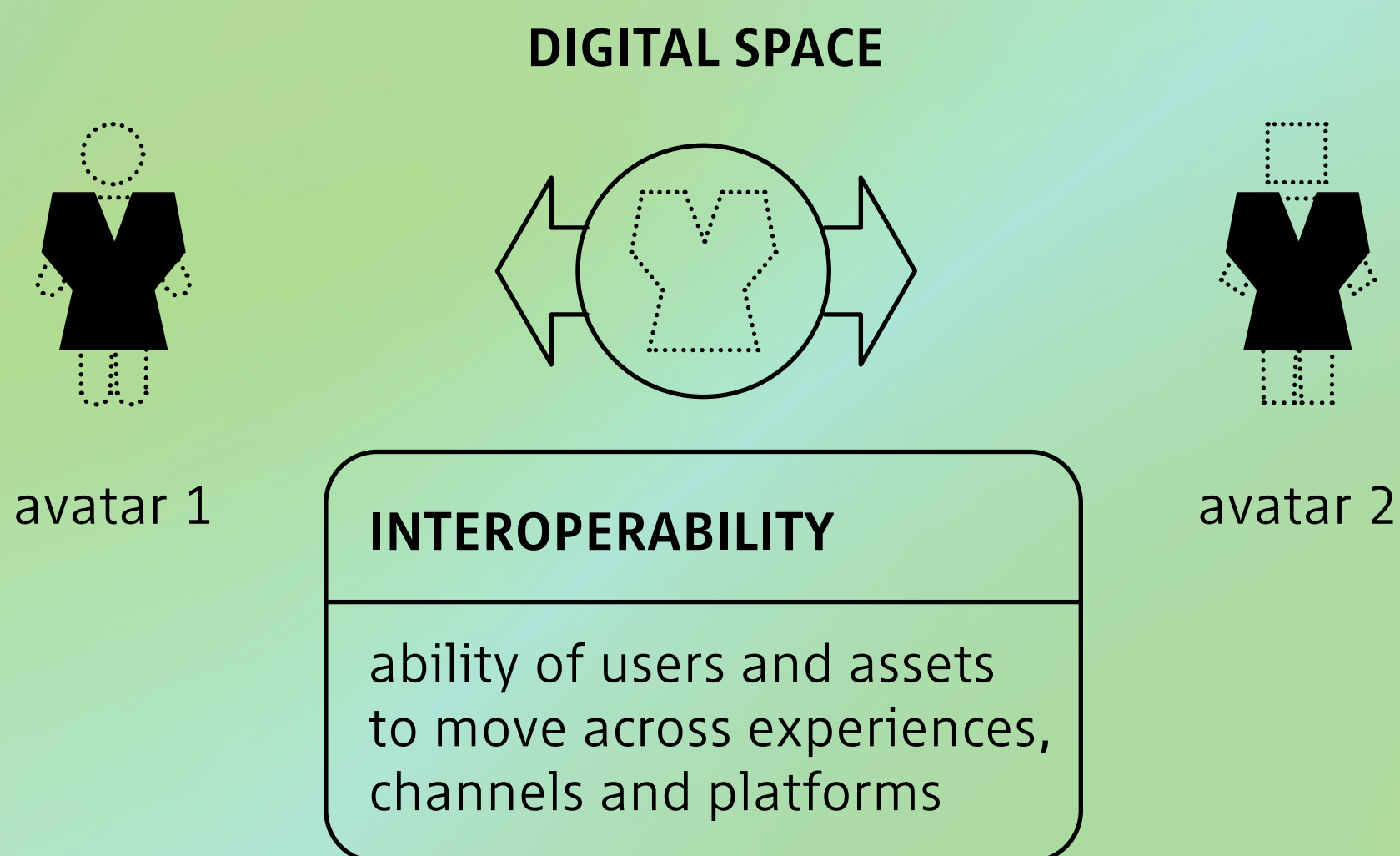


Figure 44: Omni-virtual experience process of adapting clothes for various metaverses. Source: Author

You might ask:

What can the virtual wear experience mean for the fashion industry?

Author

Not everyone sees value in owning intangible things or paying for something merely to show on social media, but despite the skepticism, there are customers for fashion experiences in the digital space. Ignoring how fast the Internet influences a globally connected society's behavior is not better for sustainability. Indeed, we do not need to produce more clothes, considering that the amount we already have can dress everyone in the planet for many years.

Of course, we need improvements, as with any other technology. The assembled experience, for example, might become outdated if the simultaneous reach a good level of accuracy. And when it does, it can be a tool for more accurate physical fashion. Or even a way of integrating both spaces into an omni-experience model where physical clothes can become high-tech wearables connected to whimsical digital twins.

Likewise, the Omni-virtual experience is related to another ever-evolving realm: the gaming industry. And designer brands are entering the battle to appropriate their spot in these 3D spaces to show their savoir-faire. Burberry, Puma, and Carolina Herrera collaborate with game designers to make their trials. This efficient strategy also serves for testing and gathering data to better understand the behavior and needs of real-time users. Now, investigating this piece of experience becomes crucial for smoother cooperation between all realms.

Daniel Drak, Parsons School of Design, 2022

On Roblox, some of the community creators may be dabbling in creation and designing items as a hobby, but what's important to underscore is this ability to easily create digital fashion and make it available to a global consumer audience allows many more individuals to get creative and experiment with designing and sharing their own fashions. This is something that various barriers may prevent them from doing in the physical world – from the cost of materials to not having sewing skills or knowing how to pattern draft, or simply not having a way to share what they are creating with a broader audience, which is an important incentive.



discussion



To better understand how fashion consumers relate to the virtual wear experience, a qualitative survey was conducted through Google Forms. In total, it got 20 respondents, mostly women (90%) from Latin America (60%) and Europe (35%), from 21 - 55 years old.

QUALITATIVE RESEARCH - virtual wear

insights

45%

Use avatars on social media or chats

40%

Don't have avatars

10%

Use avatars for metaverse platforms

68,5%

say virtual try-ons could influence a purchase decision

**joining answers 4 and 5 from a 1 to 5 scale, being 5 as "game changer"*

What does digital (or virtual) fashion mean to you?

I prefer material things that I can feel. But I think it can be an interesting experience.

Still a way to express yourself, just in a different mode

I feel like it's been evolving recently and that it has the power to engage many people and do important statements. Today I see that only a few brands (expensive ones) are using it. Makes it feel inaccessible or futile, unfortunately. Still I believe on the power of it.

I think that's amazing but not for me... I'm not really a tech person

intangible

fun

confusing

trend

Digital fashion is a promising and scary thing at the same time. As with all technologies, it depends on how it's used. There is a lot of untapped potential both for self-expression and for new ways to engage with sales and new business models

With a very innocent answer, it's fashion or the way you can express fashion and ways of dressing digitally, by computer, having the notion of how it would look on your body by virtually observing it.

It can be a cool way to experiment new things or try-on pieces before you buy them, it does help with online shopping a lot



visual flow



Analysis of common virtual wear experiences today through the anatomy framework

AFFORDANCES

Digital prototyping, try-ons, post-production of memories, self-expression in the digital space

USABILITY

Assembled needs a previous understanding of how final results can be, simultaneous is still confusing for technical collisions and the omni-virtual still lack interoperability between platforms

AESTHETICS

Artistically limitless but needs technical improvements

MEANING

Skeptics say the virtual dress is only another move of capitalism to sell frivolous things

RICH QUALITIES TO BE EXPLORED

scandalous (indignation + fascination)
unreachable (longing + dreaminess)

THE VIRTUAL WEAR EXPERIENCE ANATOMY

physical

blended

digital

"playing outside reality constraints"

answer with design:

- Can I wear that?*
- How will it look over my body?*
- What can I do with it?*
- Should I buy it?*
- What am I trully paying for?*
- Can you tell it is not real?*
- Can I resell it?*

There is a strange perception of the body and physicality from a virtual perspective

Figure 45: Anatomy of The Virtual Wear Experience. Source: Author

GAPS

Low quality of the service and technology, missing interoperability

Lack of credibility and meaning communication

Competition with ultra-fast fashion prices

Missing operability

DESIGN OPORUNITIES**DISCOVERABILITY**

Provide a better explanation of how the technology works

CONCEPTUAL MODEL

Communicate concrete values of virtual dressing that translate into the fulfillment of more sustainable needs

AFFORDANCES

The development of technical quality will automatically extend its applications to fashion systems

MAPPINGS

Interoperability proposes unified experiences and a brand's presence across platforms needs consistency

SIGNIFIERS

Use digital fashion as a response to ultra-fast fashion and for clothes to be worn only a few times or for special events

CONSTRAINTS

Post-production and digital content can enhance moments in our memory



visual flow



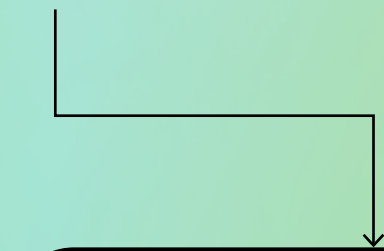
THE SHOW EXPERIENCE

Fashion as a show relates to the exhibition of a designer's vision of the future. It presents a collection that is not "wearable", but more of a mood board: "a widely exaggerated version of the actual *prêt-à-porter* collection consumers will later find in stores. It thus does not show you the clothes you are going to be allowed to buy: It showcases the fabrics, technics, and materials." (Petit, 2017)

1860's



Charles Frederick Worth introduced live models

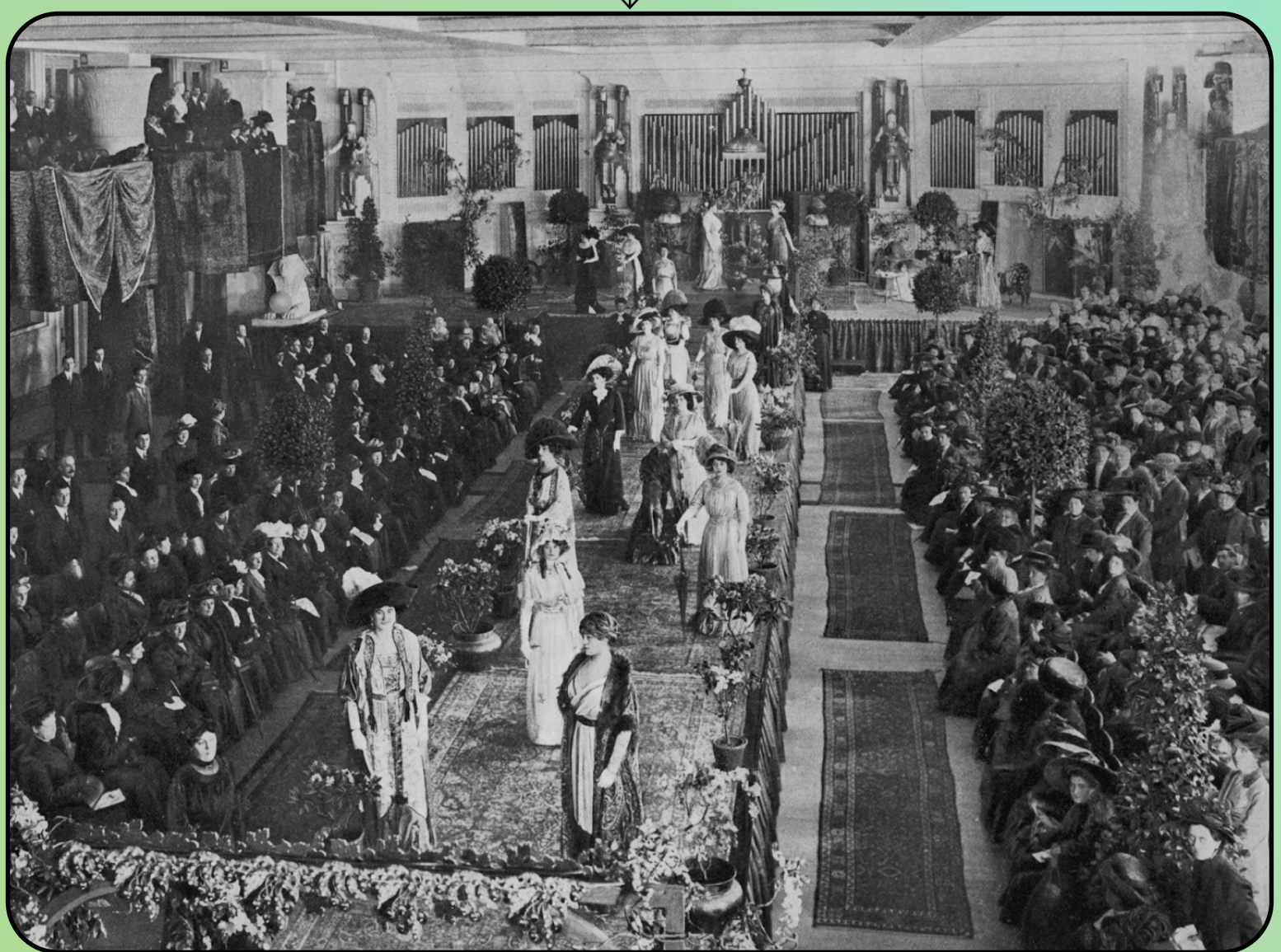


De Klerk, 2022

1903



First runway show in New York by department store Ehrich Brothers



Source: Glam Observer, 2023

1943



First "Fashion Week" happened in New York named as "Press Week"



Figure 46: A Fashion Show timeline. Source: Author

According to Maria Constantino (cited in De Klerk, 2022), Charles Frederick Worth was the first to introduce, in 1860, the concept of live models. Before, dressmakers would go to the clients and display their creations on lifeless mannequins. The idea spread from Paris to London and New York as exclusive events for invited buyers and the press, as a preview for the fashion to be available in stores the next season (Cantoni, Kalbaska & Sadaba, 2019).

As stated by the Glam Observer (2023), Ehrich Brothers was the first store to stage, in 1903, a runway show in New York. These events became more and more theatrical and in 1943, Eleanor Lambert held the first “Press Week” in New York to present local designers. This concept popularized worldwide as what Fashion Week means nowadays.

1951



Giovanni Battista Giorgini presents the first Italian fashion show in Florence

1965



Balmain presents in a wine cellar as unusual location for a show

2009



Alexander McQueen streams a fashion show for the first time



Source: Vertua, 2021



De Klerk, 2022



visual flow



Similarly, in 1951 we have Giovanni Battista Giorgini gathering Italian designers and ateliers such as Emilio Pucci, Emilio Schuberth, Simonetta, and others in Florence for what historians call the first Italian fashion show, originating the heritage of “made in Italy” (Vertua, 2021). Then in 1965, Balmain presents a collection in a wine cellar, triggering elements such as environment and location as part of the spectacle concept (De Klerk, 2022). More recently, Alexander McQueen live-streamed a fashion show for the first time in 2009, reaching people worldwide through the Internet (Assunção, 2022).

The dynamics between fashion shows, technology, the press, and the audience have changed ever since. Cantoni et al. (2019) cite the time reduction for production, live streams giving away the novelty of products to hit the stores, and so the desire to “see now, buy now”. These points could make fashion shows as an outdated form of communication, but they are evolving as great spectacles. With new technologies, show interactions are even more innovative, turning fashion into more of an experience than a trend.

Each case is a distinct project with specificities and requirements. Even so, a fashion show should be able to engage the crowd in an immersive concept, either the present audience or those watching from a screen. Under the clusters of storytelling, structure, and coverage, some key points are common practices for creating a moment to remember and can constitute a helpful checklist.

KEYPOINTS FOR A FASHION SHOW

STORYTELLING	STRUCTURE	COVERAGE
<input type="checkbox"/> collection	<input type="checkbox"/> stakeholders	<input type="checkbox"/> press
<input type="checkbox"/> location	<input type="checkbox"/> runway/ catwalk	<input type="checkbox"/> influencers
<input type="checkbox"/> music	<input type="checkbox"/> lightning	<input type="checkbox"/> live streaming
<input type="checkbox"/> performance	<input type="checkbox"/> seats for audience	<input type="checkbox"/> film production
<input type="checkbox"/> interaction (XR)	<input type="checkbox"/> climatization	<input type="checkbox"/> “red carpet”
<input type="checkbox"/> scent	<input type="checkbox"/> scenery & props	<input type="checkbox"/> after party
<input type="checkbox"/> ...	<input type="checkbox"/> ...	<input type="checkbox"/> ...

Figure 47: Keypoints for a show experience.
Source: Author



visual flow



Of course, the experiences of watching a live stream or attending a show are two different things. Still few people have the opportunity to get an invitation, but those who do, have it as a lifestyle.

Due to restrictions during the COVID-19 pandemic, everyone had to adapt. An inventive answer came, for example, from the Balmain spring/summer 2021 show, with a digital front row with VIP guests on big screens. This was a long-awaited “look-at-me” moment for the fashionista ego.

Some brands present technological craftsmanship for their show concepts in each collection. As an example, we can cite Anrealage for “DIMENSION AT U”. The merge of physical and digital spaces go beyond with a fashion show presented in both our real dimension and a virtual land of one of Mamoru Hosoda’s anime fictions.

Also, the ideas of a Fashion Week have developed worldwide. The original purpose of presenting local designers and artists remains, but with new cultural shifts. This is the case of Brazil Immersive Fashion Week, the biggest LATAM community of digital designers.

You might ask:

What else can be considered the centrality of a fashion show if not the clothes?

Author

Well-made garments are, in fact, the spectacles by themselves. The construction of a piece, hand sewn or embroidered, made to measure and last, with rich fabrics and materials can be called art. Even more when added sensible interactiveness such as movements, lights, sounds, perfume, and virtuality. Haute Couture, especially, sets fantastic environments intended to fit around clothing creations. It works because they are the stars of the show. With another proposal, prêt-à-porter is more about the trends, concepts, and values behind a collection, it intends to sell style and products more than a fantasy.

Claudio Calò, 2022 (translated from Italian)

...the fashion show in its almost one hundred and fifty years of changing existence (almost the same age as photography and the cinema’s older sister) has already conversed and duetted with every possible means of communication and form of artistic expression: theater, dance, television, performance art, digital, absorbing and emulating their languages, and often returning a precise principality of the most typical forms of expression of their time. This is not the place to give a definitive sentence on the never resolved question of the legitimacy of considering fashion as an art in its own right; however, some aspects of the debate will be used to demonstrate how, as the criteria that have accompanied the evolution of the gaze on aesthetics change, the forms of showing oneself through the clothed body and its spectacle in the fashion show have also changed.

LG + Balmain: digital guests for SS2021[Watch video #3](#) 

Thinking about how to bring the VIP guests close to the front row, Olivier Rousteing, Balmain's creative director, collaborated with LG, the electronics giant, to display OLED TVs along the runway. (Azzarello, 2020)

Fashion shows have become social events, and to think about the "look at me" status by placing celebrities' faces on a big screen is the type of effect fashion engages. It is, though, very thoughtful with the brand's customers to keep this expected involvement even during hard times.

Balmain team (cited in Azzarello, 2020)

We believe that fashion is best experienced when presented live, we know that a shared experience is crucial for our fashion community. Of course, today's new realities and restrictions make honoring both of those principles more than a little difficult but in both french and english, we share an overused phrase: la nécessité est la mère de l'invention (necessity is the mother of invention) and our planning process for this runway has proven that tired clichés like that one can sometimes actually be true.



Figure x and y: Balmain spring/summer 2021.
Source: BALMAIN on YouTube, 2020



case studies



Anrealage: the un/real ageWatch video #4 [↗](#)

Nothing is more digitally represented than a video showing a collection or campaign. Yet, it is not always directed by an Oscar-nominated director during a fashion week. Mamoru Hosoda blends the physical show happening in Paris with a parallel virtual runway held in another universe. The land of “U” is home to Hosoda’s fiction anime “Belle”, for which Anrealage’s designer, Kunihiko Morinaga, created the main character’s costume (DSCENE, 2021). The designs from the “DIMENSION” AT “U” collection have triangulated surfaces that resemble fractals and the mesh structures of the 3D modeling process.

The physical patchwork is from upcycled denim, cotton chinos, gabardine, and reflective material. As Morinaga says, the digital sketch of a dress can be worn even before the finished real dress, and “we can use the data to create it (an animation) with materials. And we can change the textiles with one click” (cited in Leitch, 2021).



Figure x: Physical and virtual looks (to the back) of “DIMENSION” AT “U”.
Source: Leitch, 2021



Figure x: Both virtual and real “DIMENSION” AT “U”.
Source: Anrealage on YouTube, 2021



case studies



BRIFW: Brazil Immersive Fashion Week

immersive

In its 3rd edition in 2022, the first immersive platform in Latin America goes beyond the premises of a Fashion Week. Representing the typical decentralization of Web3, the event gathers fashion shows, workshops, talks, contests, and all other types of fashion experiences meant for both digital and blended spaces. Founded by Olivia Melquior, the implementation of BRIFW started as an annex of São Paulo Fashion Week in 2019, when Melquior and designer Lucas Leão presented a 3D avatar. (STATE, n.d.) For the second edition, the designer produced a phygital collection with AR interventions inspired by “The Garden of Earthly Delights”, an art piece by Hieronymus Bosch.

Brazil Immersive Fashion Week is rather a community for designers and creators to discuss and share experiments, knowledge, and innovations.

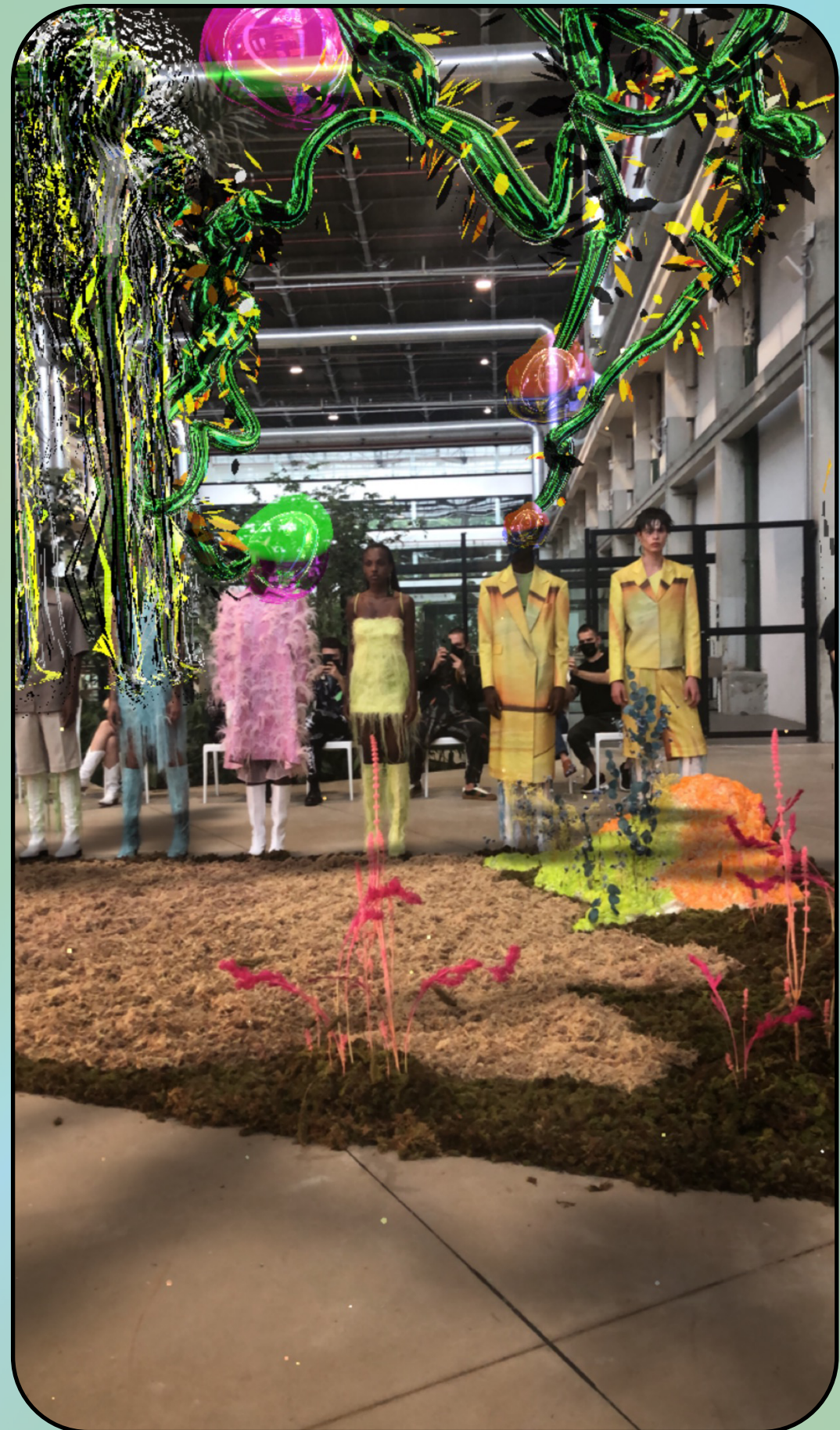


Figure x: Lucas Leão immersive show for BRIFW 2021
Source: Lilian Pacce Webstories, 2021



case studies



Analysis of common show experiences through the anatomy framework

AFFORDANCES

Fashion shows have a consolidated structure, it serves to present the designer`s vision for the brand in a theatrical way

USABILITY

Live streaming made it easier and more accessible for people worldwide to watch a show, although the experience is not the same

AESTHETICS

All senses have been incorporated into the show experience, for example, sounds, scent, and illusion

MEANING

Not everyone understands that the purpose of fashion shows is not always to sell garments but rather stories, ideals and trends

RICH QUALITIES TO BE EXPLORED

grotesque (disgust + fascination)
sentimental (poignancy + enchantment)

THE SHOW EXPERIENCE ANATOMY

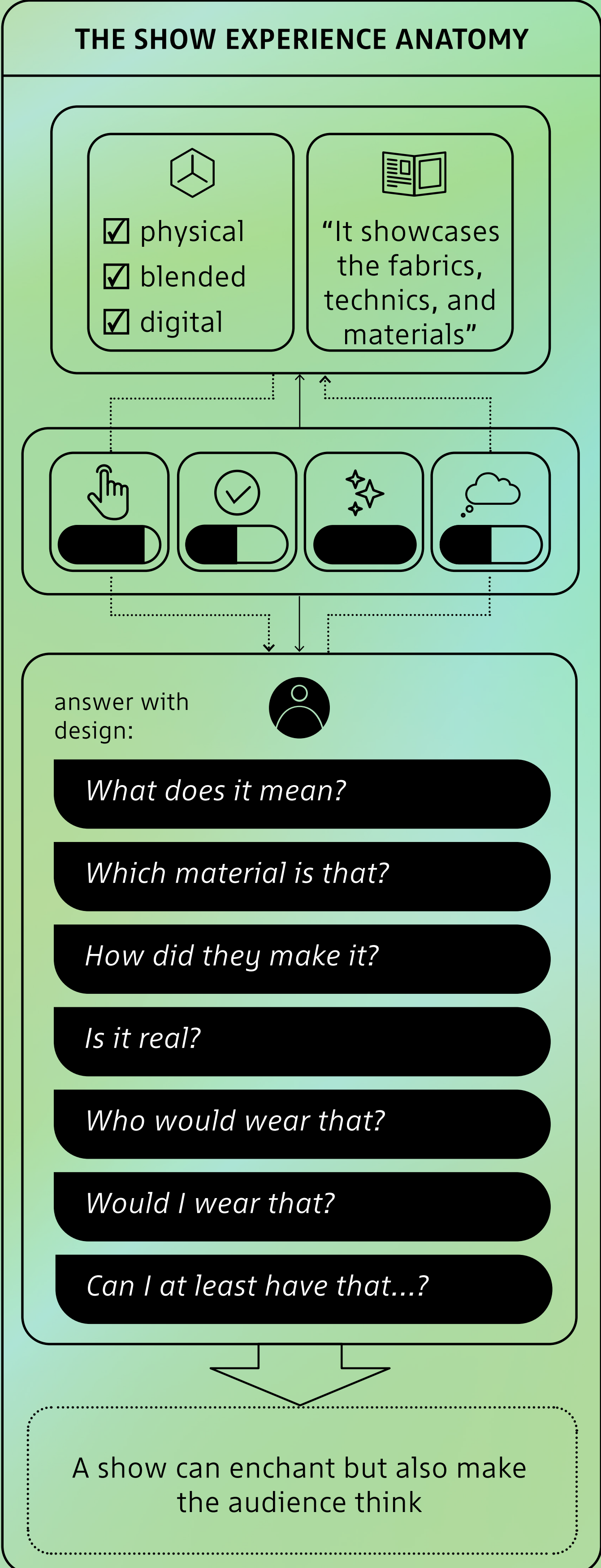


Figure 48: Anatomy of The Show Experience. Source: Author

GAPS

Exclusive for people from certain lifestyles

Live streaming cannot yet capture the real experience, but is in a space of limitless possibilities

Perception of useless or frivolous use of materials

DESIGN OPORTUNITIES

DISCOVERABILITY

Make use of extended technologies to enhance the experience in physical and/or digital spaces

FEEDBACK

Experiment with virtual try-ons for concepts of “see-now, wear-now”

CONCEPTUAL MODEL

Add even more fantasy and extravagance in a virtual way that makes it clear for the audience what a fashion show really means

AFFORDANCES

Foment digital-only experiences

SIGNIFIERS

Apply AR interferences to the environment and to physical clothes

CONSTRAINTS

If there is no purpose of being worn, clothes do not need to be physical, even if for a fashion show



visual flow



THE COMMUNICATION EXPERIENCE

Fashion might be more about communication than any other discipline. Indeed, both theories have similar issues such as appearance, expression, imitation, prescription, and influence. As written by Cantoni, Kalbaska & Sadaba (2019), the press has made it possible for the novelties of fashion to become disseminated, desired, and replicated. For them, “for the dissemination and consumption of trends to be effective, it is essential that these should be communicated.”

FASHION AS COMMUNICATION

APPEARANCE

the power of image
in fabricating
identity

EXPRESSION

visual language
conveying personal
identity

IMITATION

shock to be imitated
x
imitate to belong

PRESCRIPTION

use of perceived
authority to make
recommendations

INFLUENCE

un/conscious
manipulation of
opinion and behavior

Figure 49: Fashion as communication main issues.
Source: Author, adapted from Cantoni, Kalbaska & Sadaba (2019)



visual flow



Indeed, french publishing had much to do with the influence of Paris in the history of fashion. The first fashion publications in France date back to the seventeenth century, with a magazine named *Mercure Galant*. As for the complete fashion phenomenon, communication at the beginning was exclusive for members of society. The popularity of fashion magazines spread after the emergence, in 1867 and 1892, of *Harper's Bazaar* and *Vogue* in the US.

Bruce Oldfield says 'it all depends on the picture' (cited in Craik, 1994), and visual enchantment is the main point with fashion communication.

At first, illustration was the only and most loved technique for representing the desired glamour of the boutiques and brands, while photography was too realistic for fashion. Names like Charles Dana Gibson with his illustrated "Gibson Girls" were popular at the beginning of the 20th century.



Figure 50: Gibson Girl's.
Source: Just Looking Gallery, 2021



visual flow



With the technological development of color photographs and the dissemination of fashion to bigger audiences, the press started to invest in photography for "composed realities". According to Hall-Duncan (1979, cited in Craik, 1994), the first magazine cover with full-colored photography was for a Vogue issue from 1932 (see next page).

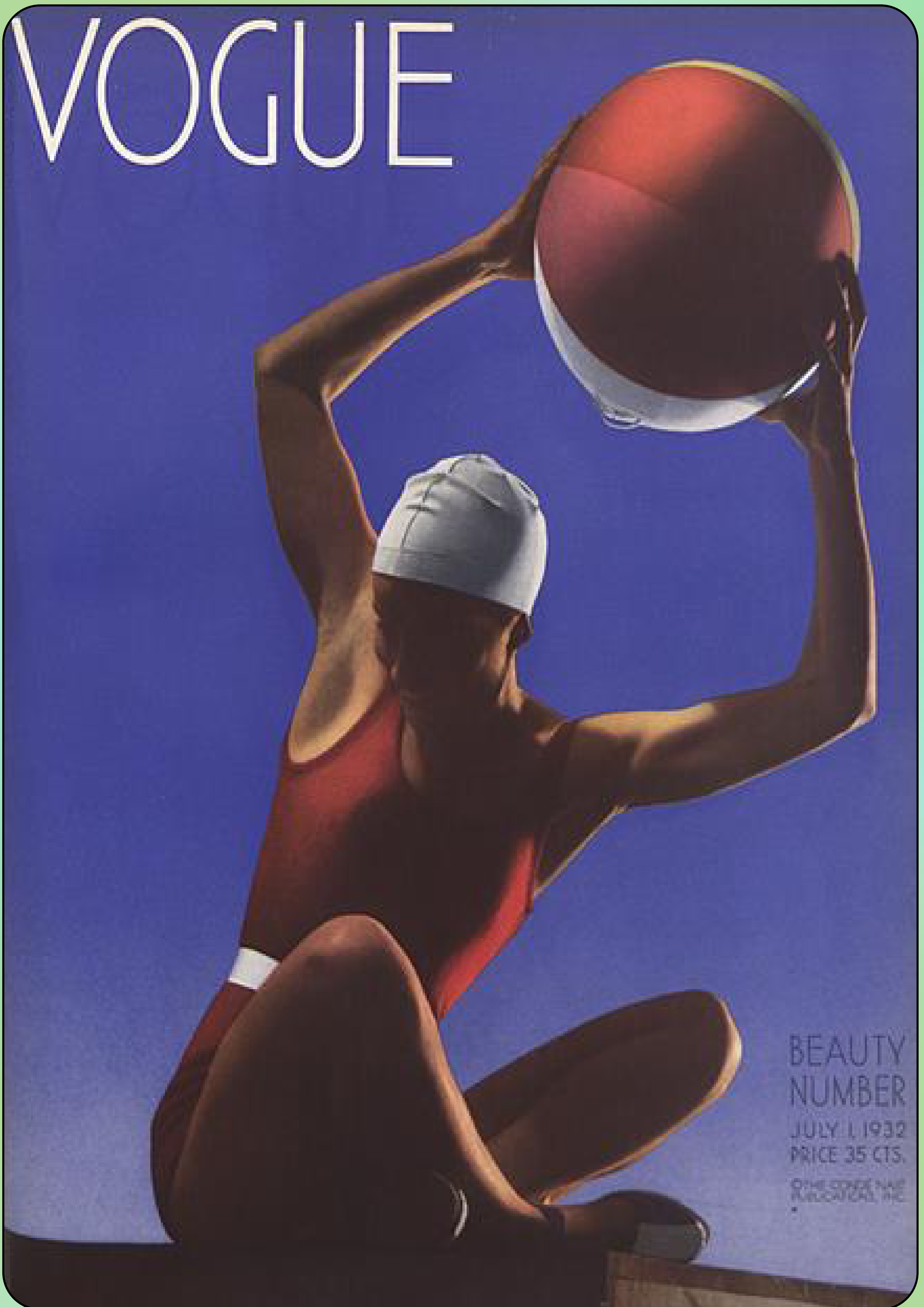


Figure 51: Cover of Vogue by Edward Steichen.
Source: Vogue Archive, 1932

In Cantoni, Kalbaska & Sadaba (2019), the communication discipline can support fashion and brands in various ways: internal, external, and corporate communications of the business culture, public relations, crisis communication, and social media. Moreover, the product itself, retail, and e-commerce are highly communicative touchpoints with the customer.

Corporate communication

positioning, identity, relations with investors and shareholders

Internal communication

culture, onboarding, events, mission, vision and values

External communication

advertising, campaigns, promotions, publicity, sponsorship, channels and media relations

Social media

content creation, engagement response, humanization, memetization (viral communication)

Public relations (PR)

institutional relations, events, partnership, protocol

Crisis communication

response to errors and tragedies, transparency reports

Retail communication

visual merchandising, window dressing, CX, customer service, e-commerce tools

Product communication

packaging, labelling, customization, gifting, personalization, gamification

Figure 52: Fields of fashion communication.
Source: Author



visual flow



The revival of a successful collaboration is, per se, communicative. For example, the communication experience of 2023's collab between Louis Vuitton and Yayoi Kusama is as seamless as ten years ago. Old customers can recall good memories and new ones get a second chance to experience it too. The campaign, social engagement, retail, and product experiences carefully merge both identities into a concise communication strategy.

Louis Vuitton & Yayoi Kusama - 2012/2023

collab

The year was 2012 when launched the first collaboration between Louis Vuitton and Yayoi Kusama. Ten years later, a revival takes place again creating another communication experience. LV classic products remain timeless and luxurious, but with the artist's polka dots, they become exclusive.

Kusama has a troubled story and she started to paint colorful dots to externalize her hallucinations. The art became famous for being easy and pleasing to assess, despite the obscure background. (Minthe, 2023)

So the communication aesthetic is simple and strong but the strategy is not a quiet one. Offering grand store experiences and immersive façades, the placing of an animated 3D Yayoi to tell her art story has moved the media. The collab agitated both sponsored and organic content of customers visiting the exposition or unboxing purchases. The big potential example of social engagement.

Of course, we have two big names and products that not everyone can buy. But we can see how the communication experience is much bigger than the wish to sell products.

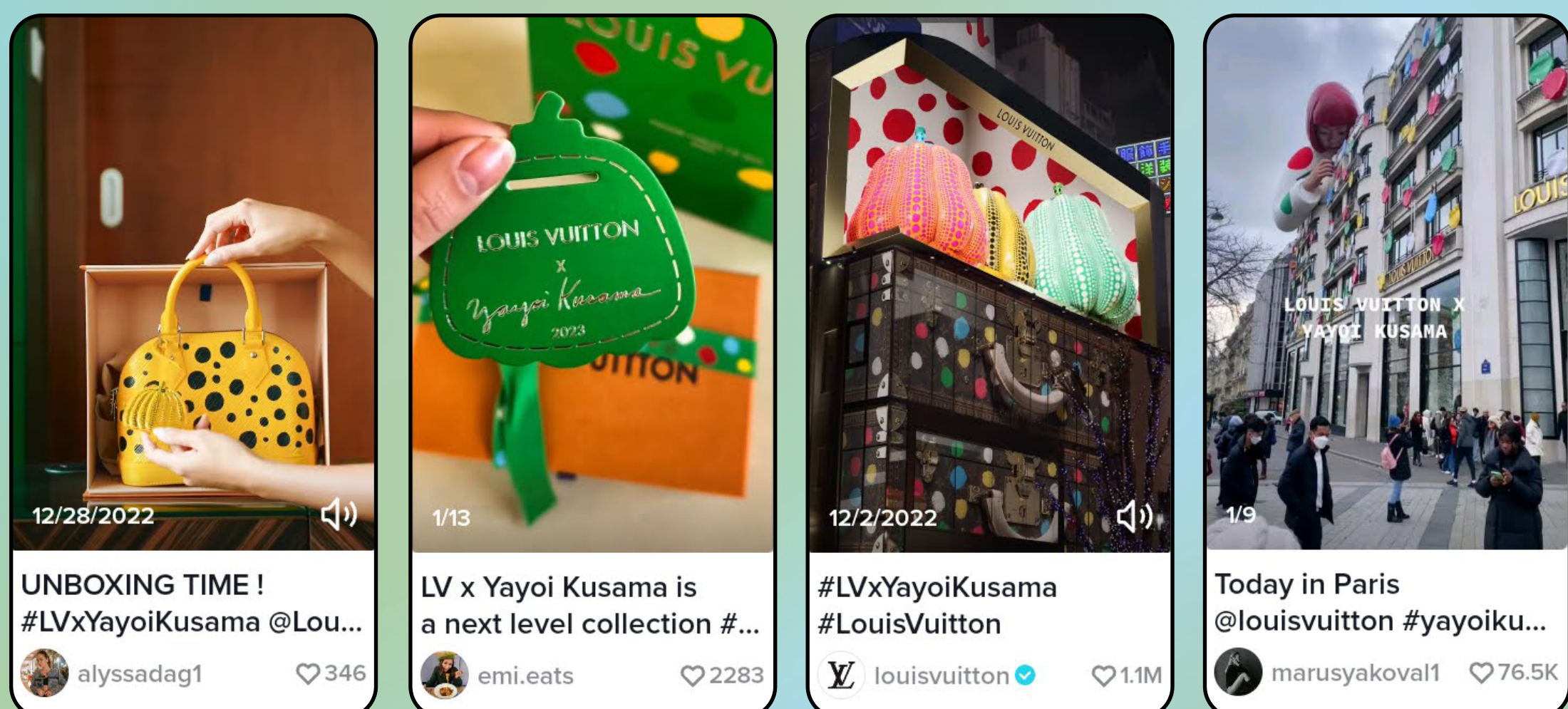


Figure 53: Research results of the collab on TikTok.
Source: @alyssadag1, @emi.eats, @marusyakoal1, @louisvuitton



case studies



Nowadays, new uses of technologies have emerged, such as super produced films, live streams, and extended realities. Social media has also changed journalism in radical ways. According to Assunção (2022), information today spreads so fast that fashion and marketing memetized themselves to attend to this hype era, i. e. seeking likes and engagement. In time: JW Anderson's pigeon clutch bag and the big red boots from MSCHF as a reference to the cartoon Astro Boy.

Memes and MSCHF

mschf.com

trend

Etymologically, meme relates to the word *mimema* from Greek, meaning “mime” or “mimic”, but also to *même*, from French, which means “same” (Raymond, 2019). Biologically, according to Dawkins (cited in Raymond, 2019), it relates to human evolution in a sense of mirroring others to guarantee social and intellectual survival.

In fashioning trends, memes are mechanisms of cultural dissemination and natural selection. It implies a viral “telephone game”, where the copied information is easily assessed, sometimes even unconscious, but might gain different implications depending on the context.

MSCHF, works exactly with this kind of premise. According to the brand's website, it is an art collective that “subverts mass/popular culture and corporate operations as tools for critique and intervention. Mschf, as a practice and as an entity, manifests the ambition for creative work / a creative entity to wield real tangible power (in culture; on the world stage; as measured against the cultural power held by world-straddling companies, celebrities, and media entities)”.

Gabriel Whaley, the MSCHF's CEO and former employee of BuzzFeed, believes the Internet is being misused. Incidentally, the online experience of mschf.com proposes an interesting use of scroll interactions.

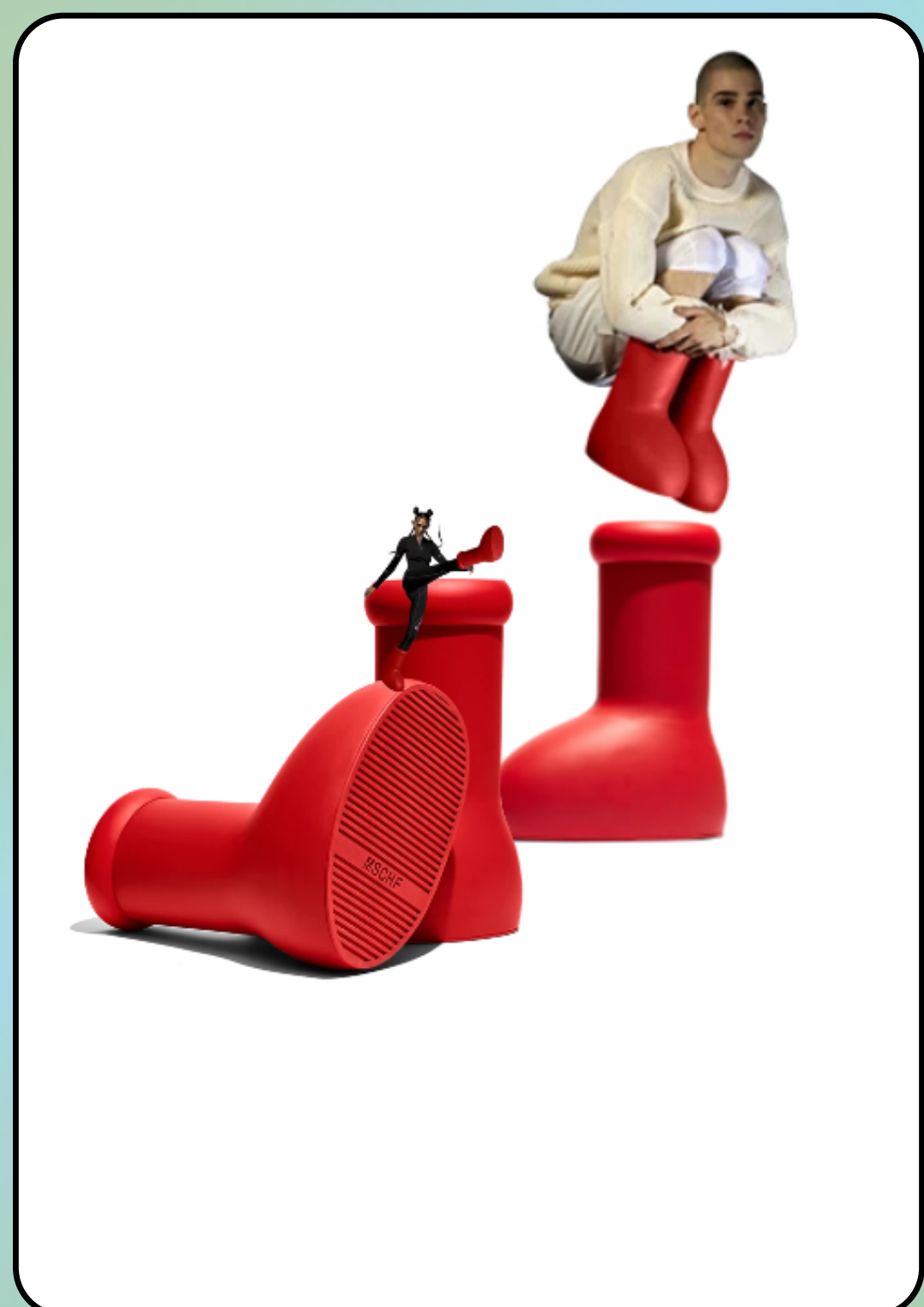


Figure 54: Big Red Boots.
Source: MSCHF product webpage

Mememes are, in fact, a reflection of culture. As Lipovetsky (2009) says, fashion communication cannot be separated from the current aestheticization of everyday life, because it aims to a seduction of the eye before conveying information. So in the era of fads, photoshop, and Artificial Intelligence, becoming viral is a communication strategy. But despite the ephemeral appearance of trends and digital information, the impacts on the planet and on people's psyche will last much longer than the hype.

Concerning fashion's digital transformation, new tools have emerged. 3D design, for example, can be used for advertising a product even before its completion. Editorials and campaigns need no more big production sets because it is possible to create them digitally. An interview with David Chang, founder of the hōl studio, a Digital Fashion House, enlightens some of the reasons and possibilities to invest in it.

David Chang - Hōl

hol.studio ↗

interview

Hōl is a digital fashion studio from Brazil that focus on communication and digital experiences. They create campaigns, avatars, NFTs, extended realities, games, and showrooms, aiming to speed up the digital transformation of fashion. Delving into that aspect, David Chang answered a few questions about their vision for present and future.

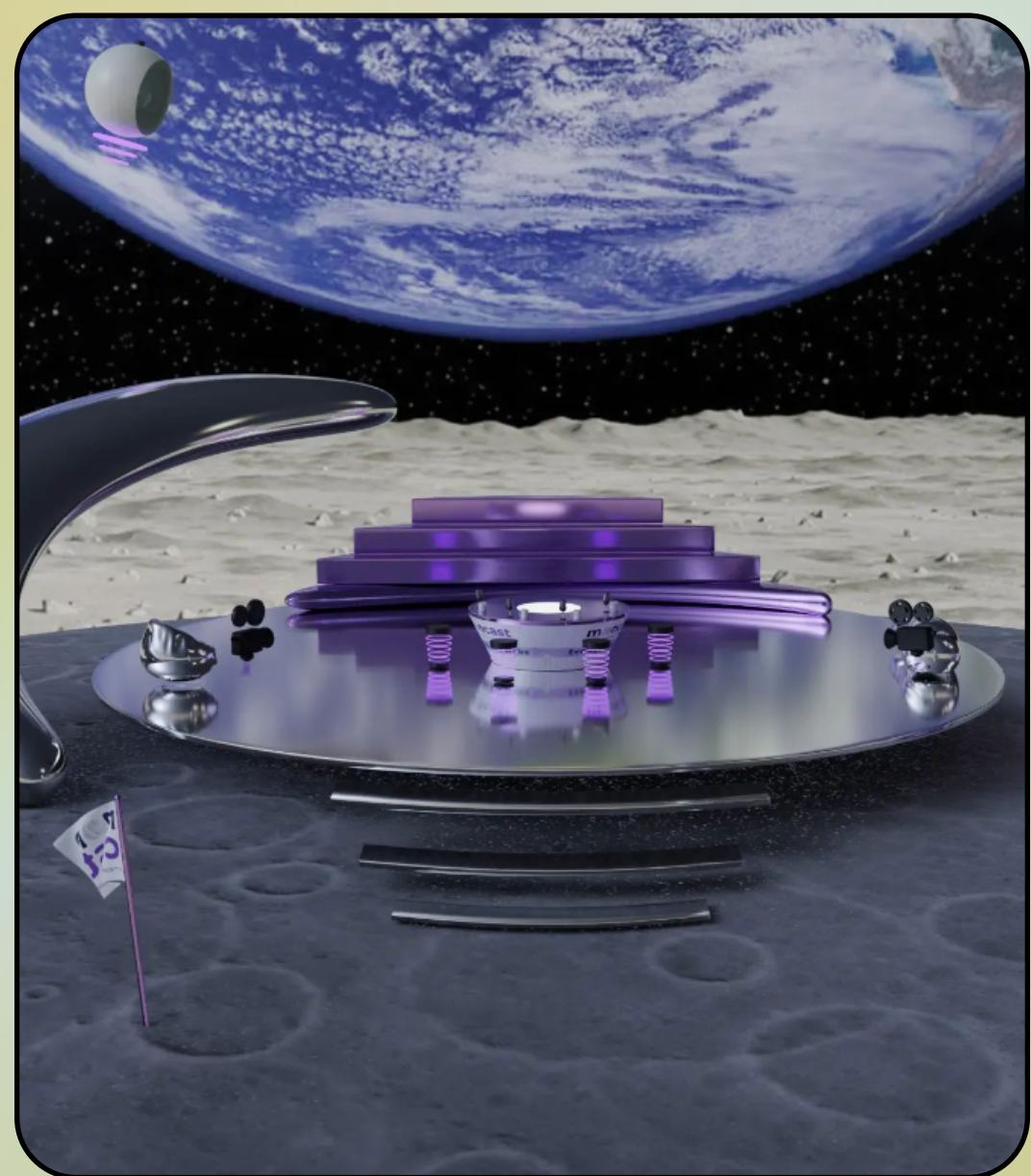


Figure 55 and 56: projects from Hōl studio, interoperable avatars (left) and 3D scene for the Mooncast Podcast on Spatial metaverse to the right. Source: @hol.studio in Instagram



interview

Author

You work in favor of the digital transformation of fashion, what drove you to enter this area and create the studio?

David C.

At first, the main reason was the extreme lack of sustainable models and circular design in the industry.

Too many problems, too big, with few proposed solutions and a status quo too difficult to challenge.

Author

Do you believe that the industry is really ready for a complete digital transformation? When could this happen?

David C.

Well, digital transformation is a process of innovating and changing the behavior of people within your workspace.

The goal with digital transformation is efficiency and its consequences. But it is a process of change... that is, it will always be difficult/inconvenient.

I don't know if an industry has to be ready for something like this. The idea of waiting for things to be ready seems to me to be a very conformist view. Even more so when we know that there are problems and that we have access to technology that can help people improve the way things are done.



interview

Author

I see that you aspire and work for a fashion, mainly as an ephemeral and artistic phenomenon, that distances itself from the physical space. Of course, technologies also facilitate traditional industry processes, but my focus is on consumers and users. How has public acceptance and engagement been?

David C.

People consume what is available. I think digital brings a lot to fashion and consumers when it comes to customization and personalization. When we start looking at consumers as individuals and not as groups of sizes S, M, L, etc.

Author

Also in terms of us being corporeal entities, what is your vision for the future of physical wearable experiences?

David C.

Fashion like any other industry is a complex system. You can't isolate parts. The parties affect each other. The desire for customization and personalization will affect the way of designing and the way of producing. The need to offer more conscious, inclusive, durable and sustainable products to consumers affects the way design and production are carried out.

Thinking about new consumption models such as on-demand, rent, subscriptions also changes how we design and produce. And humanity as a whole has entered a digitalization cycle. Today our cell phones and computers are basically extensions of our mind. Clothes, in many cases, already play a role in protecting our skin. I see that wearables is something that is increasing and will only evolve to add more value to people's daily lives. Smart materials, electronics, circular materials, and so on.



discussion



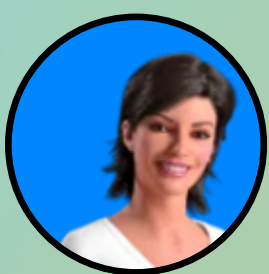
Furthermore, we have Artificial Intelligence instigating new discussions throughout the media. AI is “the capability of a computer system to mimic human cognitive functions such as learning and problem-solving.” (Azure, n.d.) At first, this technology promoted chatbots or virtual assistants attending to customer questions. In time, this form of communication evolved by assigning a “humanized” face to those robots. Instead of using celebrities or human influencers, many brands are investing in their avatar, like Lu, of Brazilian retailer Magazine Luiza. Or hiring digital models from agencies such as The Diigitals.

As the new term describes, CGI (Computer Generated Imagery) influencers are not always managed by AI but can build connections and relationships with the customer’s language. Still, other discussions arise such as typical objectification, colonialism, cultural appropriation, and exploitation of bodies in the fashion industry (Sobande, 2021). One positive example is having a group of customers build the aesthetics, voice, and representative actions of a CGI like Kami.

Lu - relationship and connection

virtual persona

Magazine Luiza has been a leading retailer in Brazil for decades. In 2003, the company first revealed Lu as their virtual assistant to humanize the shopping experience on the website. By sharing unboxing videos and product reviews, participating in causes, and making collaborations, Lu became the world’s third-largest virtual influencer in 2020. (Travers, 2020)



Lu, in an interview for Virtual Humans, 2020



Figure 57: Lu on a laptop.
Source: Travers, 2020

I think I was born to do this... I mean, literally. But, my role started to grow up, and, from the moment these external channels (like social media) started to pop up, I quit being just the face for Magalu and became the brand’s spokesperson, as well as the virtual influencer you know today. I have helped Magalu build a community of 24M+ fans on social media, and I think I’ve been able to humanize the brand and bring it closer to the public. Also, I draw attention to very important causes, such as the problem of violence against woman. A hard issue to talk about, but I have had to do it several times.



Kami - digital inclusion@itskamisworld 

virtual persona

The virtual influencer Kami, managed by The Diigitals agency, was created in partnership with Down Syndrome International (DSI). Using AI technology, the avatar represents over 100 women with Down syndrome who contributed with photos and videos for the project. In terms of content, though, Kami is not artificial. But administered by the Kami Contributors, a commission of women with the syndrome who decide what she talks about, what she wears, and where she goes. (Rasmussen, 2022)

Kami is not only a voice of representation for a minority but also an example of UX design that takes the user to co-create experiences. On her Instagram account, for example, she promoted a fashion contest for followers to help her dress for different occasions. With a decentralized concept, her followers sent their projects to be 3D modeled and produced by Studio Acci.



Figure 58: Kami with her physical friends.
Source: @itskamisworld on Instagram



Figure 59: Kami dressed by Divine & Studio Acci.
Source: @itskamisworld on Instagram

James-Cameron Wilson, founder of The Diigitals, cited in Rasmussen, 2022

“Generating the initial concept of Kami from an algorithm more than the touch of a human hand eliminated any notion of unconscious beauty bias into the character creation process. We really wanted Kami’s DNA to represent all the faces and aspects of these women with Down syndrome, which the program allowed us to do.”

When connected with a machine learning model, the Intelligence can interpret data the way it was taught. So now we see the use of AI technology for trend forecasting and data-driven analysis from platforms like Nextatlas and Trend Hunter, as well as mechanisms that translate data into creating text or image content, such as ChatGPT and DALL.E from OpenAI or Midjourney's bot at Discord.

There are, of course, risks of becoming fake information, besides discussions about privacy and plagiarism. As with any other new technology, it still needs time and investigation to estimate the ethical gains and pains to society.

OpenAI - deep learning

openai.com

AI systems

Funded in 2015, Open AI is a research laboratory focused on AI solutions. Some of the products include

GPT Language Models

for text translating, summarizing, or even content creation

Codex

which helps developers to write with efficiency

D-ALLE

which stands for Dali + WALL-E representing the possibility of a robot to create surreal images

There is no better way to explain the organization's goal than to ask ChatGPT, so here is the result:

INPUT: What is OpenAI about?

Generated with ChatGPT, 17/03/2023

OpenAI is focused on developing AI that is aligned with human values and can be used to benefit society as a whole. Its researchers are working on creating AI systems that can understand and interpret natural language, solve complex problems, and learn and adapt to new situations.



case studies



You might ask:

What is fashion still missing in online communication?

Gabriel Whaley, CEO of MSCHF (cited in McAteer, 2019)

While it is an insanely efficient distribution vessel for content, no one has really pushed the envelope of 'the internet' as a storytelling medium. As an art form. Everyone simply takes traditional formats like written word, spoken word, static image, and moving image and distributes them through the tubes of the internet at every turn. Not that the content is bad, but what a waste when you can do so much more with the internet!

So I anticipate that creativity is about to have another golden era, this time on the internet, because brands and creators are going to be forced to be original again, and take some creative risk. I think MSCHF is one of the first to be part of that re-correction.

Author

Beyond the lack of creative use of the Internet, as Gabriel says, we must also highlight the lack of representativity. Despite being a space of pretty democratic access, the need to advertise a manipulated "sense of perfection" kept fashion communication as a traditional way of creating photoshopped content. Kami is the first influencer not only to represent a minority but also to be built by a group of real women. And we can only work for the web to become a more decentralized space for inclusivity, creativity, and awareness.

You might ask:

And how to ethically use AI for fashion experiences?

Author

AI generators can easily create texts for socials or images for campaigns and mood boards, depending on the applied prompts. Some results, however, even bring pieces of artists' signatures, so its use can be unethical in many cases. On the other hand, Artificial Intelligence can help as a creative tool. When doing benchmark research for trends, shapes, materials, concepts and info-driven content, AI can rapidly assist in the process with resources we might have never even seen. When telling a story, a text generator can help with engaging copywriting. There are many other uses, the point is to use it carefully. AI is a huge source of existing big data, and copyright is a huge issue that follows fashion constantly (or vice versa).



discussion



To better understand how fashion consumers relate to the communication experience, a qualitative survey was conducted through Google Forms. In total, it got 20 respondents, mostly women (90%) from Latin America (60%) and Europe (35%), from 21 - 55 years old.

QUALITATIVE RESEARCH - communication

insights

Where do you get most of your fashion information?

85%

Social media

40%

Podcasts/videos

55%

Online magazines/ blogs/ platforms

15%

Physical magazines

Do you identify with/ feel represented by the fashion content you consume?

Yes I mostly do, especially when represented by real people, also influencers, instead of models

Not really, cause I don't follow many influencers, mostly magazine pages, so the content is not something I consume (unfortunately), but it makes me feel updated with the news.

I try to

I feel that fashion influencers / content creators have evolved and gained their space recently. Unfortunately, some are still linked to fads and famous brands. But I try to do good choices on who's content I am consuming, so I believe it represents me.

Yes, a bit. Lately fashion has become more and more genderless, and even if I identify as a woman, I do not feel myself if I wear anything too feminine. I love that I am free to mix and match a bit of everything.

** answers from 50+ women*

Yes, there are much more fashion content available for women above 50 nowadays than some years ago

If the fashion I consume is more classic, yes. I don't identify much with fashion that is just seasonal, fleeting, that doesn't perpetuate itself and is just volatile and instantaneous consumerism.

Analysis of common communication experiences through the anatomy framework

AFFORDANCES

Recent attempts to approximate with real people and speaking the audience's language make it easier to relate to

USABILITY

The Internet makes it more accessible and personalized in a way that becomes easier to identify with the algorithm

AESTHETICS

Beauty sells, even when it is not real. Aesthetic appeal is what empowers fashion

MEANING

Fashion advertising has so much influence and power but many times still misses the point of engaging significant and provoking conversations

RICH QUALITIES TO BE EXPLORED

scandalous (indignation + fascination)
challenging (frustration + satisfaction)

THE COMMUNICATION EXPERIENCE ANATOMY

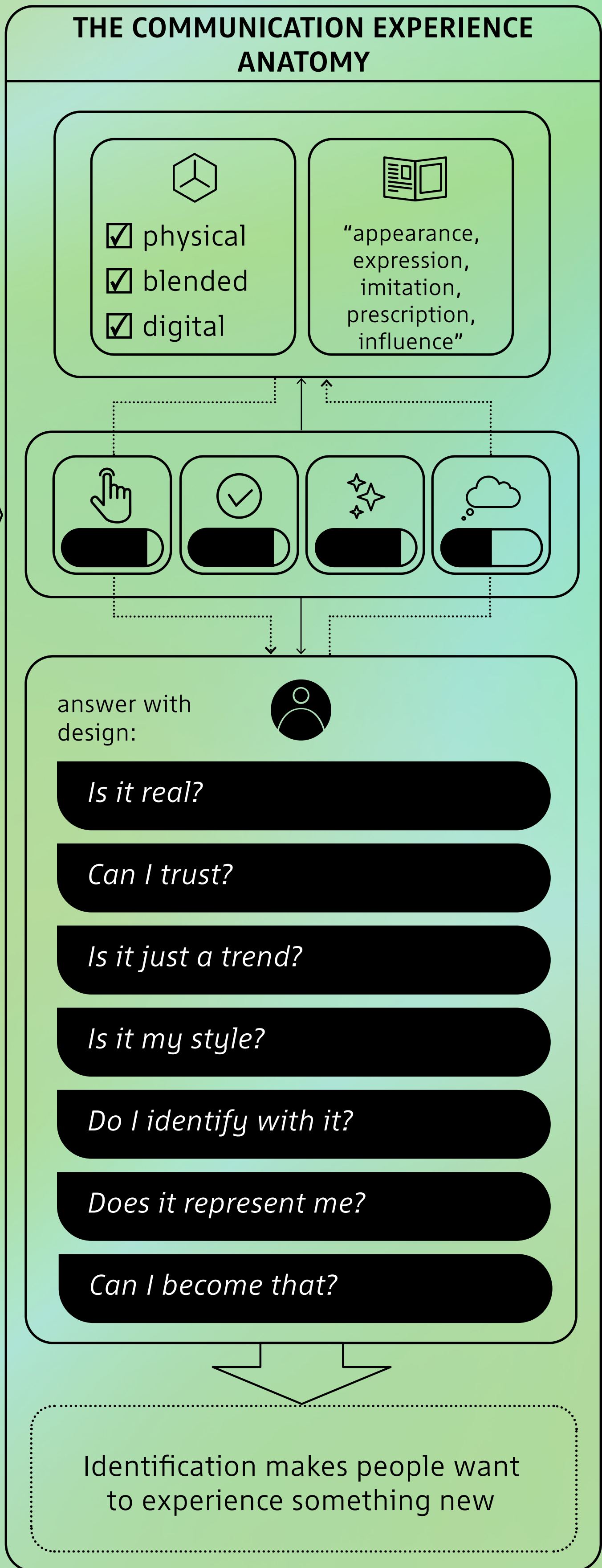


Figure 60: Anatomy of The Communication Experience. Source: Author

GAPS

Fashion is still learning how to communicate reality instead of making fake advertisements of a perfect person or lifestyle

There is still an idea of quantity over quality content, which lacks meaning

DESIGN OPORTUNITIES

DISCOVERABILITY

Include of the audience in co-creating

Make content accessible through digital channels such as social media, websites and other platforms

FEEDBACK

Promote sustainable and inclusive discussions

CONCEPTUAL MODEL

Fashion is change. It can engage clear conversations about the current zeitgeist and why we need positive changes

SIGNIFIERS

Digital campaigns can still sell intangible (magical) fashion and visions for a better future

MAPPINGS

Use social platforms to ask what the public wants and how to speak and represent them

CONSTRAINTS

Influencers do not necessarily need many followers on social to have high leadership and representation power



THE SHOPPING EXPERIENCE

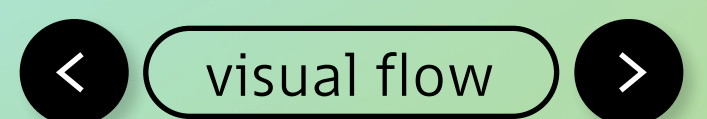
“I buy, therefore I am”.

The first section of Solomon’s (2005) article “Consumer Psychology” summarizes very well the main stimulus of the shopping experience. “I need to go shopping” is a phrase for either real necessity or escapism. People shop because they have needs: need for food or need for dopamine. “People often buy products not for what they do but for what they mean”, and again we meet one of the Anatomy components that engage users in the experience. Solomon does not imply that affordances and functionalities are not relevant, but only that people have their own meaning for them.

According to the author, demographic and psychographic factors often lead the consumption decisions, turning this into a significant field from so many perspectives, from psychology to economics and social sciences. Consumption behavior started to be studied as a whole process, including matters before, during, and after the sale. For Solomon, the decision-making journey of a consumer always goes through the following phases: need recognition, information search, evaluation of alternatives, and purchase and purchase evaluations.



Figure 61: Stages in consumer decision making.
Source: Author, adapted from Solomon (2005)



Mood, time of deliberation, and expectation are central individual factors that influence the shopping experience beyond the product or service. And that is why empathizing with the customer is so important.

When it comes to trends and forms of consumption, many things have changed over the years. Online shopping has shifted the way people expect this piece of experience to work. “The Future Shopper Report 2022” from Wunderman Thompson Commerce brings us some insight:

ONLINE SHOPPING



of global consumers think online shopping will be more important to them in 2022



said that they will make more use of digital shopping channels in the future.

OMNICHANNEL



prefer to shop with a retailer or brand that has both digital and physical stores



are interested in buying the same products for themselves and for their avatars.

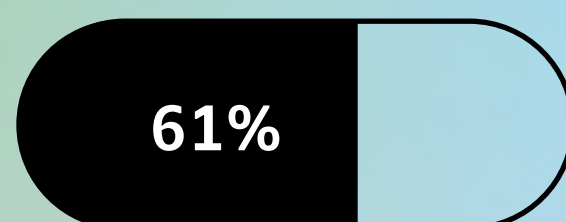
MARKETPLACES



of global shoppers start their search on marketplaces.

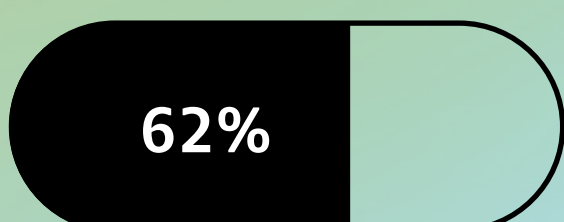
As channels proliferate, it is losing some ground.

SERVICE EXCELLENCE



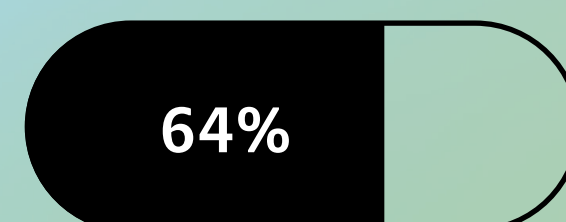
of global shoppers said that they like to shop with brands and retailers who have a purpose that goes beyond selling products and services.

RICH ONLINE EXPERIENCES



wish that online shopping was more entertaining

RETAIL INNOVATIONS



wish brands and retailers would be more innovative in how they use digital technology to improve their experiences.



IN-APP SOCIAL COMMERCE

65%

have already bought through social media platforms

56%

of global consumers said they do not want to leave a social media platform to complete a transaction.

CONSUMERS REDEFINITION

"we are no longer marketing and selling just to humans, but to their avatars in gaming and the metaverse, and ultimately to consumers that may not even be alive.

Are you prepared for the future, multi-dimensional consumer and for how this will change the way you sell and market your products and services?"

Figure 62: Online shopping trends

Source: Author, adapted from Wunderman Thompson Commerce, 2022



case studies



Retail systems have many offline and online formats, but for this study, we focus on three: brick-and-mortar stores, e-commerce, and augmented retail. As an insight, we also give a special attention to direct-to-avatar commerce.

Brick-and-mortar stores

physical space

As the term suggests, this retail format refers to a physical location (Schultz, 2021). For fashion goods, the most significant types of physical retail include flagship, department stores, pop-up stores, and outlets.

Flagship

showcases the brand as a concept

Service store

location for on-demand services



visual flow



Pop-up

temporary store, in unusual location or event

Department store

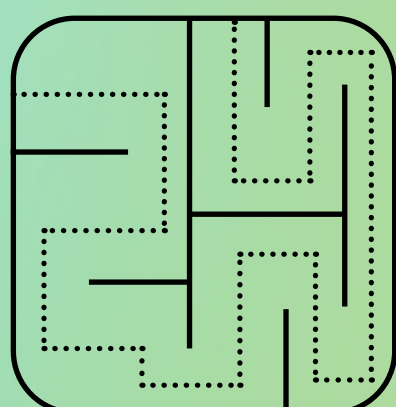
sells all types of products and brands, separated into sections

Outlet

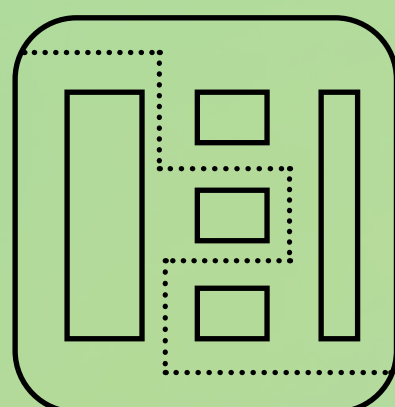
standalone or shopping mall for out-of-season products

According to Howard Schultz (2021), the advantages of a physical location include control over the customers' experience and foot traffic, face-to-face interaction, multiple payment options, and instant gratification. Disadvantages include rent and staff costs, limited reach, and customer showrooming, when they try in-store to buy online from other retailers.

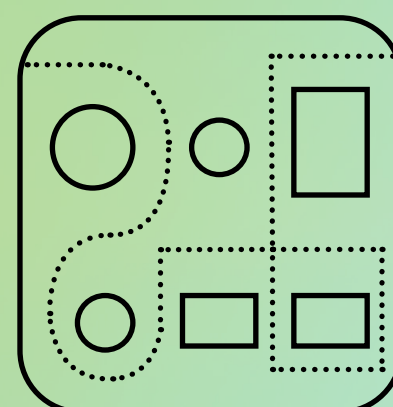
Im designing a physical store experience, the most important thing to consider is consumer flow. It will influence the floor plan and placement of products. Sylvia Mauro (n.d.) highlights the following store layouts:



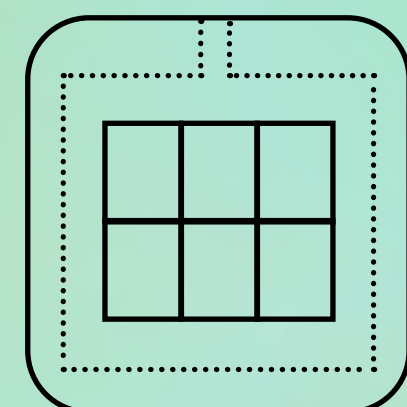
forced path



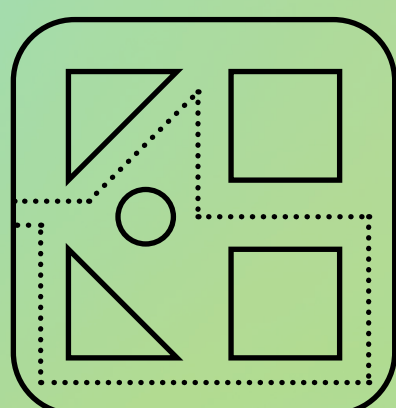
grid



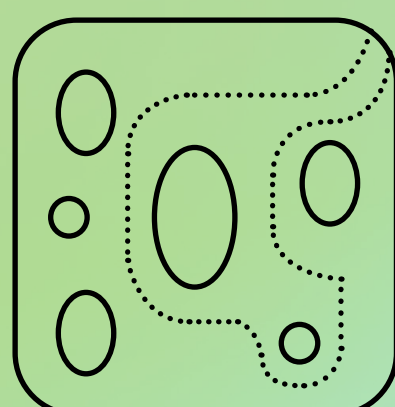
free flow



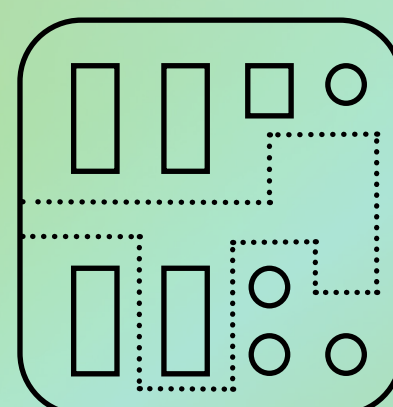
loop



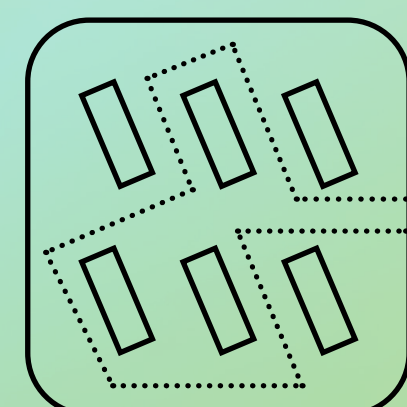
geometric



angular



spine



diagonal

Figure 63: Store layout. Source: Author, adapted from Mauro (n.d.)



visual flow



Other points to consider when designing for a store experience are the window display, visual merchandising, flow accessibility, and checkout. But above all, brick-and-mortar needs innovation perspectives to keep up with digital transformation.

Ecommerce

digital space

Online shopping was invented by Michael Aldrich in 1979 but became an official thing with the Internet spread in the '80s and '90s. This revolution allowed consumers to buy from anywhere, receive at home, and pay cashless (Marhamat, 2022). With the launch of Amazon in 1995, it became a whole model for many online shoppers. For instance, 70% of consumers wish for brands to have services similar to Amazon Prime (Wunderman Thompson Commerce, 2022), a monthly subscription pack valid for free & fast delivery, e-books, gaming, and streaming.

Amazon Seller University, 2022

E-commerce or electronic commerce is the trading of goods and services on the internet. It is your bustling city center or brick-and-mortar shop translated into zeroes and ones on the internet superhighway."

The web became an interface for window displays, floor plans, product shelves, staff, and the cashier. Everything is in front of a screen. Electronic commerce does not necessarily sell to end-users. According to Amazon (n.d.), common business models include:

- B2C** – Business to consumers
- B2B** – Business to business
- C2B** – Consumer to business
- C2C** – Consumer to consumer
- B2G** – Business to government
- C2G** – Consumer to government
- G2B** – Government to business
- G2C** – Government to consumers

With the central focus on final customers (-2C), we have different forms of shopping experiences. Essential touchpoints with the online journey will normally include:



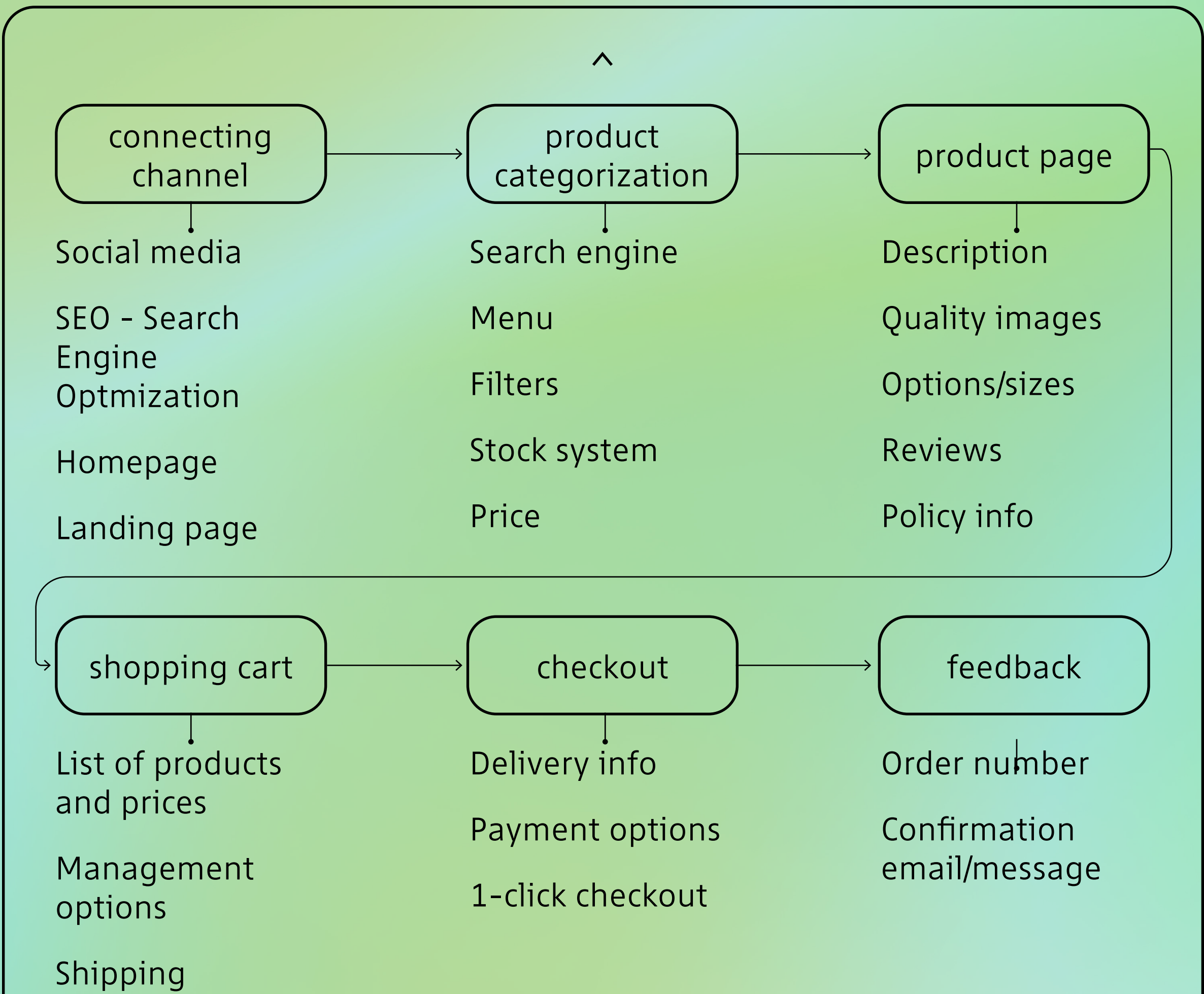


Figure 64: E-commerce touchpoints.
Source: Author

As for some current forms how people can shop online for physical fashion, we cite: web and mobile platforms, marketspaces, social and livestream commerce.

Web/mobile platform

Direct-to-consumer (DTC) shop in a website or app. When not developed from scratch, these platforms are often powered by website builders like Squarespace, Shopify or Wix, which provide tools, data analysis and backend services.

Marketplace/ E-marketplace

Online department stores. Marketspaces are digital forms of marketplaces, where sellers and consumers get connected exchange goods or information for some kind of value. Ex. Amazon, Farfetch, Zalando and even Vinted.



Social commerce

Selling in-app through social media. Instagram, Facebook and Pinterest, for example, have product pages and e-commerce tools that guide the transaction for business accounts.

Livestream commerce

A live video with influencers showing products that can be purchased with some clicks. As stated at Thomas S. Robertson (2022), this market is predicted to represent 20% to 25% of online sales of 2023 in China, while revenues in the US should reach \$26 billion. In Robertson's article, we see that some of the points for this boom involve:

- accessibility, usability and algorithms of social platforms such as Tiktok and Taobao;
- showing product qualities online;
- instructing how to use products;
- KOLs, "key opinion leaders" hosting the live events



visual flow



Net-A-Porter - global luxury

[net-a-porter.com](https://www.net-a-porter.com)

marketplace

The year was 2000 when Natalie Massenet launched the online retailer for luxury in London. Vogue once called Natalie as "the woman who changed the way we shop" (cited in Roll, 2017). After Net-A-Porter merged with Yoox in 2015, she moved to Farfetch as non-executive co-chairman, and the founder of Yoox, Federico Marchetti, took the lead.



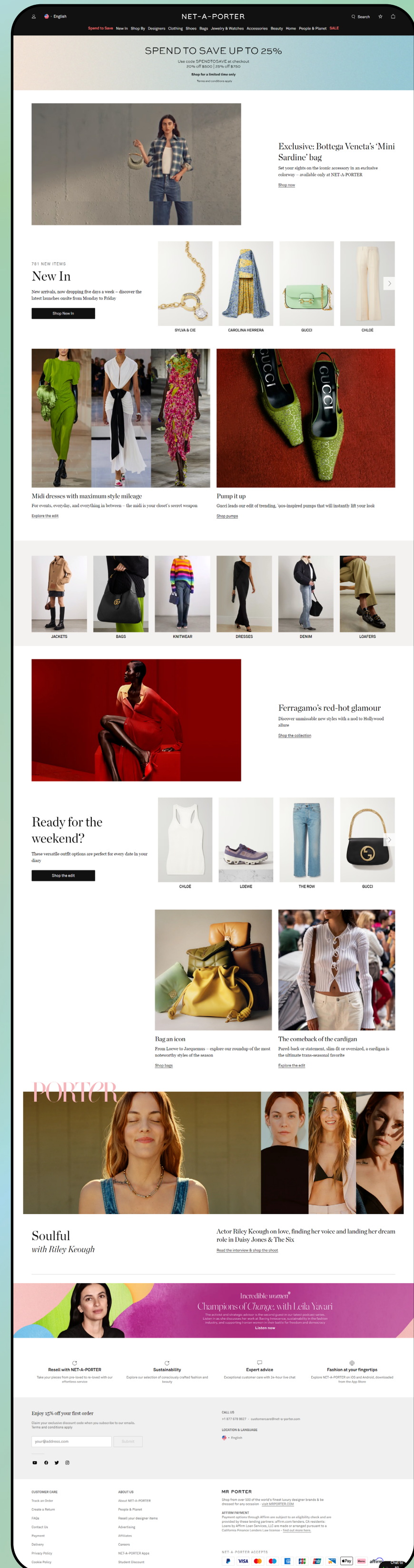
In addition to Massanet's eye for fashion and knowledge of luxury brands, much of the success of the platform is due to the corporate strategy focused on customer experience. Nonetheless, Roll (2017) emphasizes that Net-A-Porter's expansion happened consistently because of market diversification, becoming a true department store for luxury goods. Also, the deep involvement of TI in the corporate culture and its engagement on social media helped to shape the company as a solid pioneer for online shopping.

Martin Roll, business & brand strategist, 2017

For its shoppers, the shopping experience on the website is almost flawless.

Although one cannot completely replicate the store environment, but a website with superior design, top notch functionality and navigability can come close to this environment. Net-A-Porter needs to maintain a high level of technical and visual finesse on all its digital properties.

Figure 65: Net-A-Porter homepage overview.
Source: net-a-porter.com (15 Mar. 2023)



Augmented retail

blended space

According to “The State of Fashion 2023” (BOF & McKinsey), physical retail has experienced a new boom after Covid-19 restrictions. “A range of digital-first brands have invested in opening their own physical stores, finding it difficult to generate a profit through online DTC channels alone.” Nevertheless, because new consumers require omnichannel innovations and immersive experiences, augmented retail is becoming the evolution of brick-and-mortar.

Although 75 percent of sales are predicted to happen in physical locations by 2025, it is for new hedonic purposes. In fact, for José Neves, founder of Farfetch, all dimensions of commerce are changing into a seamless blend of digital and physical realms (Paton, 2017).

Integrating mobile appliances, interactive screens, gamification, and easy checkout to optimize the journey, NFC or QR codes for product information transparency, and RFID (Radio-Frequency Identification) tags for inventory tracking are, for example, some of the practices of augmented retail.

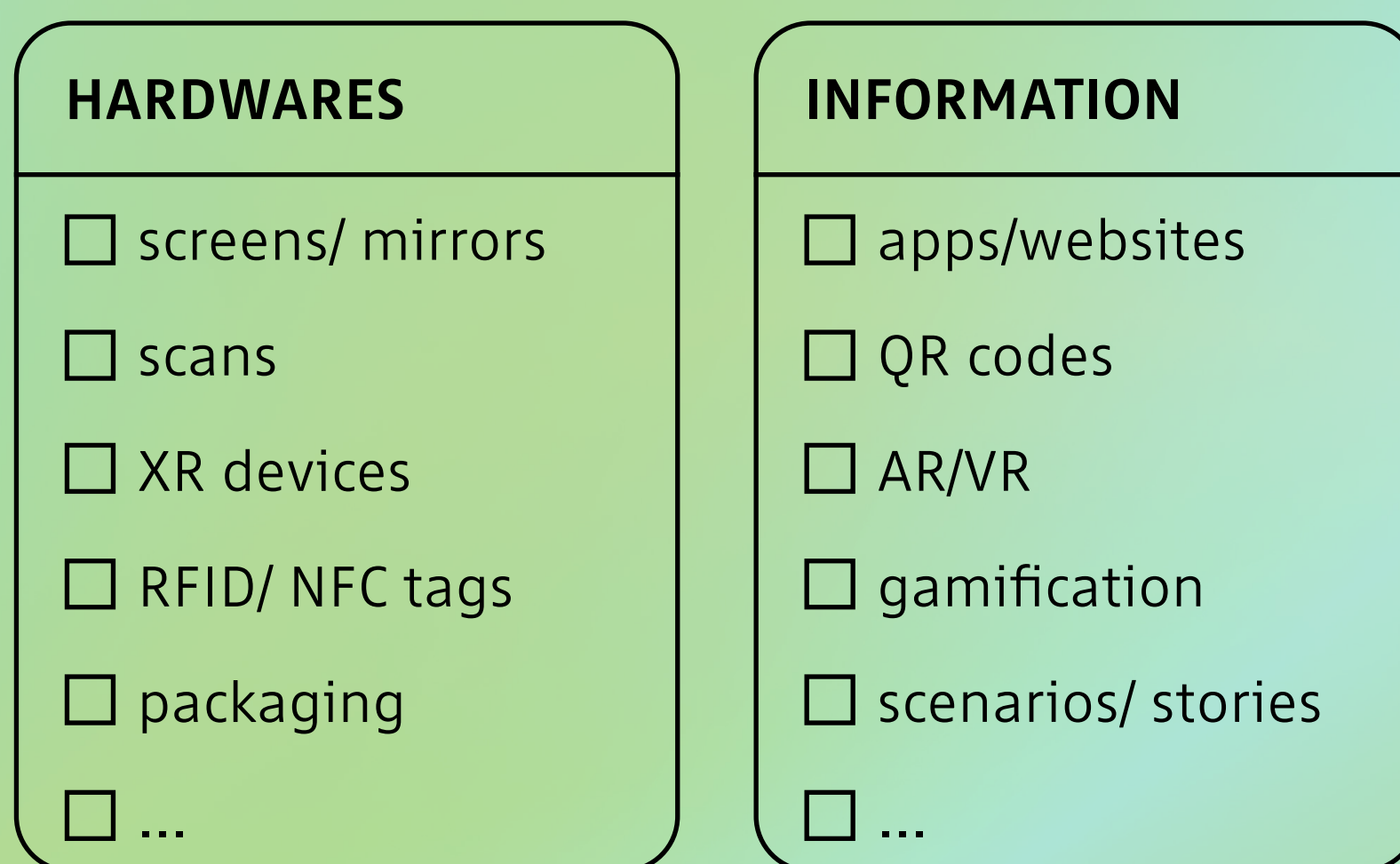


Figure 66: New touchpoints for augmented retail
Source: Author



visual flow



We do not have to restrict it to physical spaces either. AR try-ons for e-commerce or virtual stores are also forms of extended experiences. VR retail, for instance, promises an immersive experience in places commonly out-of-reach like luxury real shops in another country or even an unreal store above the clouds.





Specialized providers like Obsess and Emperia, for example, create these virtual spaces in two formats: by virtualizing a physical space with 360° photographs or building it all in 3D software. Virtual stores are open to limitless creativity, but it asks for a balance between digital interface and physicality recognition. In other words, to navigate a VR space we need natural affordances like doors and corridors, even if abstract, as well as buttons and arrows, to get us places.

PHYSICAL RECOGNITION

- proportions
- point of view
- buildings/ floor
- furniture
- paths
- lighting
- materials

NAVIGATION ELEMENTS

- buttons
- touch movements
- signs/ icons
- instructions
- menu
- exit
- customer support

Figure 67: Essential elements for a virtual store
Source: Author



visual flow



Olga Dogadkina, co-founder and CEO of Emperia (cited in MCDOWELL, 2021)

Successful virtual stores still have to remain earthbound in the sense that practicality and utility are essential considerations. For example, intuitive navigation, realistic 3D renders and access to customer support are all basic elements.

Printemps - augmented departmentweb3.printemps.com

phygital

The French luxury store is augmenting both brick-and-mortar and e-commerce experiences. The retailer has built a virtual store placing the Paris Printemps Haussmann building in the middle of an enchanted garden. The experience is, at the same time, fanciful and relatable. For Morgane Lopes, Digital Marketing Director, the decision to create a domain instead of buying some metaverse land permits the experience to be accessible for their customers, familiar or not with the meta-universe. They are considering easy ways to implement NFTs and cryptocurrencies and enhance customer loyalty.



Figure 68: Printemps virtual store.
Source: Printemps web3 page

Not enough, Printemps has also been investing in digital extensions of their physical stores. For the Haussmann flagship, a partnership with DRESS X resulted in a pop-up experience with AR mirrors and a mini collection of digital looks. (Hirschmiller, 2022)



Figure 69: DRESSX virtual mirror in Printemps
Source: Hirschmiller, 2022

Direct-to-avatar - D2A

digital space

Whether from virtual stores in the metaverse or other forms of e-commerce, we must also cite the on-growing direct-to-avatar commerce (D2A). For Kerry Murphy (cited in Wunderman Thompson Intelligence, 2021), omni-virtual experiences are the future of fashion consumerism.



Kerry Murphy, CEO of The Fabricant, 2021

People are going to start seeing value in digital items and realize that they'd rather interact with a digital item, or have an infinite wardrobe of digital fashion items but a very limited wardrobe of physical items.

This type of retail model is considered a sustainable solution for economic development. In addition to many other factors, we can mention avoiding disposable products and waste of natural resources, as well as bypassing distribution logistics and supply chain issues (Hackl, 2020).

You might ask:

Why and how do people shop?

Author

The shopping experience is the most complex anatomy of all pieces. When people predict a possible buy, the expectation of getting the reward liberates dopamine, a pleasure chemical. If the expectation is well attended to, we have a good emotional response that can also become a learning curve and become addictive. On the other hand, if there is some kind of obstacle, like bad UX, it can result in withdrawal.

The way how people shop depends on mood, zeitgeist, and opportunity. Some people will always prefer physical experiences while others are huge fans of online shopping. In both cases, it is essential to keep up with digital innovations for it is becoming normal extensions of our lives.





Author

When social platforms added commerce functionalities, it was a way of bringing this experience very close to customers. Livestream commerce, for example, is nothing new. There are still TV channels that were built for this, e.g. Polishop TV, in Brazil, is 20 years old. It becomes a much bigger thing in social channels because people are already there.



discussion

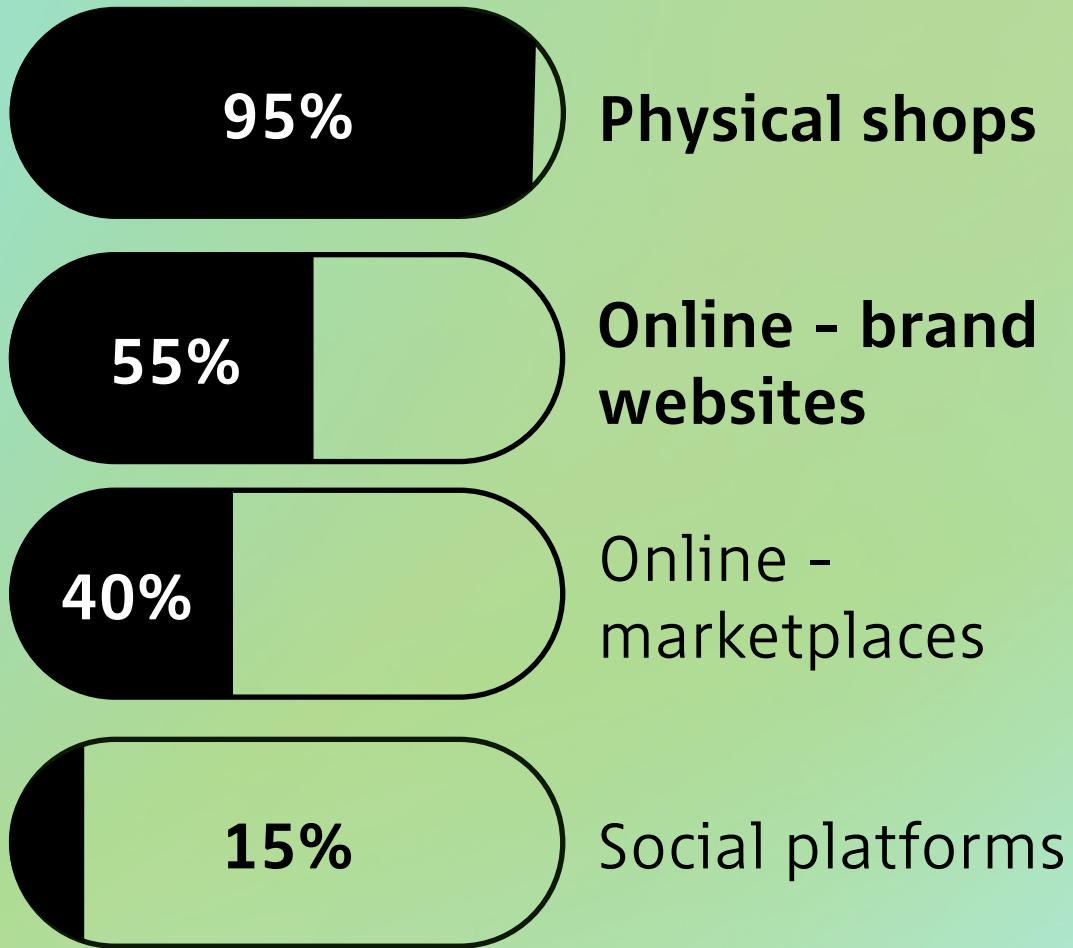


To better understand how fashion consumers relate to the shopping experience, a qualitative survey was conducted through Google Forms. In total, it got 20 respondents, mostly women (90%) from Latin America (60%) and Europe (35%), from 21 - 55 years old.

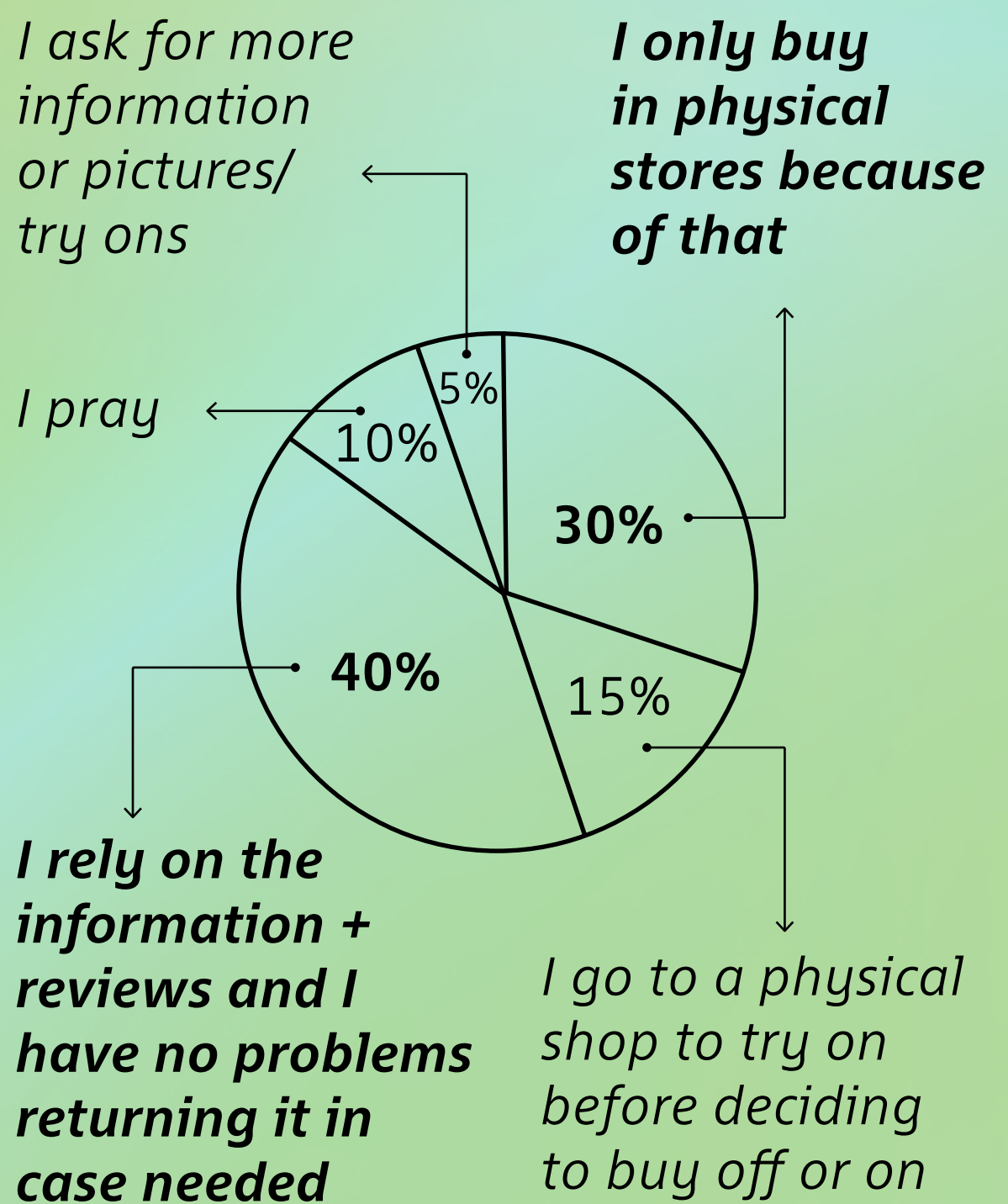
QUALITATIVE RESEARCH - shopping

insights

How do you normally shop for clothes?



How do you try on clothes before buying them online?



visual flow



Analysis of common shopping experiences through the anatomy framework

AFFORDANCES

Good foundations for customer service, being normally well-designed for the specific target public

USABILITY

Some physical stores are not inclusive or accessible. E-commerce still lacks easy navigation or frictionless journeys in many cases

AESTHETICS

Appealing merchandising in brick-and-mortar. E-commerces are too functional sometimes, lacking artistic touches

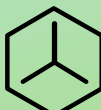
MEANING

Fashion shopping causes overconsumption and it became a meaningless and addictive practice in many cases


RICH QUALITIES TO BE EXPLORED

sacrificing (reluctance + pride)
sentimental (poignancy + enchantment)


THE SHOPPING EXPERIENCE ANATOMY





- physical
- blended
- digital




“People often buy products not for what they do but for what they mean”









answer with design: 

- Do I need it?*
- Should I buy it?*
- Can I pay for it?*
- Does it fit?*
- How do I buy it?*
- When can I have it*
- Can I return it?*

Dopamine helps people escape reality, but post-relationship is as important as the purchase itself

Figure 70: Anatomy of The Shopping Experience. Source: Author

GAPS

Overconsumption and low value in shopping for fashion goods, especially fast fashion

Selling services (or one-time Erlebnissen) instead of products could be more and better explored

Online shopping still lacks easy navigation and accessibility

DESIGN OPORTUNITIES

DISCOVERABILITY

Provide levels of reality recognition and easy navigation in virtual experiences, balanced with extraordinary perceptions, like materials, shapes, and locations

CONCEPTUAL MODEL

Integrate digital-only fashion as a solution for overconsumption and physical enhancement

Services like 1-click/ self-checkout and fast delivery can improve customer experience and loyalty

AFFORDANCES

People understand something is for sale when it is perceived as exchangeable, so add clear information of commercial value (independently of the currency)

SIGNIFIERS

Use sensorial design for clear and accessible signage, both in a physical space and for navigating digital interfaces

MAPPINGS

Map the customer journey to identify and connect channels and touchpoints

Electronic transactions are better in-channel or seamless transitions



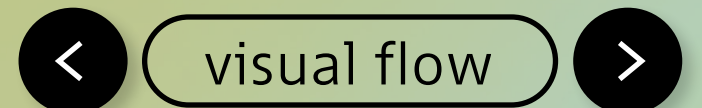
LAYERS OF EXPERIENCE

USER EXPERIENCE - UX



Figure 71: Factors for a successful UX.

Source: Author, adapted from Interaction Design Foundation, 4



Brenda Laurel, a designer and researcher, coined the term “user experience” in her article “Interface as Mimesis”. It was first published in the book “User Centered System Design: New Perspectives on Human-computer Interaction,” edited by Donald Norman, the “Father of UX,” and Stephen Draper in 1986. The field, however, is much older.

Norman (2007) uses psychologist Licklider’s “symbiotic relationship” as an example. In the 1950s, the term referred to a harmonious interaction between humans and machines. This relationship should emerge naturally as a result of dual-sided performance—a human-machine fusion. Animal and technological evolution occur in different timeframes, but each stimulates the other. As humans, we adapt to systems designed to meet our needs while our knowledge evolves to develop technologies.

This relation can be a two-edged sword. Quick adoption leads to new studies and progression, but we also have problems like fads and planned obsolescence instigating forced adaptation without responding to our needs. People are over and over forced to learn the rules by trial and error, and the system’s sustainability is often ignored. That is why we need design focusing on those aspects. According to Peter Morville (cited in Interaction Design Foundation, 4) there are 7 factors that describe a successful user experience: it is useful, usable, findable, credible, desirable, accessible and valuable.

UX became a “hot topic” in the past decades because of pressures from the PC and the web revolution (Nielsen, 2017). Apart from that, if we recall the conditions for innovation, there is not always a need for radical changes or magical technology for our lives to get better. When the context research is well done, simple solutions come up as brilliant insights. The famous “why have I not thought of that?”

User experience has many relevant layers and applications. Starting from Garrett’s Elements (Garrett, 2011), we have five planes: strategy, scope, structure, skeleton, and surface. Going upstairs from abstract to concrete ideas, each level represents relevant decisions to be made to advance to the next.

Inside Strategy, we make definitions such as user needs and the objectives of the project. Specifications and requirements are decided in the scope level. In structure we start the designing process of the interactive system. The skeleton is the first concrete translation of the abstract levels, interpreting everything into wireframes (sketches) and interfaces. And the surface is what users will truly sense, for example, colors, images, texts, buttons, and transitions.

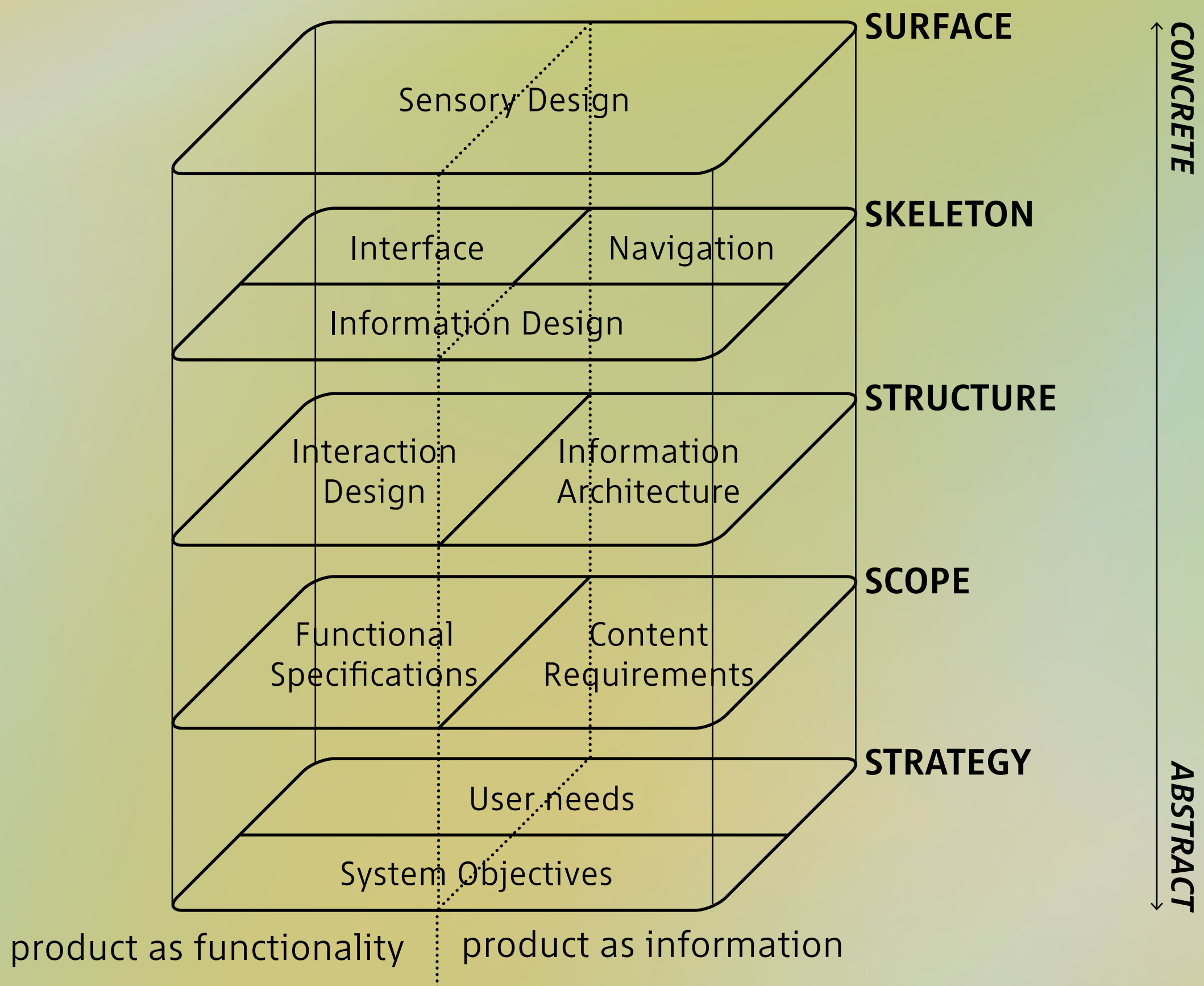
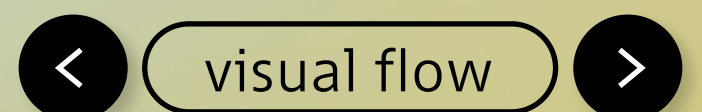


Figure 72: The Elements of User Experience
Source: Author, adapted from Garrett, 2011

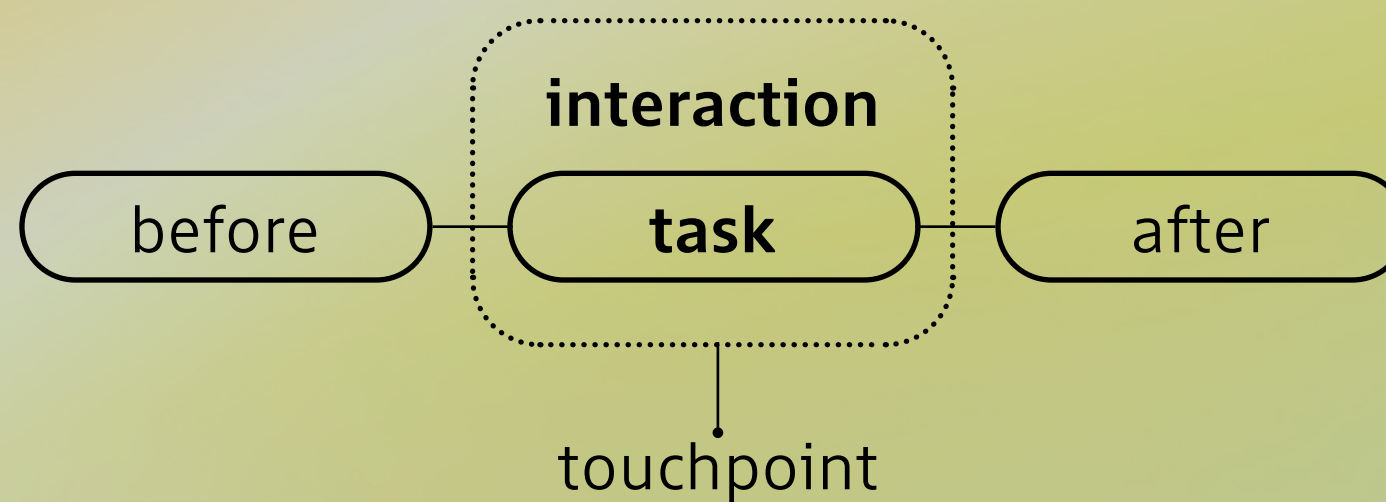


Furthermore, Salazar (2019) separates UX into three levels: single interaction, journey, and relationship. The first refers to the Erlebnis of interacting with only one touchpoint, device, or channel to complete a task. It is where Garrett's model can be applied in detail. The second is the experience that connects all touchpoints needed for a customer to achieve a goal, and the last is the complete brand experience. We see how user experience can entail micro and macro interactions, and how the connection of journeys creates a healthy relationship. For this reason, it is crucial to understand the touchpoints with the customer and what happens before, during, and after the interactions.

The following scheme illustrates those levels and how they interconnect.

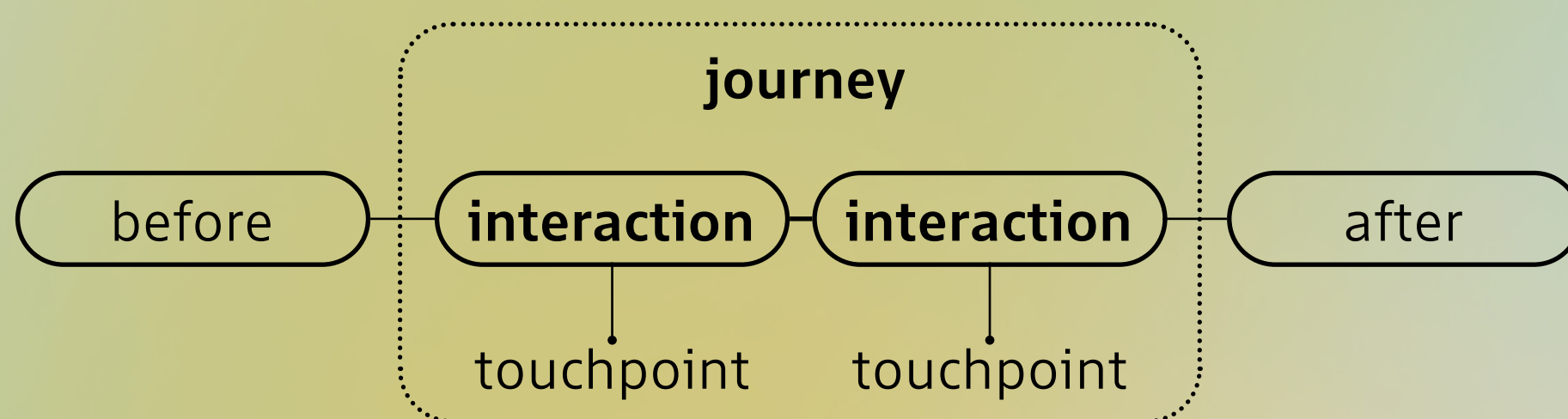
Interaction level

Erlebniss with a single touchpoint to complete a specific task



Journey level

Multi-channel/-touchpoint Erlebnissen when achieving a goal



Relationship level

All interactions between the person as a customer and the business

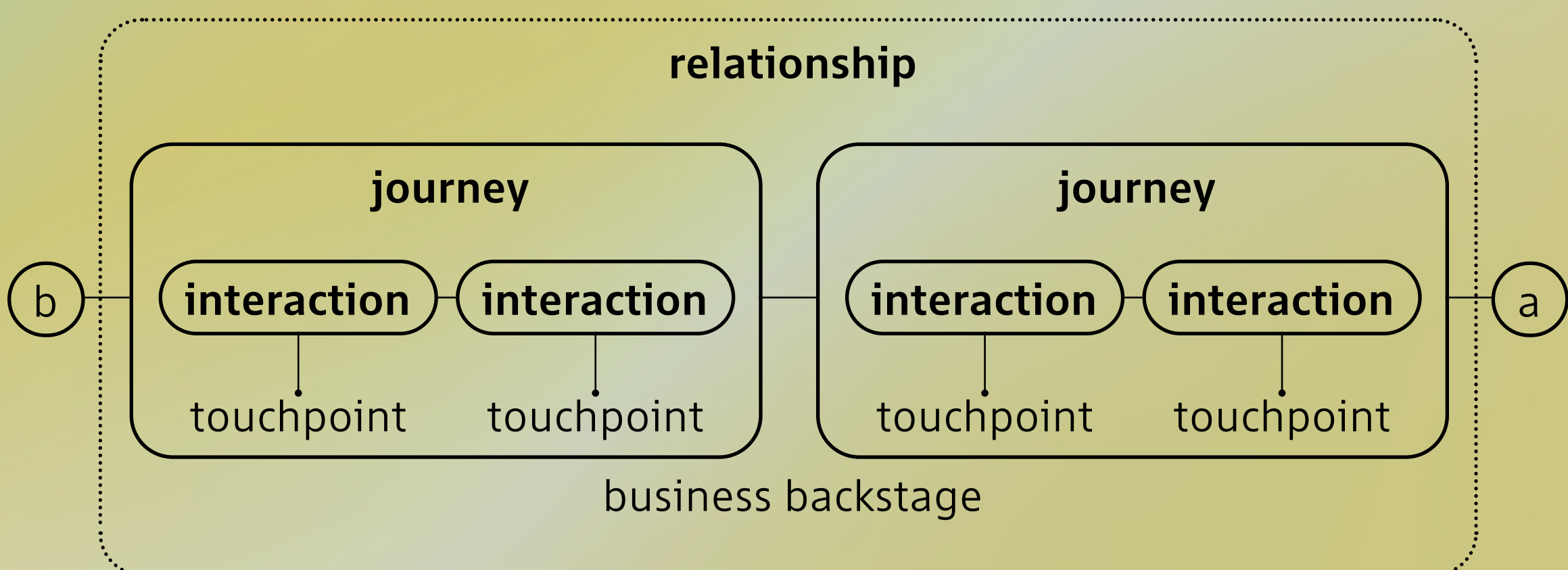


Figure 73: Levels of experience. Source: Author, adapted from Salazar (2019)



CUSTOMER EXPERIENCE - CX

Something confusing about this field is the different denominations and descriptions. For targeting the fashion system, we will avoid being too technical. We can focus on the differences between UX and CX.

Truth is there is no right or wrong. It is a matter of interpretation. Customer Experience is only a newer name “used to describe the totality of the interactions that a user has with an organization over time” (Salazar, 2019). Both refer to human experiences. Designers tend to focus on the users of a product at the same time that the industry only sees customers (and consumers).

Fadell (2022) highlights how customers do not differentiate between products and companies. All pieces of experience are directly related to a brand as a whole. And we should bear in mind that users have a different perspective from consumers. Stores might offer a great shopping experience, but if the product fails and the support is too complicated, the customer will lose admiration for the brand. As Norman (2013) says: “the design must be thought of as a total experience.”

You might ask:

Is it the designer`s responsibility to think about all layers of experience?

Author

Yes and no. Holistic visualization is important for delivering seamless experiences at each level, but it can take different approaches.

That is why this field is, in theory, so segmented. Business and service design, Interaction design (IxD), Information Architecture, UX research, UX design, UX writing, User Interface (UI), Front-end development (interface coding), etc. All have specific responsibilities to perform inside a project sprint. The goal is to disseminate the so-called design thinking across all departments to help with meaningful decisions.

Of course, we also have the multitasking-factotum handy-designer figure who does everything. The full-stack designer (in software development) could very well be considered a super-human, and yet is who companies expect every designer to be.





Tony Fadell, 2022

Don't tell me what's so special about this object. Tell me what's different about the customer journey.

Your product isn't only your product. It's the whole user experience—a chain that begins when someone learns about your brand for the first time and ends when your product disappears from their life, returned or thrown away, sold to a friend or deleted in a burst of electrons.

Author

High-value fashion products have an extraordinary capacity of staying in a person's life for years and even generations. It means that the user experience might never end. It is a good design quality and asks for a complete business model. How to continue this relationship intact for so long?

Brand history and values are definitely keypoints to maintain a good connection with customers. New acquisitions, though, might be hard if the company does not keep up with societal and behavior changes. We saw how the digital factor impacted our perceptions and understandings of fashion experiences, so innovation in this space becomes crucial for survival.

Nonetheless, adding electronic interfaces to garments and accessories can generate its obsolescence. Designers must think of the complete product life cycle and the technology sustenance. Will it need upgrades? How can the customers do it? How will they know what to do? Will it have a cost?

In short, before, during, and after interactions are all part of the whole experience, no matter the level.



discussion



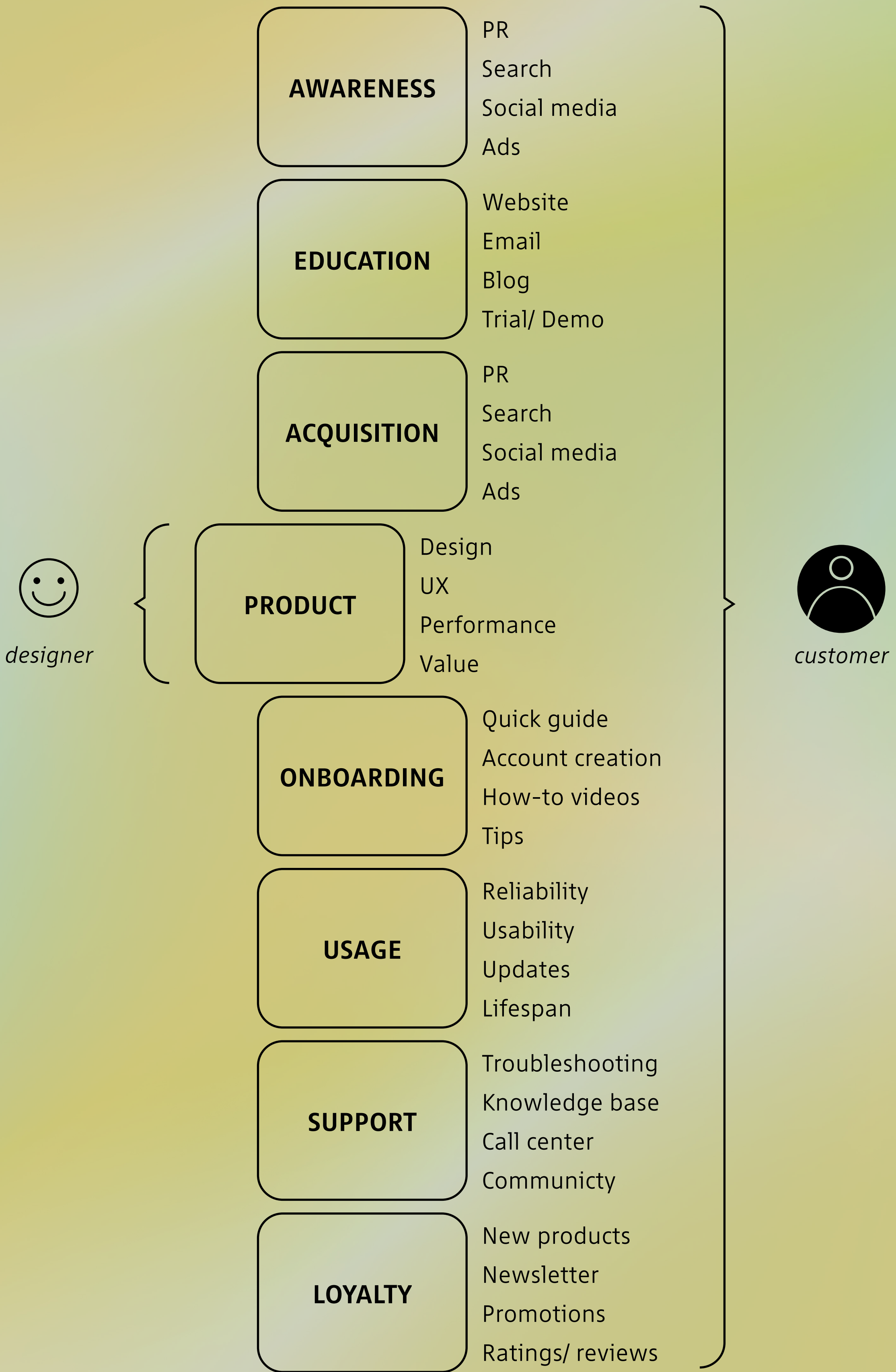


Figure 74: The customer journey and touchpoints
Source: Author, adapted from Fadell, 2022

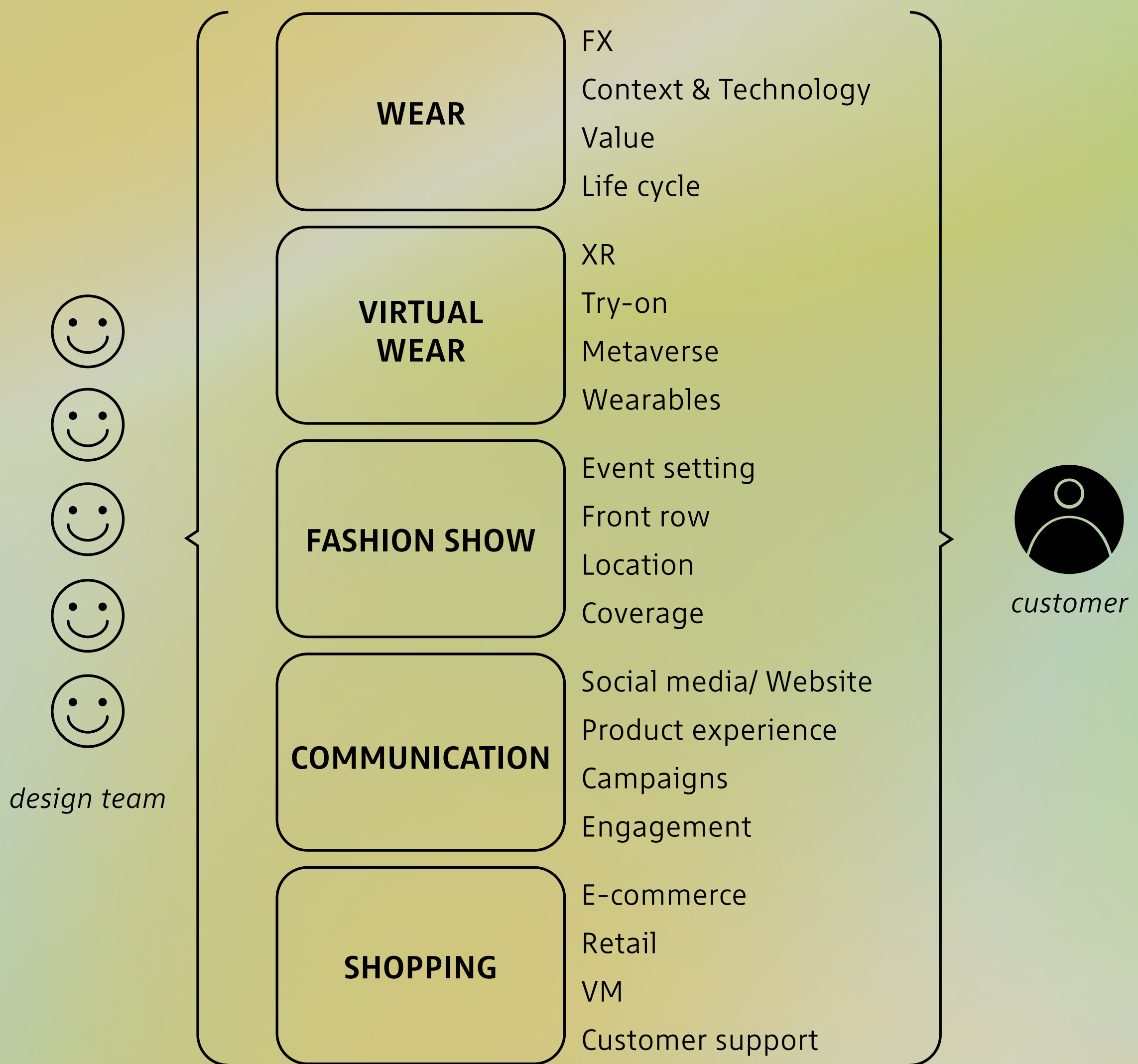


Figure 75: All pieces of FX should be part of the Customer Experience.
Source: Author



visual flow



Another point to consider is that users, customers, and consumers might be different personas with distinct forms of engagement with the experience. Users need usability for interacting with the product or service. Consumers are potentially more attracted by aesthetics, emotions, and some ideas of affordances, but may not become users. And customers need all components well balanced but may not even spend their money or become users. All three are relevant in their way and it is recommended to design for the three categories with particular goals in mind.

OMNICHANNEL EXPERIENCE

Depending on the perspective, touchpoints might have different characteristics. From a macro view, designing for a good user experience means connecting distinct platforms, devices, and stakeholders. UX Specialist Kim Salazar (2016) explains that “a great customer experience is the product of an effective and well-designed omnichannel ecosystem. To achieve it, organizations must research and understand the customer journeys that users take as they complete tasks across devices and channels.”

There are three types of channel experiences: multi-channel, cross-channel, and omnichannel. Multi-channel experiences are present in different but separate channels, while cross-channel experiences connect them. Moreover, omnichannel experiences aim to unify all touchpoints into a cohesive and customer-centric system. By combining multiple channels in a single journey, omnichannel experiences enable a seamless and consistent experience for the customer (Dungl, 2021).

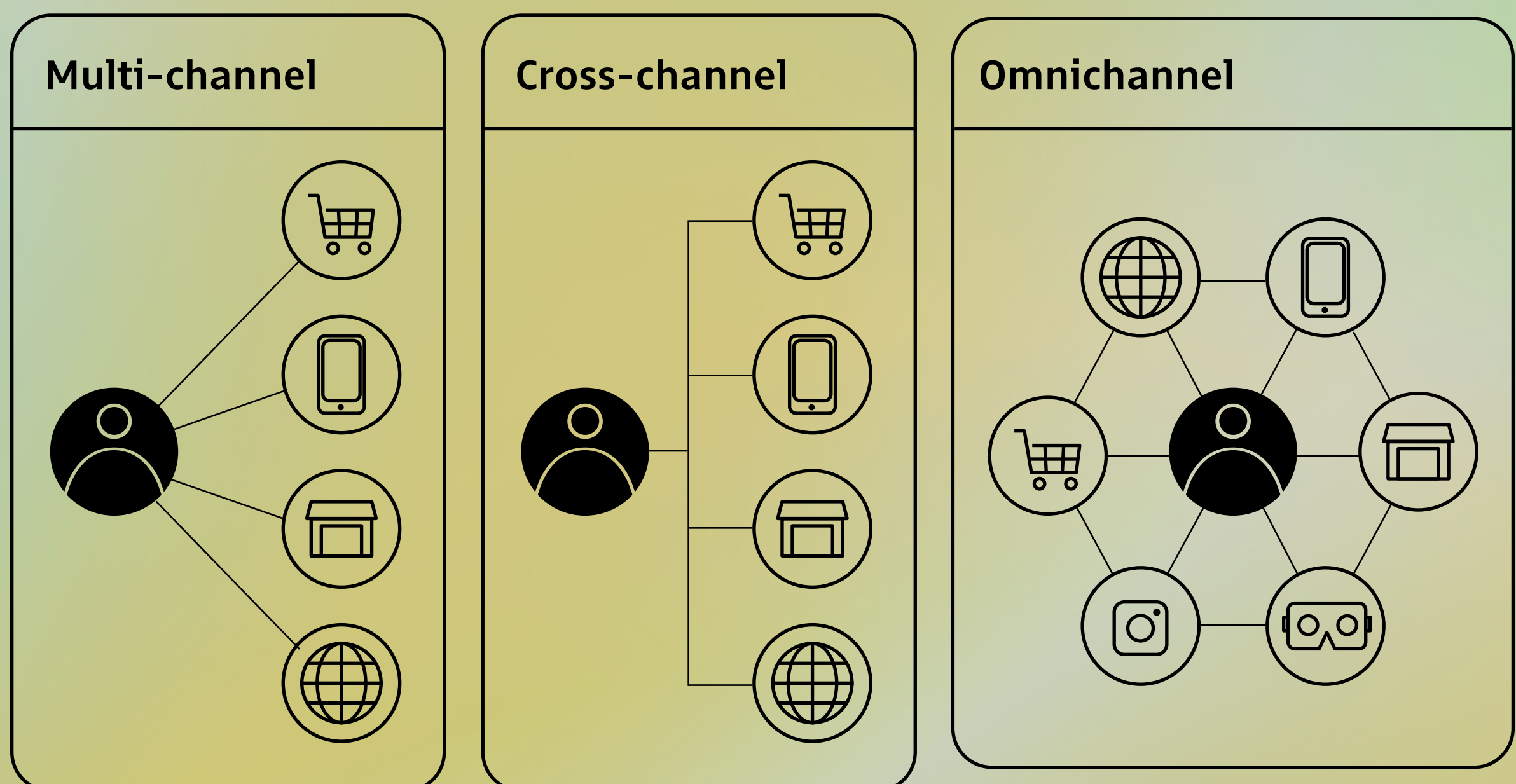


Figure 76: Types of channel strategies. Source: Author, adapted from Dungl (2021)



visual flow



It is important to note that simply existing on all channels isn't enough. As Salazar notes, multichannel is not the same as omnichannel. Customers do not experience separate pieces of an experience - they experience it as a whole. Therefore, omnichannel experiences must be consistent, optimized, seamless, orchestrated, and collaborative to succeed.

Consistent

cohesive across all channels

Optimized

an experience fit for that specific touchpoint/ channel/ context

Seamless

effortless channel transitions and interface recognition during a journey

Orchestrated

proactive help through the journey with personalized interactions and messages

Collaborative

connecting devices' advantages and functionalities across the journey



visual flow



Likewise, human interactions are even more than omnichannel. By flowing from physical to phygital and digital, they are becoming something closer to omnispace. Chat GPT's answer endorses it and relates to Fei Ren's fictional vision of a close future for "Omni Space Is A Digital Twin of A Shopping Mall". In his tale, a designer attends a job interview for "Omni", a gaming and social networking company. The meeting happens in a metaverse that hyper-realistically clones the real world as a great digital twin.

In existing Metaverses, for instance, frictionless experiences allow users to operate data, assets, finances, and identities across digital spaces. In this case, Collins & Li (2023) defend interoperability as a tool for stakeholders to improve URL (Uniform Resource Locators) accessibility and extend IRL (in-real-life) experiences. In their words, "the standardization of tools and both the formation and adoption of uniform development practices resulting from interoperability could allow stakeholders to benefit from frictionless development – or network effects that provide efficiencies and cost savings across consumer, enterprise, and industrial interaction paradigms."

Standards, furthermore, need to be a combination of management strategies, anthropometric rules, design choices, and technical constraints. And that is how UX heuristics, frameworks, and best practices can support the Metaverse and new fashion systems in becoming omnispace.



José Neves, founder of Farfetch (Paton, 2017)

Customers don't wake up and think, I will be online this morning or offline later; we are rarely purely one or the other anymore and tend to jump constantly between two worlds without noticing.

Author

INPUT: What is omnispace as a concept?

Generated with ChatGPT, 03/04/2023

Omnispace is a concept that refers to a unified space where physical and digital worlds merge seamlessly. It is a vision of a connected world where people and devices can interact in a ubiquitous and interoperable manner, regardless of location or network connectivity. In an omnispace, devices are not bound to a single network or technology, but can communicate with each other directly, creating a more fluid and integrated environment. The concept has gained interest in recent years with the development of new technologies such as 5G, edge computing, and the Internet of Things (IoT), which enable the seamless integration of physical and digital worlds.



discussion





FX TOOLKIT

THE DESIGN JOURNEY

The keyword for UX design is iteration. It is a journey of trial and error until we achieve the best result. Designers do all the effort so the user does not have to.

Design processes, however, are never linear. Each project follows different paths with specific personas, requirements and systems. Yet, we can highlight some of the pillars that structure exploratory disciplines.

Human-Centered Design (HCD), for example, has an iterative spiral method that stimulates observation, idea generation, prototyping, and testing. The process repeats going up the spiral, improving each turn (Norman, 2013). Likewise, for the IDEO.org studio (2015), HCD goes through three fundamental phases: inspiration, ideation, and implementation. Repeatedly diverging and converging.

HCD: According to Norman

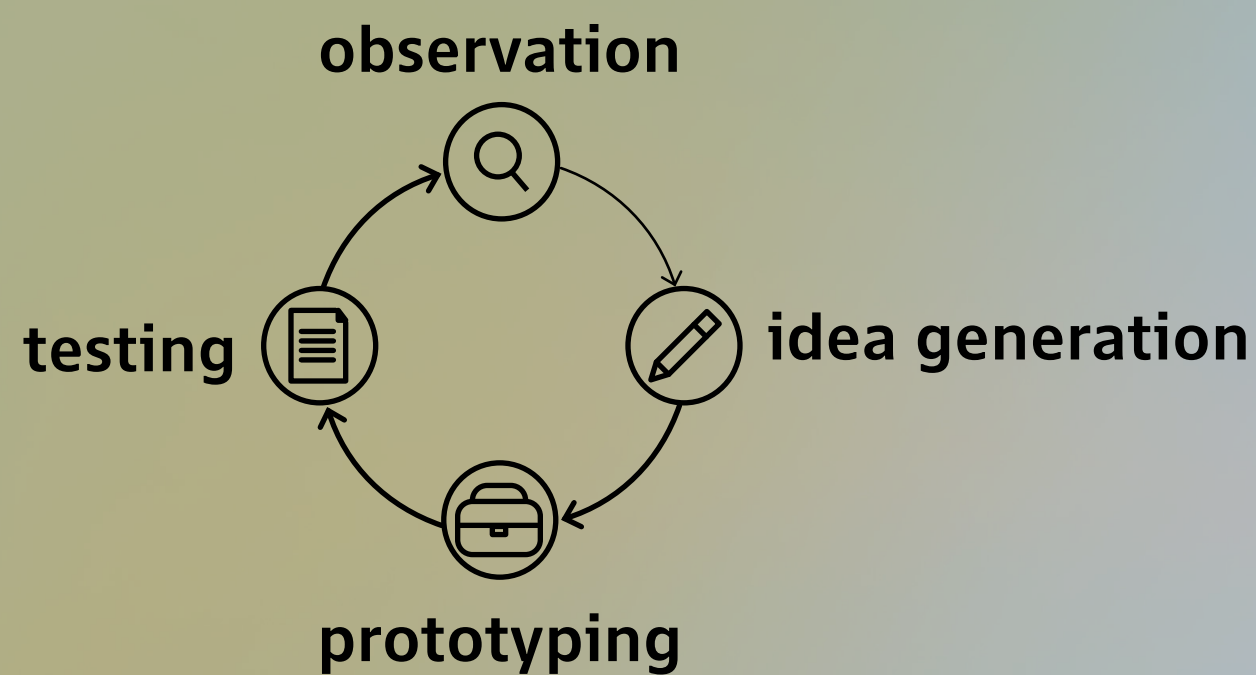


Figure 77: HCD spiral phases. Source: Adapted from Norman (2013)

HCD: According to IDEO

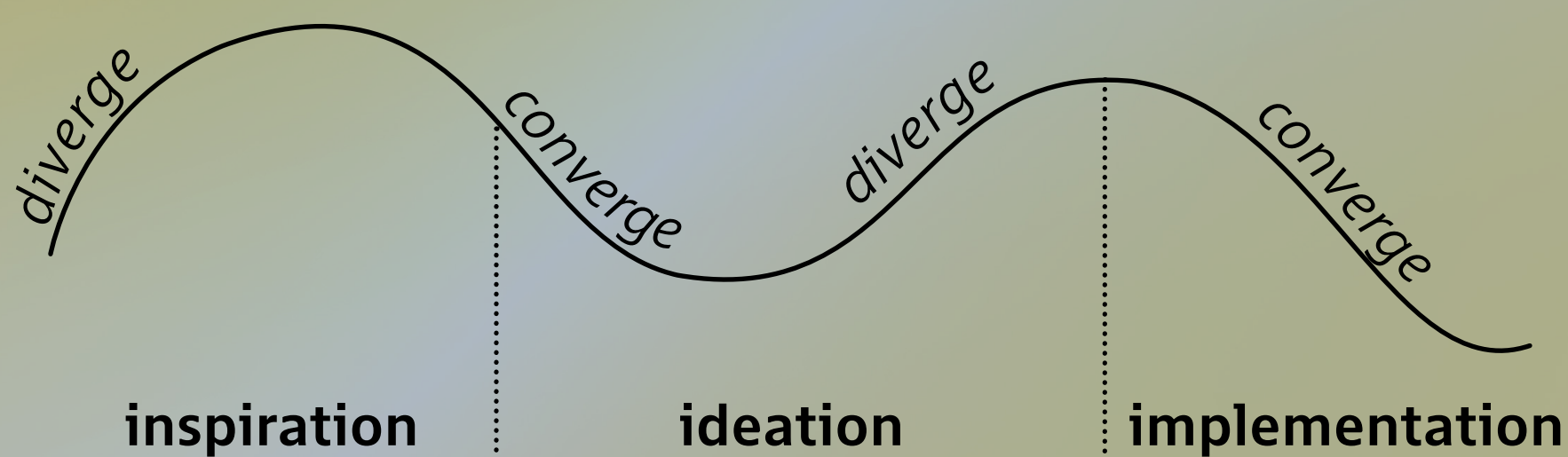


Figure 78: HCD mountain phases. Source: Adapted from IDEO (2015)



The divergent-convergent way of thinking is also the premise for the double and triple diamond models. These frameworks are so universal that many design fields and even management claim it as their main process workflow. The central point of this kind of divergent and convergent model is problem-finding and problem-solving: solve the right problem and solve the problem right. (Humble, 2021).

The latest relevant evolution of the double diamond, proposed by the Design Council in 2004, is based on four Ds: discover, define, develop, and deliver. More recently, new models also show third diamonds focused either on strategy (placed before) or technical development (placed after).

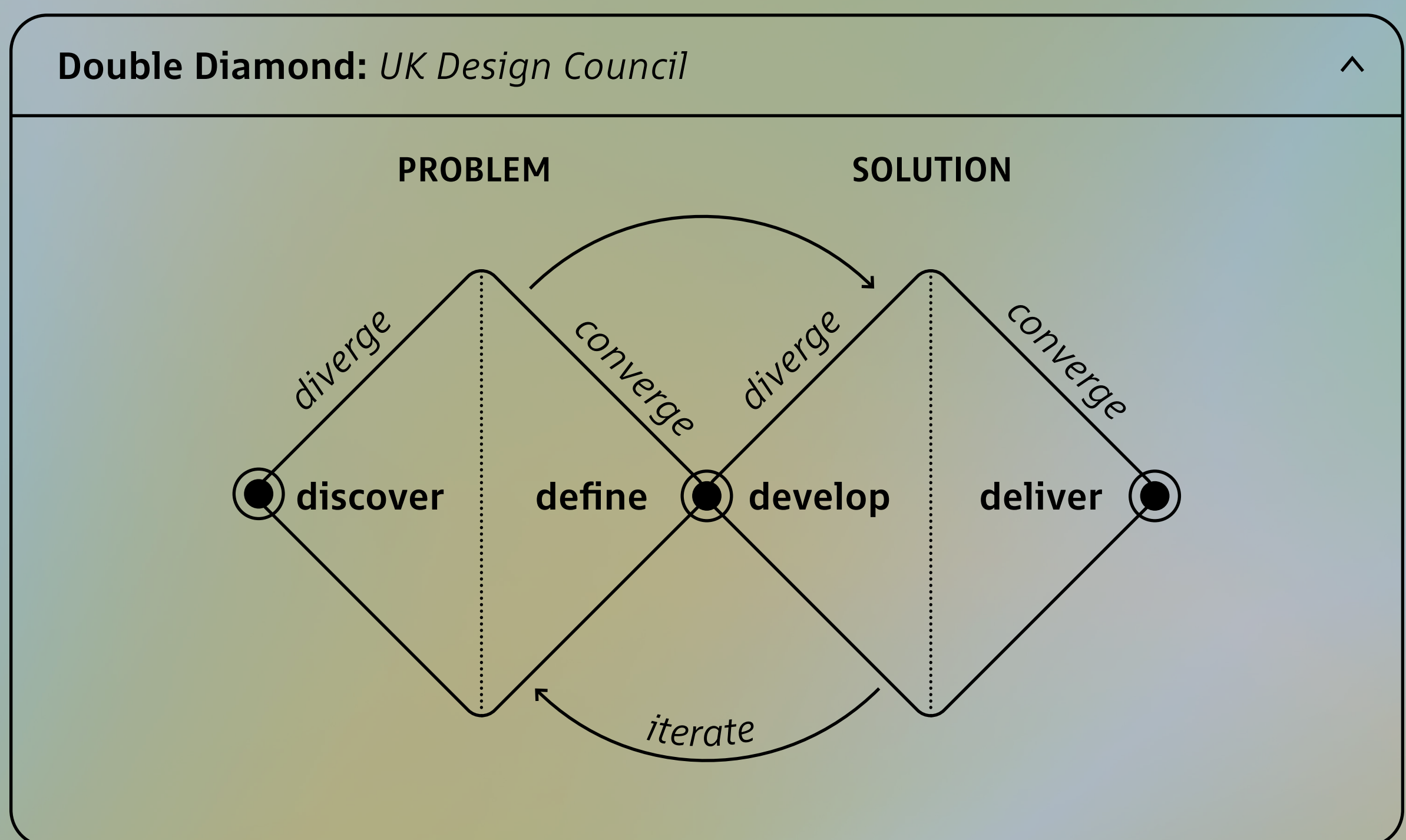


Figure 79: The Double Diamond. Source: Adapted from Humble, 2021



visual flow



There is also IDEO's controversial Design Thinking model, which is based on five non-linear steps: empathize, define, ideate, prototype, and test. It was developed to train non-designers, so it shows an oversimplified idea of how the design process works (Humble, 2021). DT is a classic example of how designers need to develop critical sense to master the process instead of being swallowed by it. At the same time, Design Thinking empowers us to explain our value out of the bubble and defend our decisions.

IDEO.org, 2015

Human-centered designers are unlike other problem solvers—we tinker and test, we fail early and often, and we spend a surprising amount of time not knowing the answer to the challenge at hand. And yet, we forge ahead. We're optimists and makers, experimenters and learners, we empathize and iterate, and we look for inspiration in unexpected places. We believe that a solution is out there and that by keeping focused on the people we're designing for and asking the right questions, we'll get there together. We dream up lots of ideas, some that work and some that don't. We make our ideas tangible so that we can test them, and then we refine them. In the end, our approach amounts to wild creativity, to a ceaseless push to innovate, and a confidence that leads us to solutions we'd never dreamed of when we started.

You might ask:

How to decide which design process to follow?

Author

For starters, it is hard to say what is a design process. There is no recipe, only tools, and guidelines. Design Thinking, for example, is a very commercial attempt at explaining (and selling) design for non-designers. To gain market space and value, some agencies sell the creative process as a magic solution for all problems.

But we, as designers, know there is no magic. Design is, for sure, capable of solving all types of challenges, but with a complex, confusing, and hardworking process. Insights and creativity come from a great amount of research, observation, and interpretation. On the other hand, no one has the responsibility to understand how design works or have a designer's mindset. What truly matters is to coincide workflows so a team can progress simultaneously.

To work in macro perspectives such as omnichannel and omnispace experiences, the work goes much beyond the designers' hands. That is why we propose a new interpretation of the Triple Diamond, a way to guide the fashion designer's steps inside this large process.

FX JEWEL

Inspired by Marisa Chentakul's comparison of the Diamonds framework with her typical fashion design process (2018), this study proposes a fashionable Jewel. In this interpretation of the Triple Diamond, the HCD's fundamental aspects and the digital factor present a guide to designing for omnispace fashion experiences.

The FX Jewel model introduces a kit of tools and methods to assist designers during three main phases: problem inspiration, solution ideation, and implementation. The differential of this proposal is in the final convergences in the shape of a diamond with several edges, to connect with other pieces of experience.

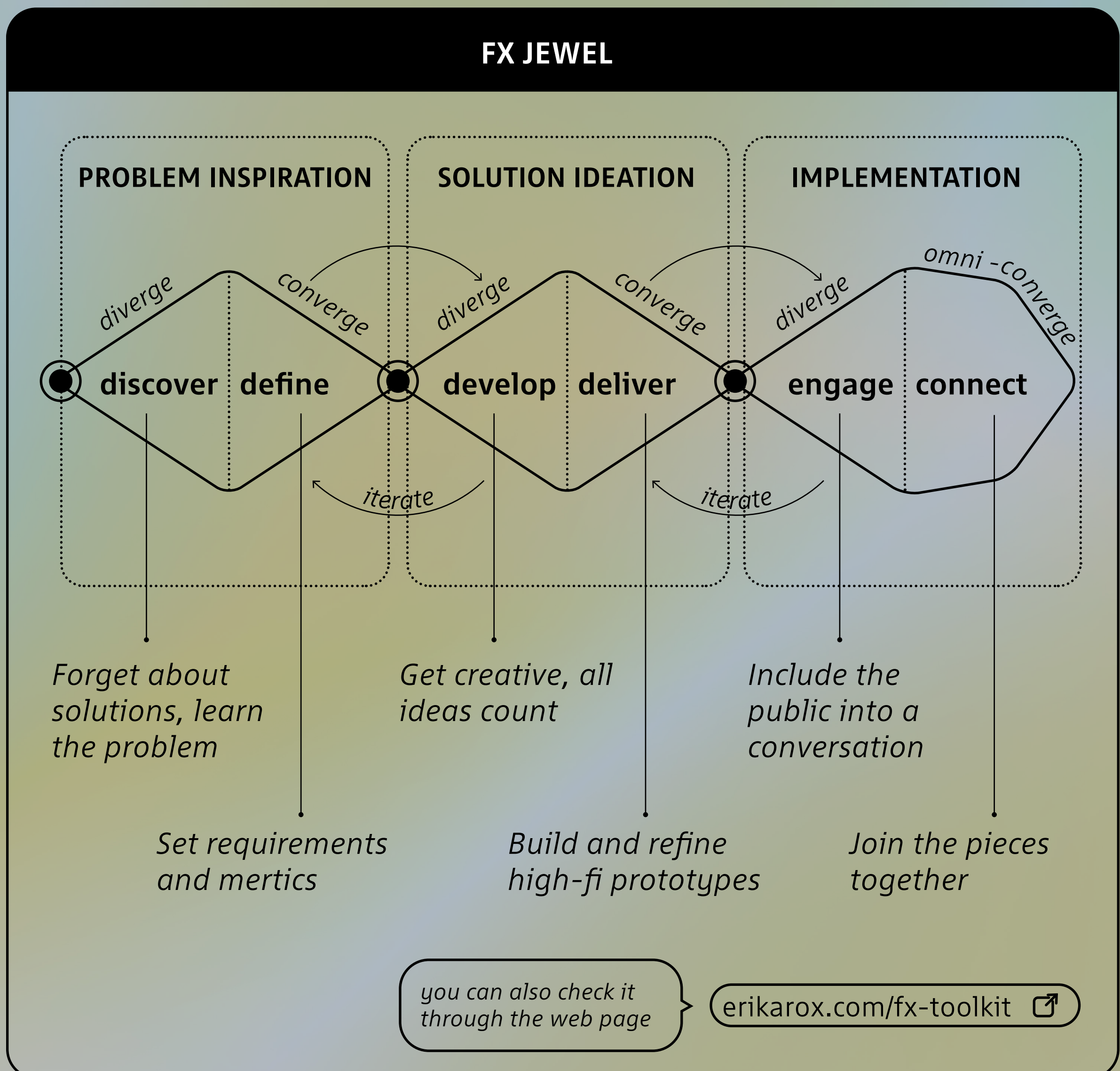
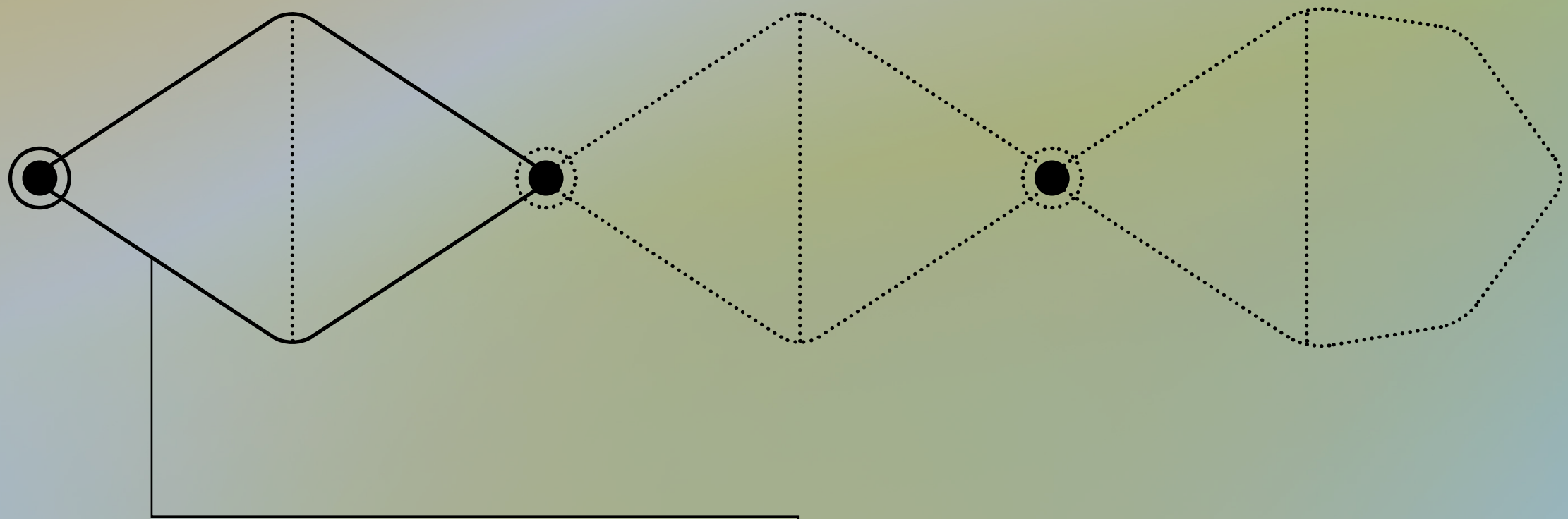


Figure 80: The Fashion Experience Jewel. Source: Author

PROBLEM INSPIRATION



DISCOVER diverge

Discover who are the project personas and what they need, as well as which touchpoints can connect to them.

Keypoints: research and field studies

Tools and methods checklist*:

- Desk research
- Ethnography
- Netnography
- Shadowing
- Surveys and interviews

DESK RESEARCH

discover

Wear experience

Act of gathering and analyzing existing data and findings for background and context. It can provide insights into macro trends, demographics, consumer preferences, and industry best practices and avoid rework in assessing the competitive landscape to identify innovation opportunities.

Sources: Interaction Design Foundation, MJV Technology & Innovation, Livework

Also known as: secondary research

Type: literature review

Time: 1h - weeks

Deliverables: insight cards (see example), reports, best practices

First-aid kit: archives, AI tools (ChatGPT, NextAtlas), data analytics, CSD matrix (see example)

Virtual wear experience

Show experience

Communication experience

Shopping experience

The diagram shows a template for an insight card. It has a header 'Insight card' with a date field '___/___/___'. Below the header is a large rounded rectangle containing a smaller rounded rectangle with a '#' symbol in a pill-shaped box at the top right. The word 'insight' is centered in the main area. At the bottom, there is a 'Source:' label followed by a horizontal line.

Insight card template.
Source: Author, adapted from MJV, 2012

Steps:

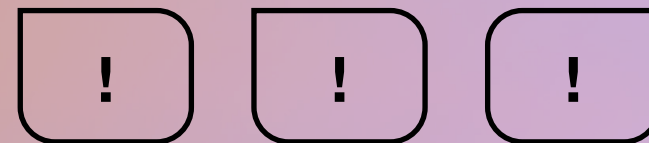
1. Define the problem statement
2. Search for keywords
3. Identify resources
4. Collect data in insight cards
5. Refine the statement with the CSD matrix or similar logic

CSD - by Livework consultancy

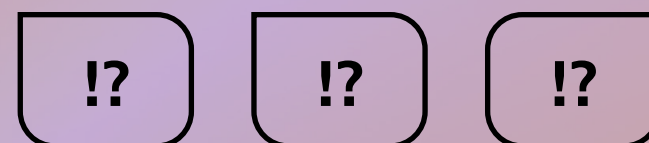
From portuguese: certainties, assumptions and doubts
(Certezas, suposições, dúvidas)

C - CERTAINTIES

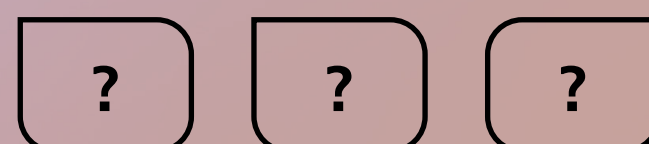
I am sure

**S - ASSUMPTIONS**

I suppose

**D - DOUBTS**

I have doubts



CSD. Source: Author, adapted from Aela School (2023)

ETHNOGRAPHY

discover

Wear experience

Virtual wear experience

Show experience

Communication experience

Shopping experience

A part of anthropology that involves immersing in a particular cultural or social setting to observe and understand people's behaviors, beliefs, and experiences. Helps in perceiving otherness with the target and establishing relationships for further research.

Sources: Nielsen Norman Group, User Interviews

Also known as: cultural immersion, infiltration

Type: field study, qualitative research, active observation

Time: 1h - weeks

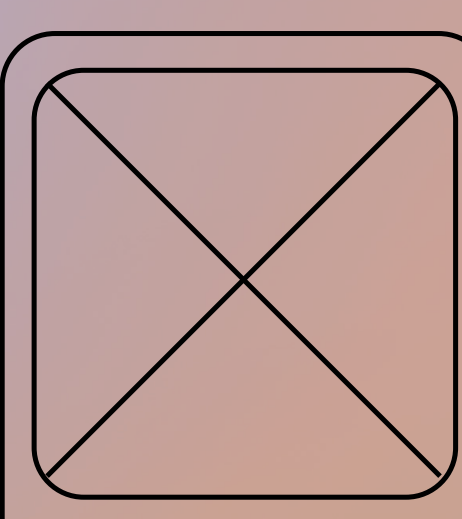
Deliverables: recordings, insights, patterns, relationship

First-aid kit: checklists, immersion journal

Steps:

1. Reframe the problem with the customers eye and create hypotheses
2. Set a checklist to analyze
3. Discover how to blend in
4. Participate on gatherings, events and conversations
5. Take pictures or videos if possible
6. Make notes during or right after

Immersion journal
When? ___/___/___



Picture/ draw

Issue: _____

Target: _____

Notes: _____

insight

Patterns

Immersion journal template. Source: Author

NETNOGRAPHY

discover

Wear experience

Virtual wear experience

Show experience

Communication experience

Shopping experience

A branch of digital anthropology that involves studying online communities to understand patterns of user behavior and experiences. Can assist designers in identifying emerging trends, gathering feedback, evaluating user needs in a digital context, and creating relationships.

Sources: Giles Crouch, Bootcamp

Also known as: digital ethnography

Type: field study, qualitative research, active observation

Time: 1h - weeks

Deliverables: recordings, insights, patterns, relationship

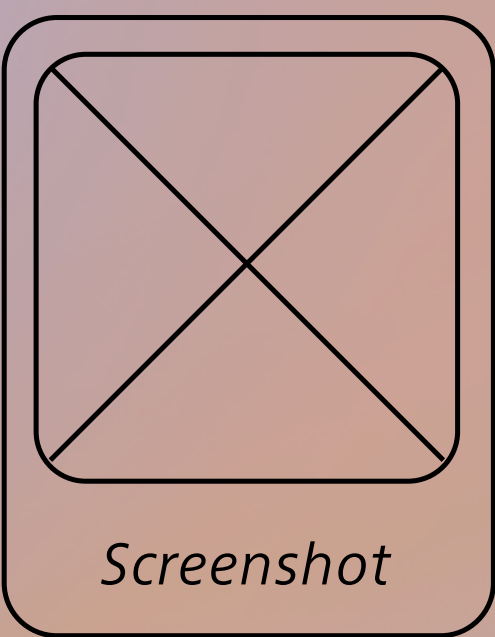
First-aid kit: checklists, online immersion journal

Steps:

1. Reframe the problem with the customers eye and create hypotheses
2. Set a checklist to analyze
3. Search for online activity and keywords
4. Comment on social media to engage conversations and participate on online forums and events
5. Capture evidences and record discussions
6. Make notes during or right after

Online immersion journal

When? ___/___/___



Issue: _____

Target: _____

Notes: _____

Patterns # # @ @

Online immersion journal template. Source: Author

SHADOWING

discover

Wear experience

Consists in following a representative of the target audience to understand their context during certain activities. Provides insights into behavior and feelings, struggles, and style choices. It is a good opportunity to see how they interact in real circumstances and discover possible touchpoints.

Sources: Interaction Design Foundation, MJV

Also known as: observational research

Type: field study, qualitative research, passive observation

Time: 30 minutes - weeks

Deliverables: recordings, notes, journeys

First-aid kit: checklists, shadowing card (see example)

Steps:

1. Define an activity and the agent to follow
2. Agree with the person, but avoid telling when the activity will take place
3. Set a checklist to analyze, for example, paths taken, touchpoints, actions, conversations, body movement and expressions, etc
4. Follow the person everywhere, from far
5. Take pictures and videos
6. Make notes during or right after

Virtual wear experience

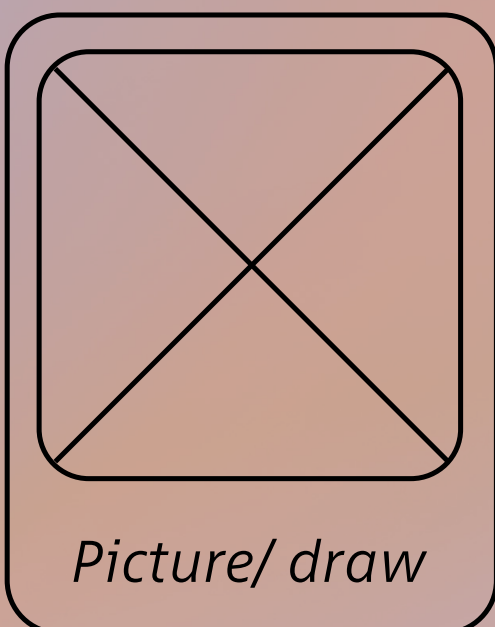
Show experience

Communication experience

Shopping experience

Shadowing card

Who? _____ When? ___/___/___

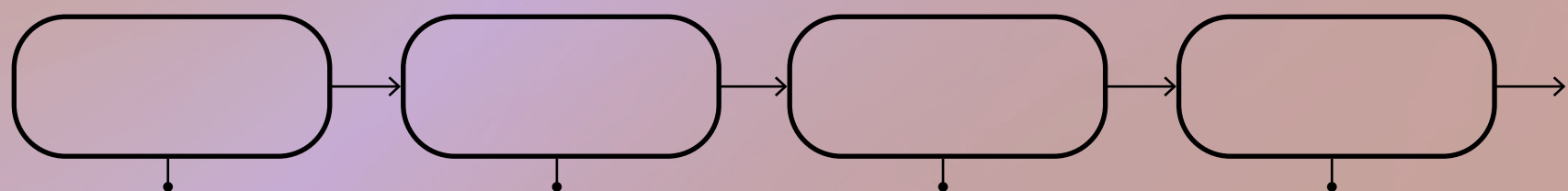


Activity: _____

Notes: _____



Main actions



Touchpoints



Expressions



Shadowing card template. Source: Author

SURVEYS & INTERVIEWS

discover

Wear experience

Research methods for gathering insights and feedback from users or stakeholders. Surveys ask structured questions to a large number of people, whereas interviews are one-on-one conversations between a researcher and a participant. Both can provide information about user needs, behaviors, and trends, as well as validate or provide feedback on prototypes.

Sources: IDEO, Survey Monkey, User Interviews

Also known as: primary research

Type: field study

Time: 1h - 1 week

Deliverables: recordings, insights, patterns, relationship

Virtual wear experience

Show experience

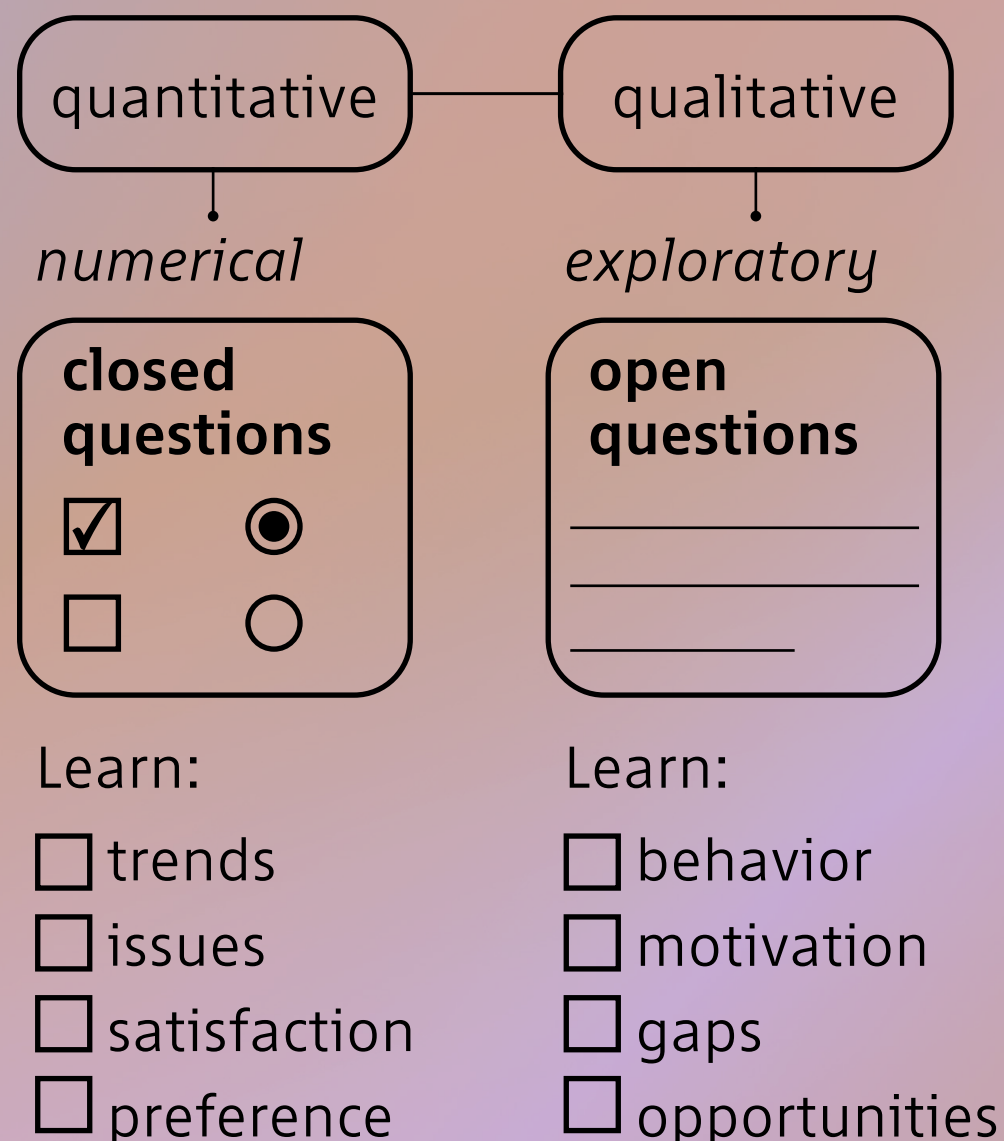
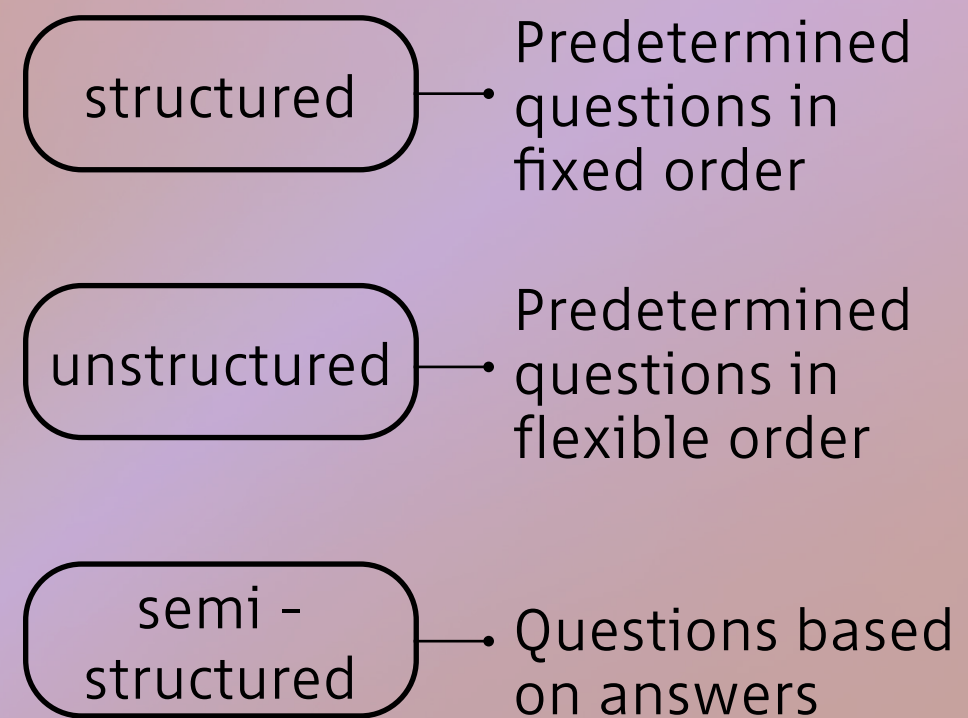
Communication experience

Shopping experience

First-aid kit: Survey/Interview diagram, online platforms (e.g. Google Forms, Survey Monkey, Google Meet, Zoom)

Steps:

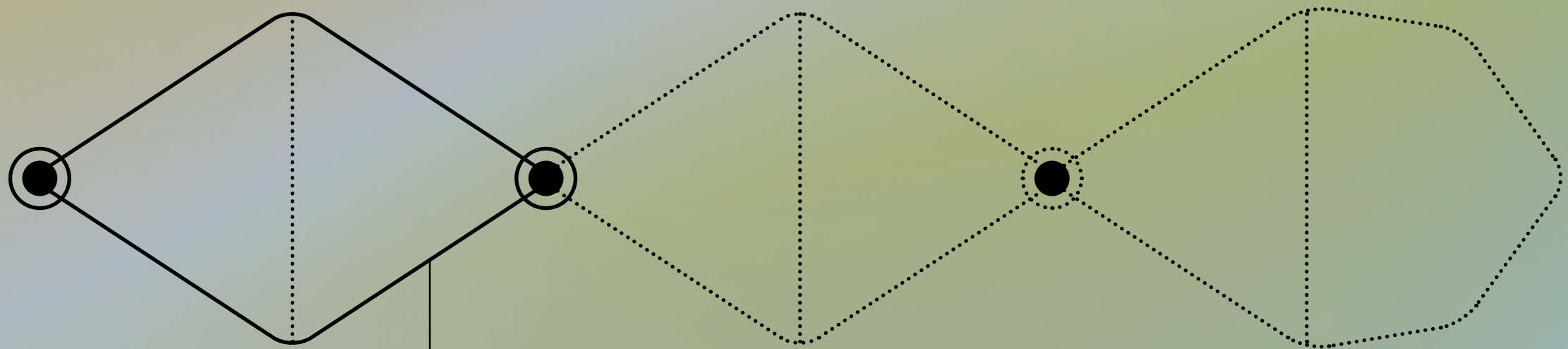
1. Define what you want to learn and for which purpose
2. Identify the target and discover how to approach them
3. Develop clear yet open questions
4. Test the questions before applying to the target audience
5. Conduct the research and make sure to not bias the answers
6. Analyze, highlight insightful quotes, and organize the data in graphs

Survey diagram**Interview diagram****Focus group**

Interview dynamic within a group, where participants can discuss the answers together

Survey/ Interview diagram. Source: Author

PROBLEM INSPIRATION



DEFINE converge

Define what is the value proposition and which strategies will be used to achieve it.

Keypoints: consolidation and metrics

Tools and methods checklist*:

- Roadmap
- Affinity diagram
- Persona building
- Empathy map
- Value proposition

ROADMAP

define

Wear experience

Virtual wear experience

Show experience

Communication experience

Shopping experience

A strategic plan that outlines the project process by setting activities for each team member from a time perspective. It is a management guide for teams, stakeholders, and clients to understand the progress of the project and ensure that the project meets its objectives, goals, and deadlines.

Sources: Nielsen Norman Group, Maze, IDEO

Also known as: project planning

Type: strategic

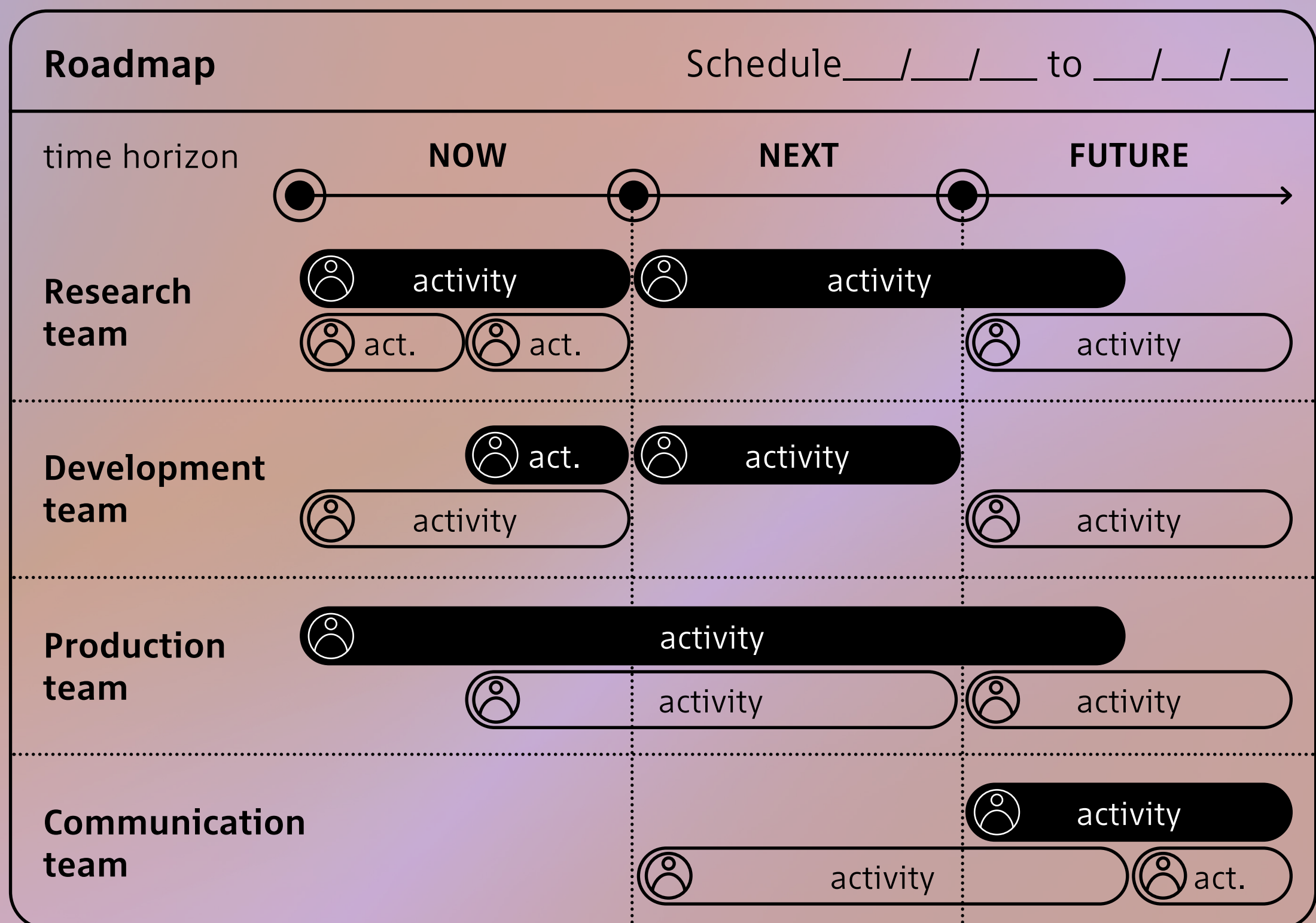
Time: 1h - 4h

Deliverables: schedule deadlines, backend

First-aid kit: roadmap template, interactive board (physical wall or platforms like Miro/ Figma)

Steps:

1. Assemble teams and stakeholders for the project
2. Set macro temporal phases such as now, next, and future
3. Think about the project milestones and define deadlines
4. Determine micro tasks and deliveries
5. Adress a team member or stakeholder for each task
6. Monitor and adjust when needed



Roadmap template. Author, adapted from

AFFINITY DIAGRAM

define

Wear experience

Visual organization of ideas, data, sketches and information based on natural relationships. Can be applied to cluster information and identify common themes and patterns. Allows designers to make sense of complex research.

Sources: Interaction Design Foundation, MJV

Also known as: clustering

Type: research consolidation, workshop

Time: 1h - 4h

Deliverables: information maps, keywords, insights

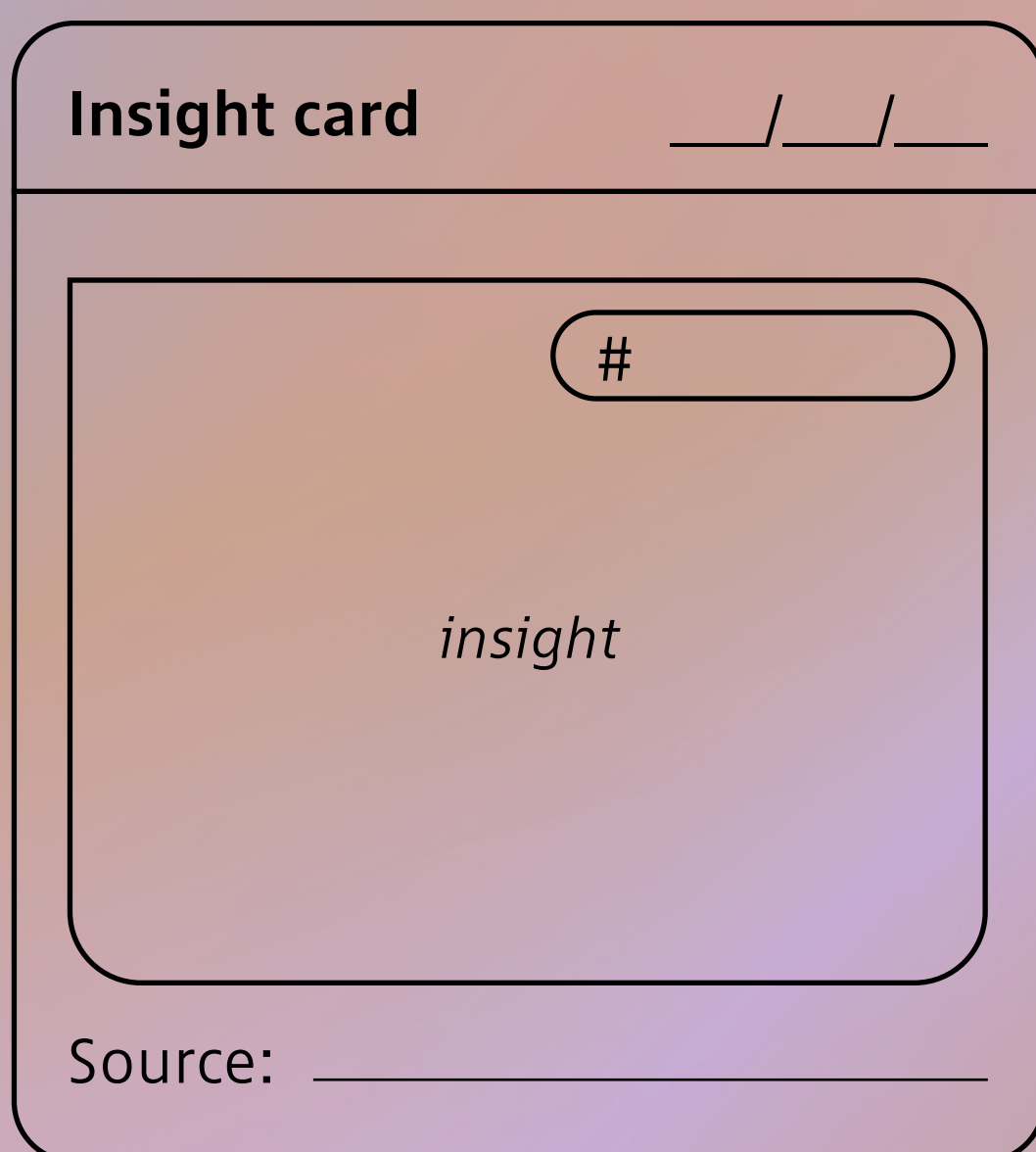
First-aid kit: insight cards, interactive board (physical wall or platforms like Miro/ Figma)

Virtual wear experience

Show experience

Communication experience

Shopping experience

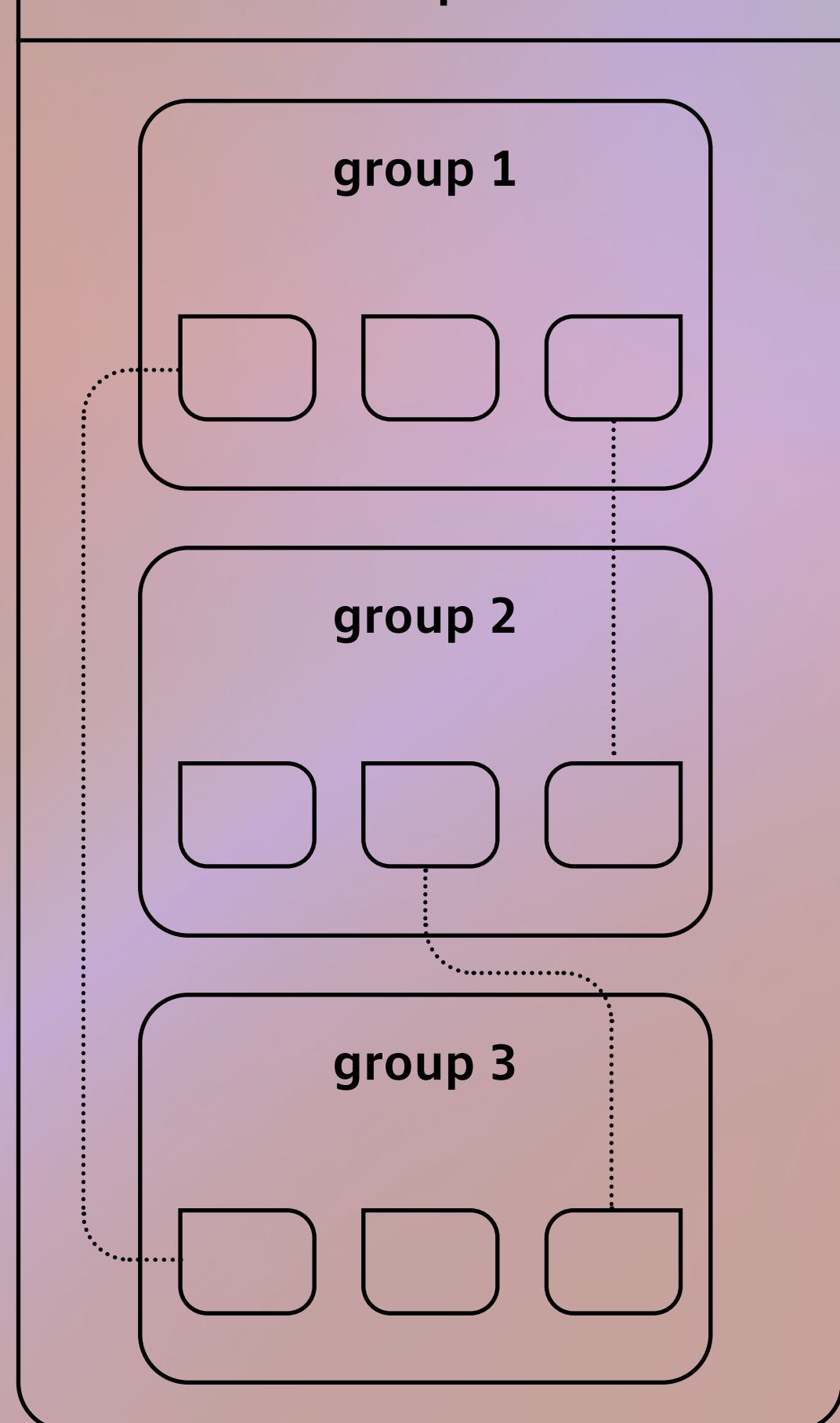


Insight card template.
Source: Author, adapted from MJV, 2012

Steps:

1. Take all insights in a pile
2. Start grouping the cards/post-its within a logic system
3. Change as many times as needed
4. Connect insights from different groups and create macro affinities if needed
5. Discuss and name the groups

Information map



Information map template.
Source: Author

PERSONA BUILDING

define

Wear experience

Fictional characters that represent the real customers. Helps in visualizing the audience and building empathy. There are three approaches: proto persona (based on existing knowledge and assumptions), qualitative (based on interviews and user research), mixed (based on qualitative and quantitative research)

Sources: MJV Technology & Innovation, UX Design Institute

Also known as: audience profile

Type: research consolidation, workshop

Time: 1h - 4h

Deliverables: personas and archetypes

First-aid kit: persona template

Steps:

1. Synthesize the research (demographics and qualitative insights) into affinities
2. Define a name, location, archetype/s, and visual representations
3. Identify needs, goals, frustrations, and motivations
4. Gather favorite brands, channels and apps used by the persona
5. Quote a lifestyle statement

Virtual wear experience

Show experience

Communication experience

Shopping experience

Persona	Archetype	
	Name: _____	Age: _____
<i>Image</i>	Location: _____	Identify as: _____
	Needs: _____ _____	
	Goals: _____ _____	
<i>quote</i>	 <i>gains</i>	 <i>pains</i>
Brands/channels	_____	_____
	_____	_____

Persona template. Source: Author

EMPATHY MAP

define

Wear experience

A visual representation of the user's perspective and experiences that allows a deeper understanding of their needs, desires, and pain points. The empathy map typically consists of four quadrants: says, thinks, does, and feels. It is also a good moment to identify jobs to be done by the customer

Sources: Nielsen Norman Group, Strategyzer

Also known as: customer profile

Type: research consolidation, workshop

Time: 1h - 4h

Deliverables: customer requirements, goals and needs

First-aid kit: empathy map

Steps:

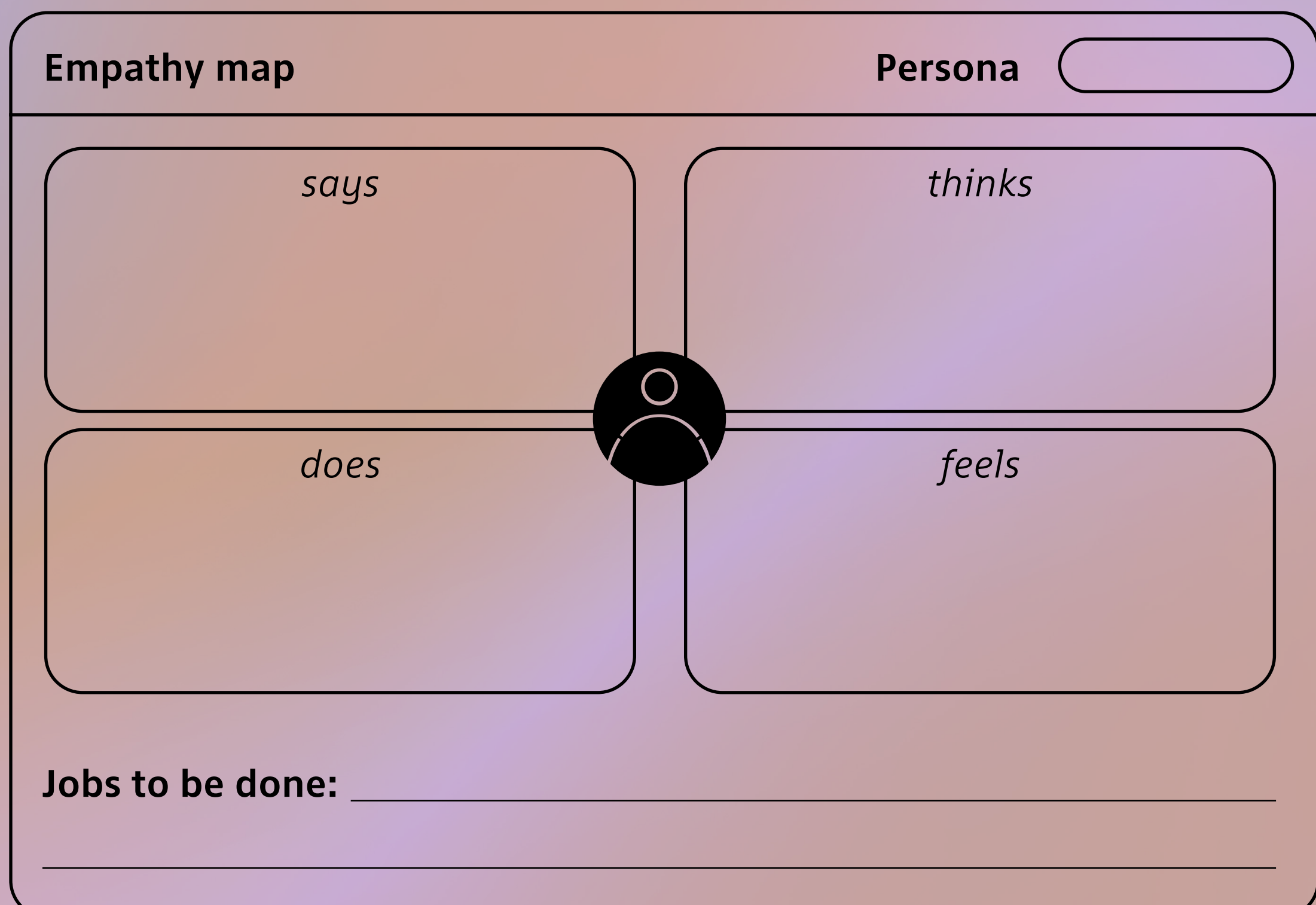
1. Study the persona created
2. Try to step into the personas' shoes
3. As that persona, identify the four quadrants:
4. What do they say, think, do, and feel
5. Define the customer jobs

Virtual wear experience

Show experience

Communication experience

Shopping experience



Empathy map template.
Source: Author, adapted from Nielsen Norman Group

VALUE PROPOSITION

define

Wear experience

A statement description of the unique benefits and value to be offered to the target audience. A tool that connects insights from the persona and empathy map into a customer profile and a map of values that respond to that profile.

Sources: Strategyzer

Also known as: value map

Type: research consolidation, co-creation

Time: 1h - 4h

Deliverables: value proposition, customer profile

First-aid kit: value proposition canvas

Steps:

1. Consolidate the customer profile from the persona and empathy map
2. Add the pains, gains, and jobs to a new map
3. Define your project relievers to the customer's pains
4. Describe the gain creators that answer to the customer's gains
5. Finally, list the value of experiences, artifacts, and services to the customer's jobs

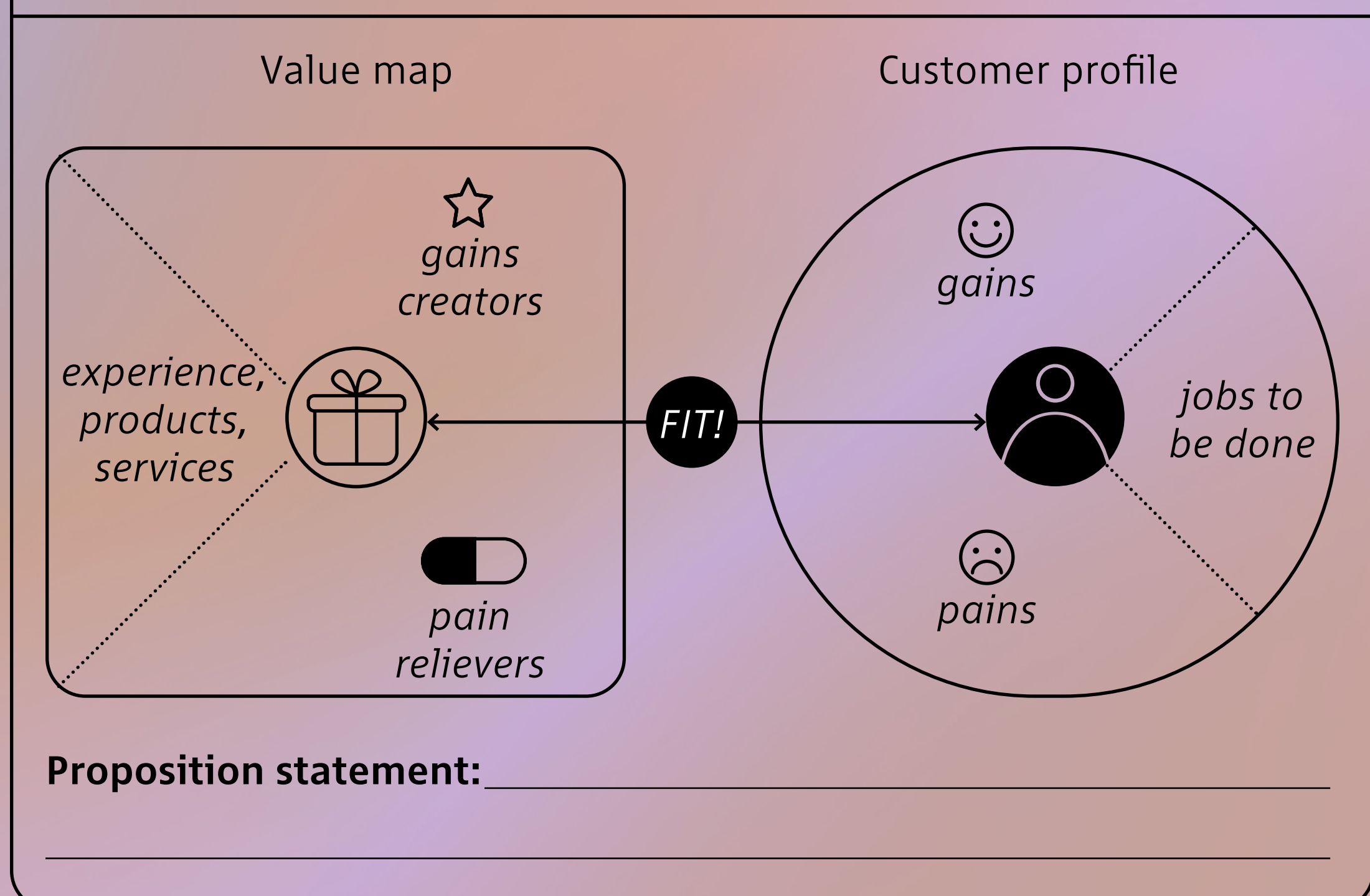
Virtual wear experience

Show experience

Communication experience

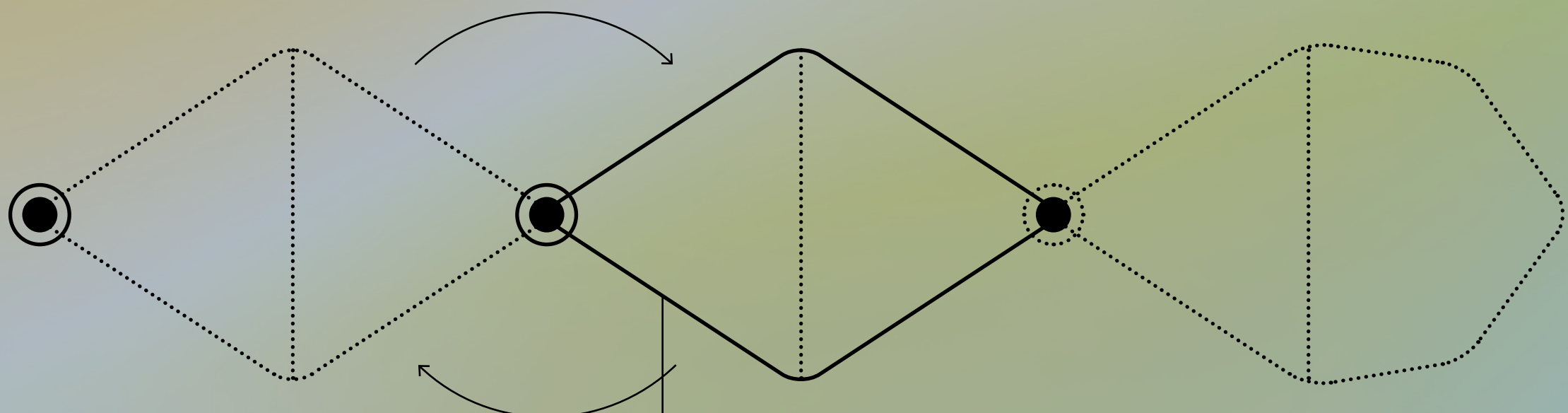
Shopping experience

Value proposition canvas



Value proposition canvas. Source: Adapted from Strategyzer

SOLUTION IDEATION



DEVELOP diverge

Brainstorm, sketch, co-create, test and experiment

Keypoints: ideation and iteration

Tool checklist*:

- CJM
- Brainstorming
- Moodboard
- Storyboard
- Information Architecture
- Low-fidelity wireframing
- Usability Testing

CJM - CUSTOMER JOURNEY MAP

develop

Wear experience

Visual representation of the experience from the customer's point of view, from awareness to post follow-up. The goal is to enable a continuous and positive journey through improving touchpoints and emotional response.

Sources: Nielsen Norman Group, MJV

Also known as: user journey

Type: research consolidation, co-creation workshop

Time: 1h - 4h

Deliverables: customer journey, touchpoints, points for improvement

First-aid kit: CJM template, Shadowing card insights

Steps:

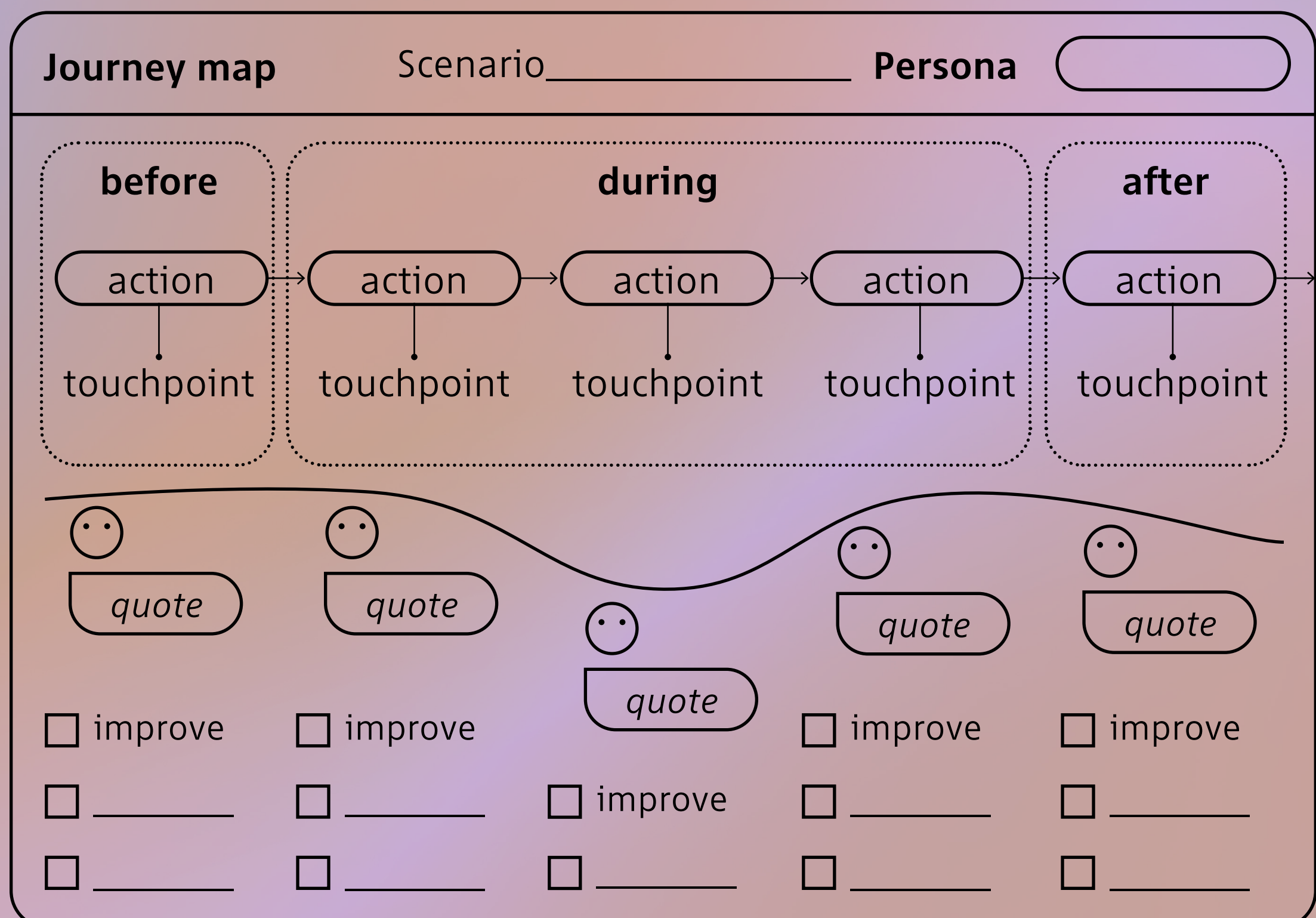
1. Create a timeline with the main phases of the experience, from awareness to follow-ups
2. Add the user actions in each phase
3. Identify the possible channels and touchpoints between the customer and the system
4. Trace a curve of feelings and thoughts in each phase
5. Identify pain points and possible improvements

Virtual wear experience

Show experience

Communication experience

Shopping experience



CJM template. Source: Author, adapted from Nielsen Norman Group

BRAINSTORMING

develop

Wear experience

Invented by Alex Osborn, a marketing executive, brainstorming is a creative technique for problem-solving. Involves a collaborative environment for generating ideas focused on the problematic and the target audience but is also open to new and unexpected insights.

Sources: IDEO, Interaction Design Foundation

Also known as: mind mapping

Type: co-creation workshop, ideation

Time: 1h - 4h

Deliverables: ideas

First-aid kit: Post-its, interactive board (physical wall or platforms like Miro/ Figma)

Steps:

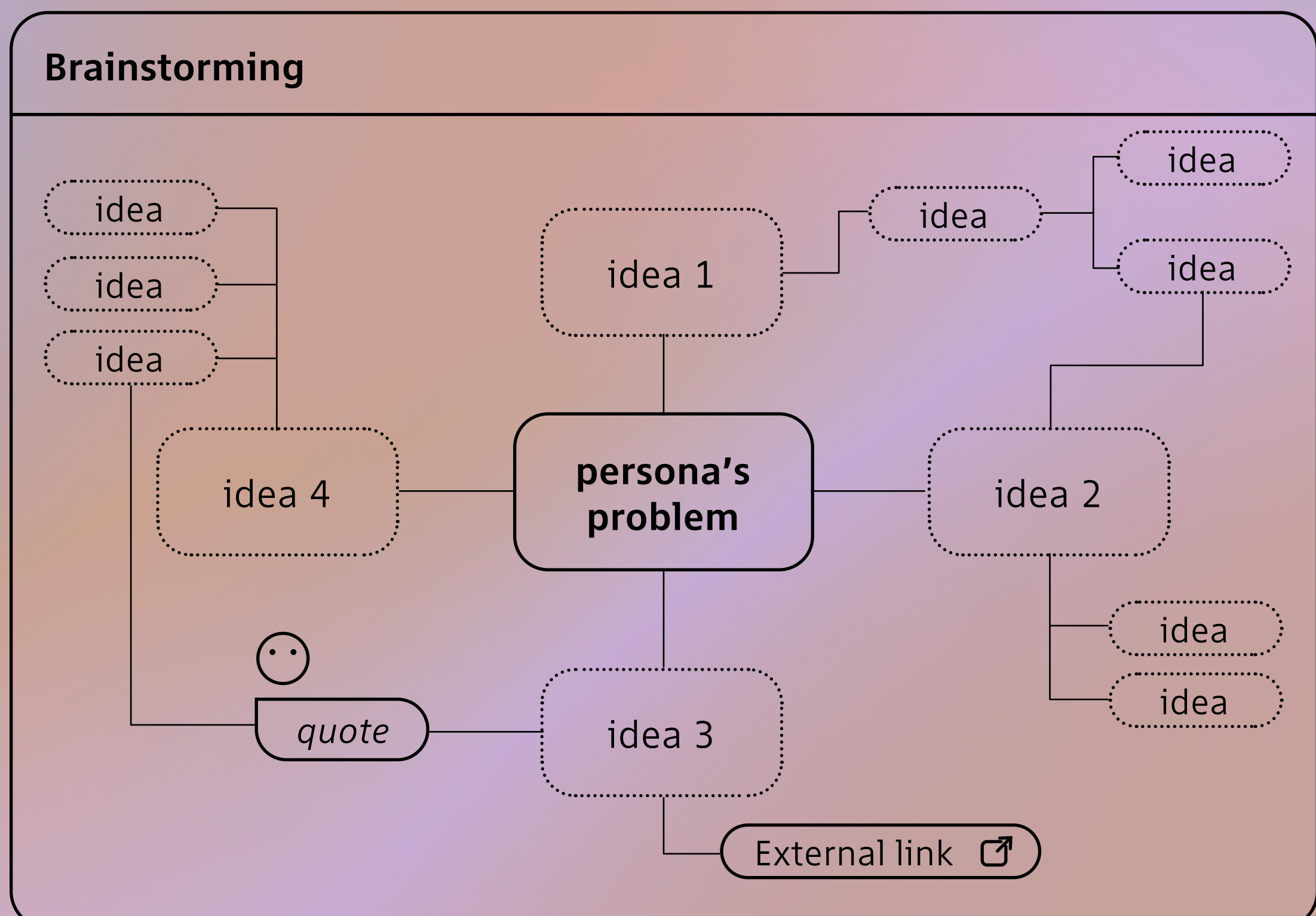
1. Begin with a problem from the persona
2. Ask questions like “how might we” and “what if”
3. Accept and encourage all ideas, nothing is silly at this point
4. Develop from added ideas
5. Import spontaneous references
6. Open a poll for favorite ideas

Virtual wear experience

Show experience

Communication experience

Shopping experience



Brainstorming template. Source: Author

MOODBOARD

develop

Wear experience

A sensorial collage of references to spark the emotional side of a solution, connecting abstract, material and form ideas into a visual board. It works as an inspirational repository for communicating the desired look and feel of the experience.

Sources: XD Ideas, Nielsen Norman Group

Also known as: semantic panel

Type: visual storytelling, inspirational archive

Time: 1h - 4h

Deliverables: physical or digital board

First-aid kit: interactive board (physical blank spaces or platforms like Miro/ Figma), AI tools such as D-ALLE and Midjourney

Steps:

1. Define the concept
2. Search in magazines, repositories, around the city, nature, etc.
3. Gather inspiration for images, materials, textures, typographies, forms, sounds, videos, colors...
4. Organize the main references as a whole dimensional board
5. Add keywords and a color palette
6. Keep it harmonic and consistent

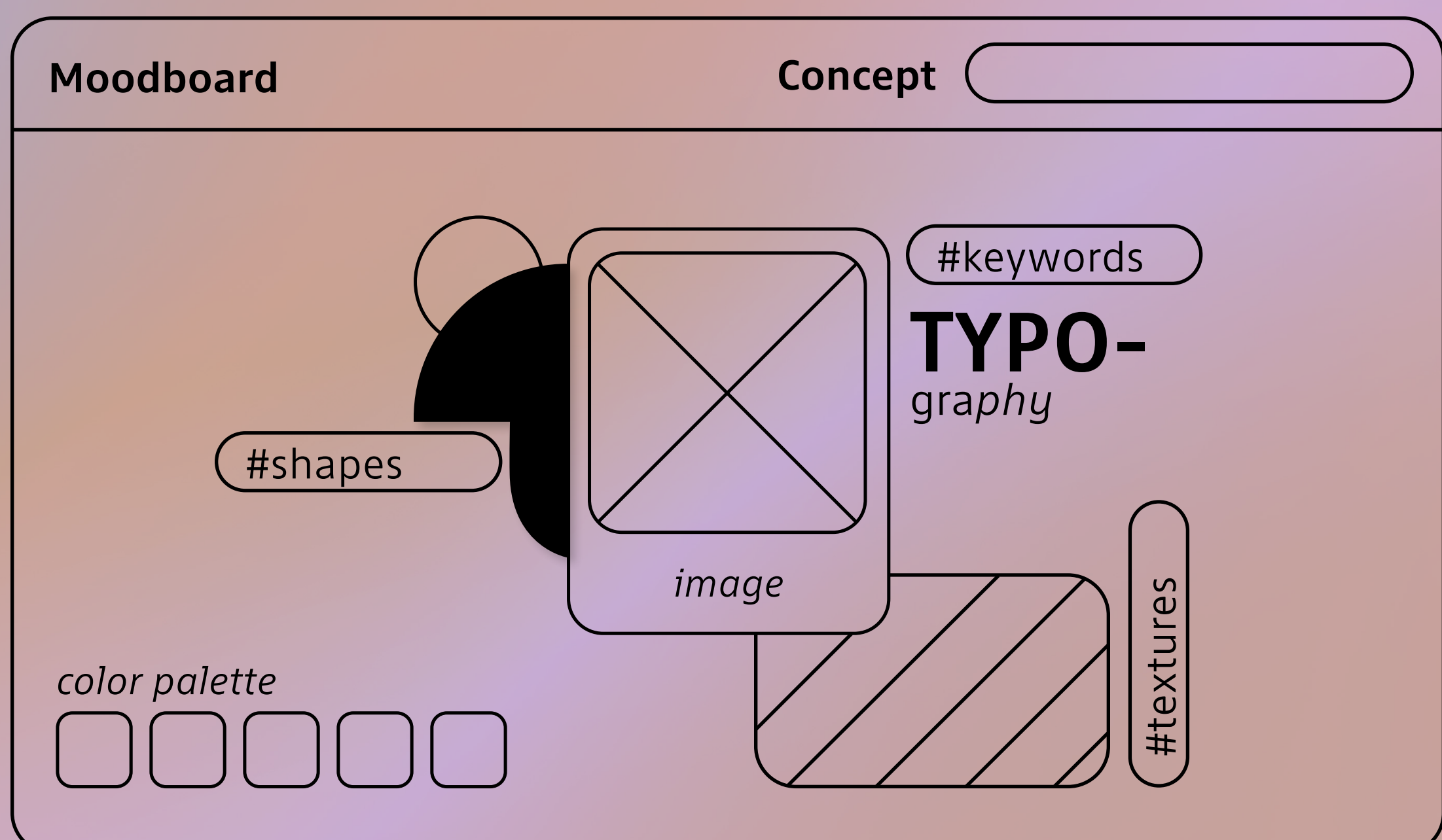
Tip: you can ask the Artificial Intelligence for generating or organizing boards and palettes by using the concept, images, and keywords as prompts

Virtual wear experience

Show experience

Communication experience

Shopping experience



Moodboard template. Source: Author

STORYBOARD

develop

Wear experience

A drafted sequence of key moments of the idea journey as a comic book, to visually comprehend the interaction scenario. It is helpful to ensure that the final result will align with the desired aesthetics and effectively convey the intended message.

Sources: IDEO, Nielsen Norman Group

Also known as: comic book

Type: visual storytelling, prototyping

Time: 1h - 4h

Deliverables: scenario, journey, touchpoints

First-aid kit: drawing/collage materials, storyboard template

Steps:

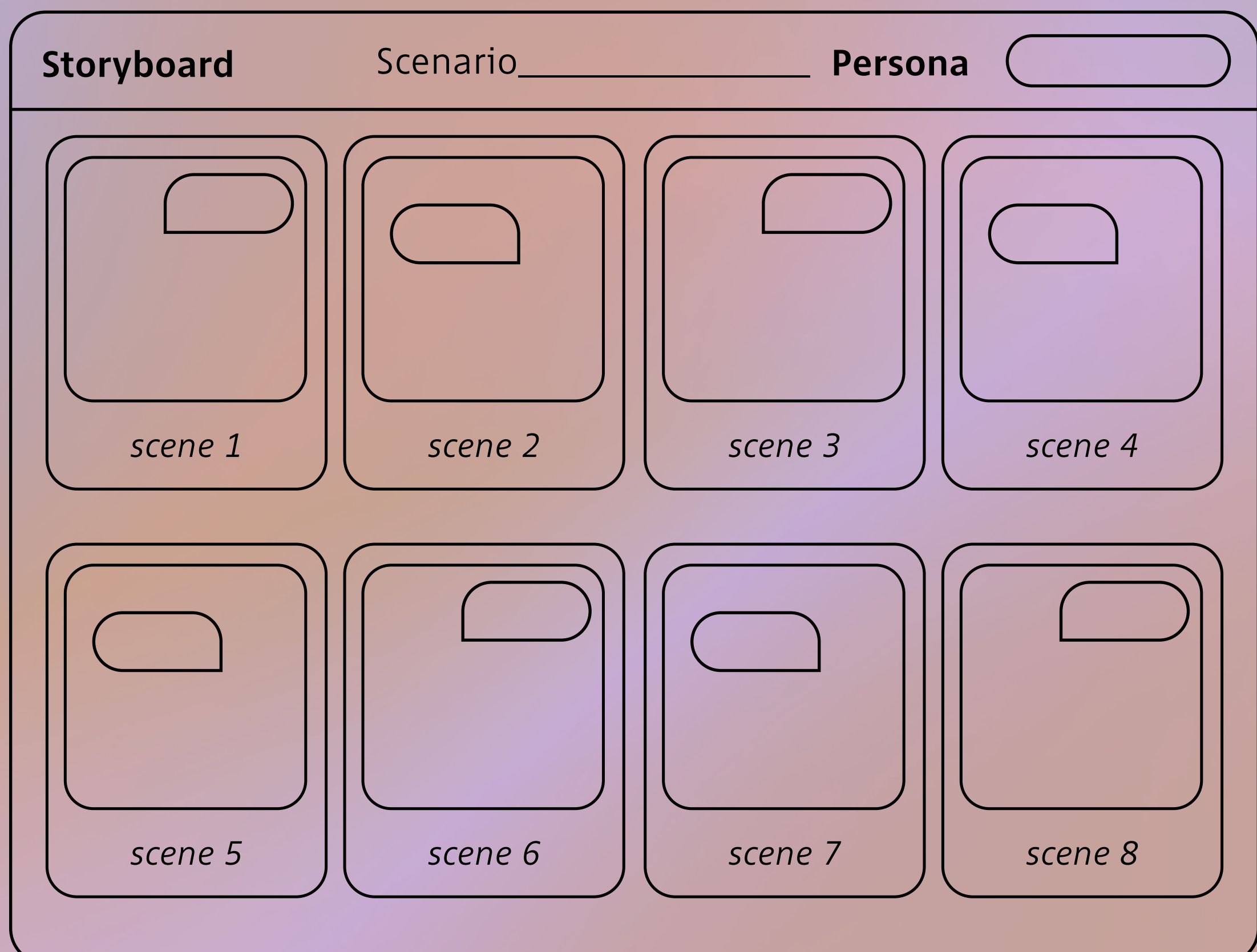
1. Define key moments to storyboard
2. Use drawings, collages, or icons to represent the scenes of the journey
3. Think about the scenarios, for example: lighting, textures, colors and overall mood
4. Add descriptions and quotes
5. Share and ask for feedback

Virtual wear experience

Show experience

Communication experience

Shopping experience



Storyboard template. Source: Author, adapted from IDEO

INFORMATION ARCHITECTURE

develop

Wear experience

In interaction design, IA is the structuring of information processes and artifacts as flowcharts (Benyon, 2014). By using shapes and arrows to represent different elements and workflows of the system, it can translate to fashion as a concept diagram connecting materials, shapes, trims, patterns, styles, etc.

Sources: Miro, Benyon

Also known as: workflow diagram

Type: prototyping, visual thinking

Time: 1h - 4h

Deliverables: infographics

First-aid kit: interactive board (physical blank spaces or platforms like Miro/ Figma), flowchart template

Steps:

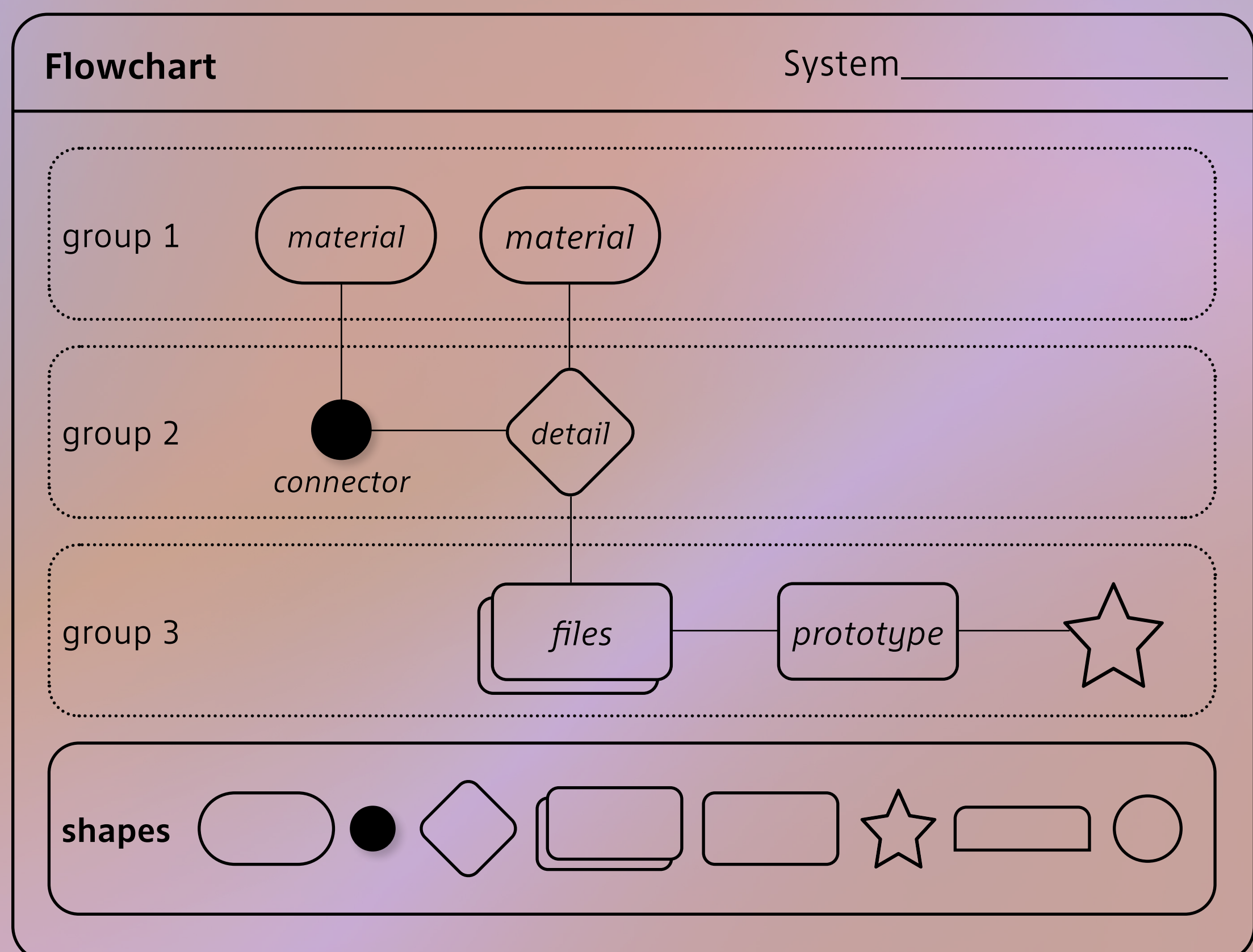
1. Define a system to outline
2. List all the involved information
3. Assign different elements to different graphic shapes
4. Split them into groups considering suppliers, phases, etc
5. Connect the shapes considering how the information would flow
6. Review

Virtual wear experience

Show experience

Communication experience

Shopping experience



Flowchart template. Source: Author, adapted from Miro

INTERFACE WIREFRAMING

develop

Wear experience

A simplified visual representation of the interface's structure, navigation and hierarchy. It focuses on the user flow by placing a simple layout of content and components with lines linking related interactions.

Sources: Nielsen Norman Group, Aela, Atomic Design

Also known as: sketching

Type: prototyping

Time: 1h - 4h

Deliverables: low fidelity prototype

First-aid kit: sketching materials, softwares like Figma/Adobe XD, basic elements

Steps:

1. Define the device to design for (e.g. mobile, desktop, VR glass)
2. Draw how users will navigate (can be through the header, a navigation bar, through scrolling, a vertical menu, etc)
3. Dispose content and elements through the space
4. Link the interactions with lines and arrows (e.g. buttons, scroll)
5. Test with users

Tip: think at atomic level to create pages from components and components from elements

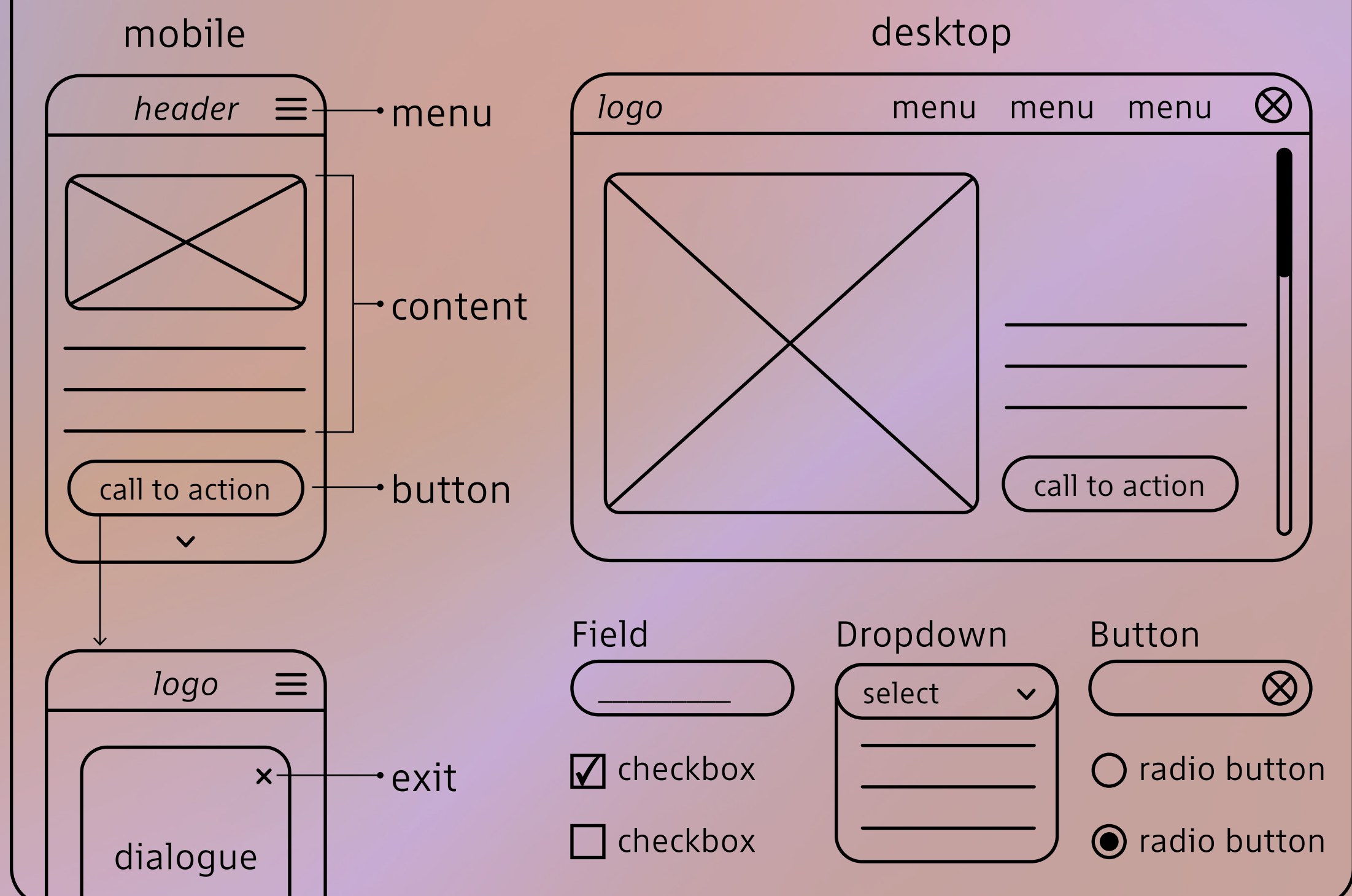
Virtual wear experience

Show experience

Communication experience

Shopping experience

Wireframe basics



Wireframe basics. Source: Author

USABILITY TESTING

develop

Wear experience

Practice to evaluate how easy and effective the design is. Involves recruiting users to perform specific tasks while using the product or interface, and observing their behavior and feedback. Helps identify usability issues at any stage of the design process and aims into user-friendly experiences.

Sources: Nielsen Norman Group, UserTesting

Also known as: user testing

Type: qualitative testing

Time: 1 day - 2 weeks

Deliverables: design refinements, insights

First-aid kit: Activity card, record settings, journey notes or a remote testing platform (e.g. UserTesting)

Virtual wear experience

Show experience

Communication experience

Shopping experience

Activity card	___/___/___
User: _____	
Activity/ Scenario: _____	

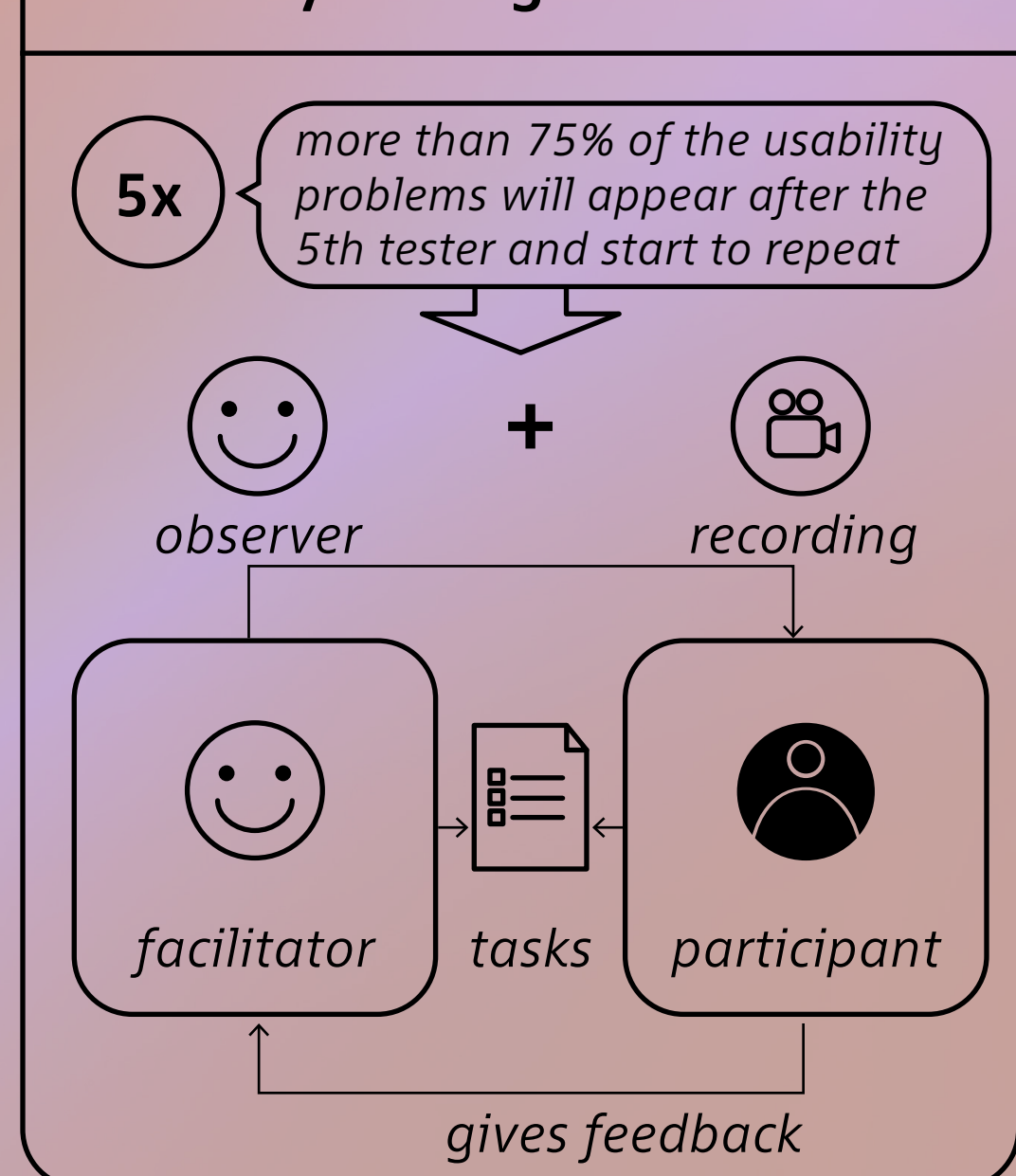
Task 1: _____	

Task 2: _____	

Activity card template.
Source: Author

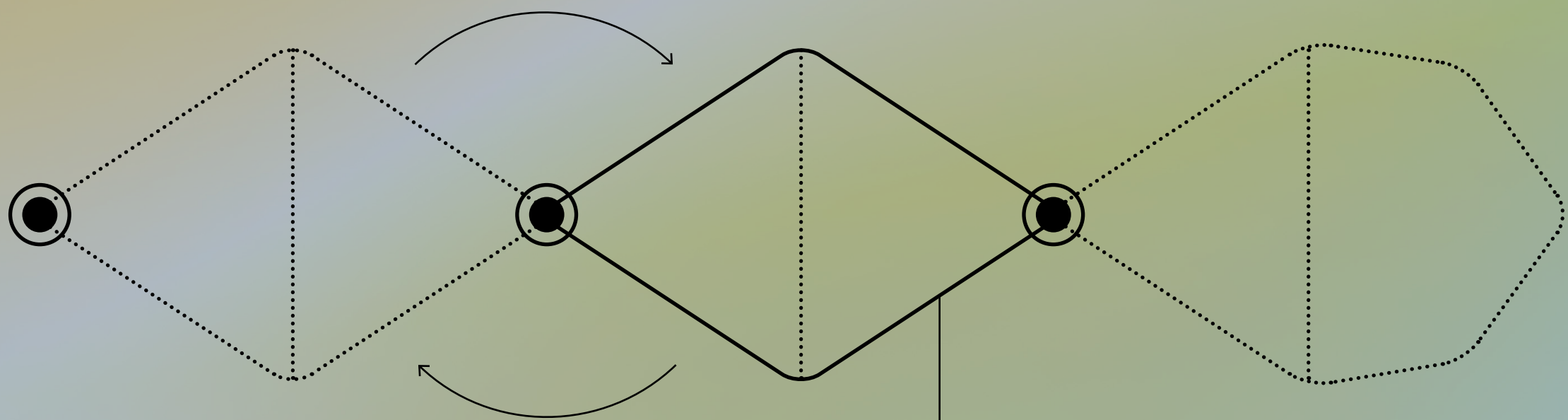
Steps:

1. Define clear activities and tasks for the testers to perform
2. Plan hypotheses and metrics of the user flow
3. Make sure that the prototype works
4. Divide facilitating and observing between different people
5. Assure the user that what is being tested is the prototype, not them
6. Record the session for further analysis
7. Consolidate and compare results to initial hypotheses
8. Refine the design

Usability testing workflow

Usability testing workflow.
Source: Author, adapted from Moran, 2019

SOLUTION IDEATION



DELIVER converge

Mature the best idea, experiment and simulate with digital technologies, sample in high fidelity, test and improve

Keypoints: prototyping and testing

Tool checklist*:

- High fidelity interface prototyping
- Digital sampling
- A/B testing

HIGH FIDELITY INTERFACE PROTOTYPING

deliver

Wear experience

A detailed and fully functional version of a product or interface, typically done with specialized software. High-fidelity prototypes take effort and can provide a more realistic user experience, being used to test and refine the design before the final product is released.

Sources: Material Design, Apple Developer

Also known as: sampling

Type: prototyping

Time: 1 day - weeks

Deliverables: high-fidelity prototype

First-aid kit: design system (internal, Google's Material Design or Apple's Developer), design software (e.g. Figma, Adobe XD)

Steps:

1. Start it only after testing and refining lower-fidelity prototypes
2. Define the correct breakout points for a responsive prototype (between the different dimensions of devices)
3. Create a digital identity and consistent visual components (e.g. fonts, icons, colors, spacings)
4. Define a voice tone for texts, instructions and buttons (CTA, Call-to-Action)
5. Make it as functional as possible by creating inputs, motion, and hyperlink transitions, hover, and other micro-interactions
6. Test with users

Virtual wear experience

Show experience

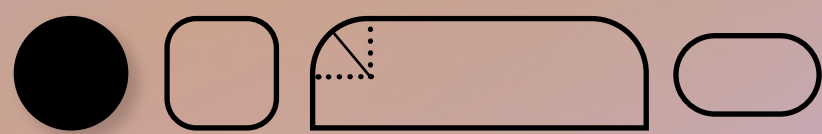
Communication experience

Shopping experience

Interface essentials

Typo scale **Headline 1**
Headline 2
 Subtitle
 Body

Shapes & icons



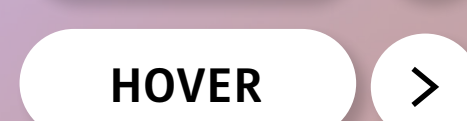
Colors



Cards

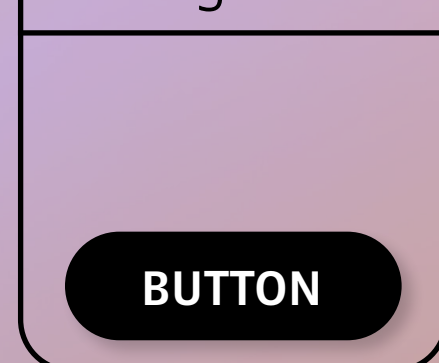


Buttons

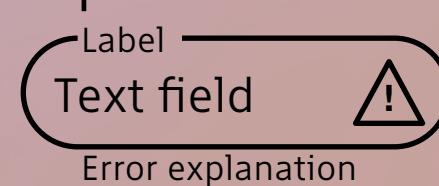


Underlined

Dialogue



Inputs



Interface essentials. Source: Author

DIGITAL SAMPLING

deliver

Wear experience

Designing clothes using digital tools and technologies, e.g. CAD software. Permits experimenting with different fabrics, colors, patterns, and scenarios without the constraints of physical prototypes. In addition, it is possible to simulate usability and fit over customizable avatar bodies.

Sources: CLO3D, Browzwear, Style 3D, ELLE Education

Also known as: digital fashion design

Type: prototyping

Time: 4h - weeks

Deliverables: digital twins, 3D files, simulations, tech packs

First-aid kit: digital sampling essentials

Steps:

1. Customize the measures of the avatar
2. Create a 2D pattern or draw over the avatar's body
3. Seam the patterns in a 3D software
4. Simulate and make adjustments
5. Check for fit and heatmaps
6. Add motion or change the pose of the avatar to test movement behavior
7. Add seam allowance and gradings
8. Refine and export as a digital 3D model or 2D pattern for physical production

Virtual wear experience

Show experience

Communication experience

Shopping experience

Digital sampling essentials

	2D pattern	3D model	Digital garment
Process	Vector/ draw or moulage	Modelling / sculpting	Simulation and tests
Tools and softwares	Adobe Illustrator/ Corel Draw/ Inkscape Gerber/ Lectra	Rhino Blender Solid Works	CLO3D/ Marvelous Style 3D Browzwear
Libraries and repositories	Pinterest YouTube (DARIA Patternmaking, With Wendy)	Turbo Squid SketchFab CGTrader	CLO-SET Style 3D Cloud Substance

Wireframe basics. Source: Author

A/B TESTING

deliver

Wear experience

The strategy of releasing two versions of a product among users to determine which one performs better in terms of usability, aesthetics, engagement, leads and conversion rates or another key metric. Results can support design decisions in optimizing the user experience of a final product.

Sources: Nielsen Norman Group, Optimizely, Google

Also known as: split/bucket testing

Type: quantitative testing, bi-directional

Time: 1 day - weeks

Deliverables: measured success, design decisions

First-aid kit: HEART to define metrics, web analytics

Steps:

1. Identify the component of experience to improve, and determine the key metrics of success (
2. Create a hypothesis and two or more variations (one can be the original product)
3. Divide the audience into proportional groups and assign each group to one of the variations
4. Run the test and collect data
5. Compare and evaluate the results
6. Implement the best design according to the measured metrics
7. Repeat the process regularly

Virtual wear experience

Show experience

Communication experience

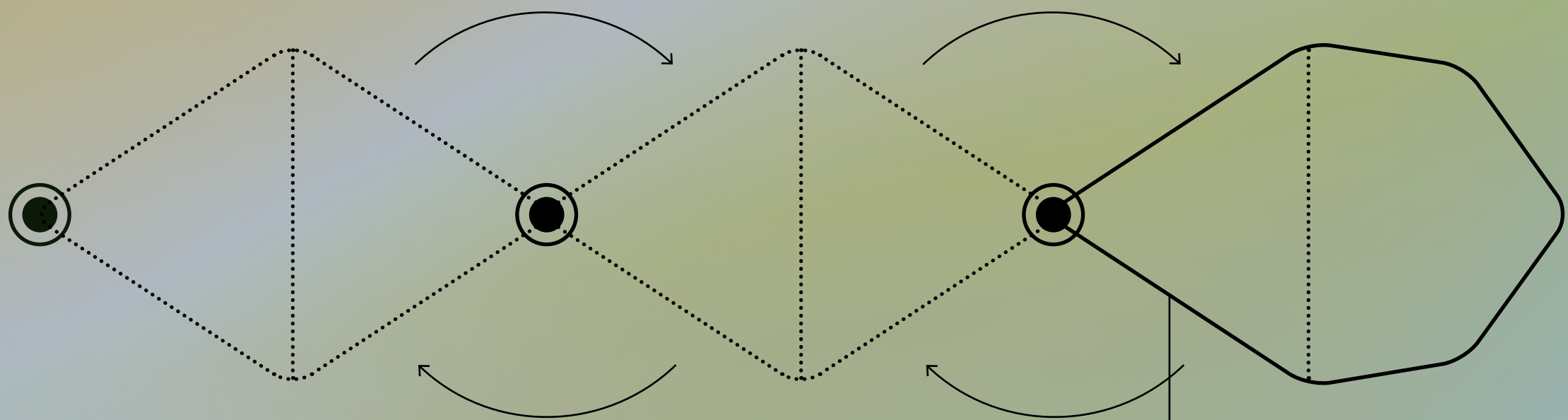
Shopping experience

HEART framework by Google

choose one or more ⇩	Goals	Signals	Metrics
♥ Happiness	why?	how?	what?
♥ Engagement	why?	how?	what?
♥ Adoption	why?	how?	what?
♥ Retention	why?	how?	what?
♥ Task success	why?	how?	what?

HEART framework. Source: Adapted from Google, 2010

IMPLEMENTATION



ENGAGE diverge

Share results with the public, prepare an omnichannel communication strategy, answer comments

Keypoints: communication and inclusivity

Tool checklist*:

- Communication Model
- CGI(Computer Generated Imagery) creation

ONLINE COMMUNICATION MODEL

engage

Wear experience

A strategic framework for effective online communication in the context of fashion. Initially proposed by Cantoni & Tardini (2006) as Web Communication Model - WCM, the model helps to create cohesive and engaging online experiences by targeting real users and specific channels. Additions such as KPIs and project budget improve the WCM for more complex online systems.

Sources: ELLE Education, Cantoni & Tardini

Also known as: Web Communication Model (WCM)

Type: strategic planning

Time: 1 day - weeks

Deliverables: guidelines, publication roadmap

First-aid kit: OCM, roadmap

Steps:

1. Study the context, such as market and user interface
2. Define a message
3. Select the media and channels to communicate that message and define specific KPIs (Key Performance Indicators)
4. Determine the type of content and who will create it
5. Schedule publications, track and respond to engagement
6. Make sure it is relevant, informative, engaging, and adapted to the user's context

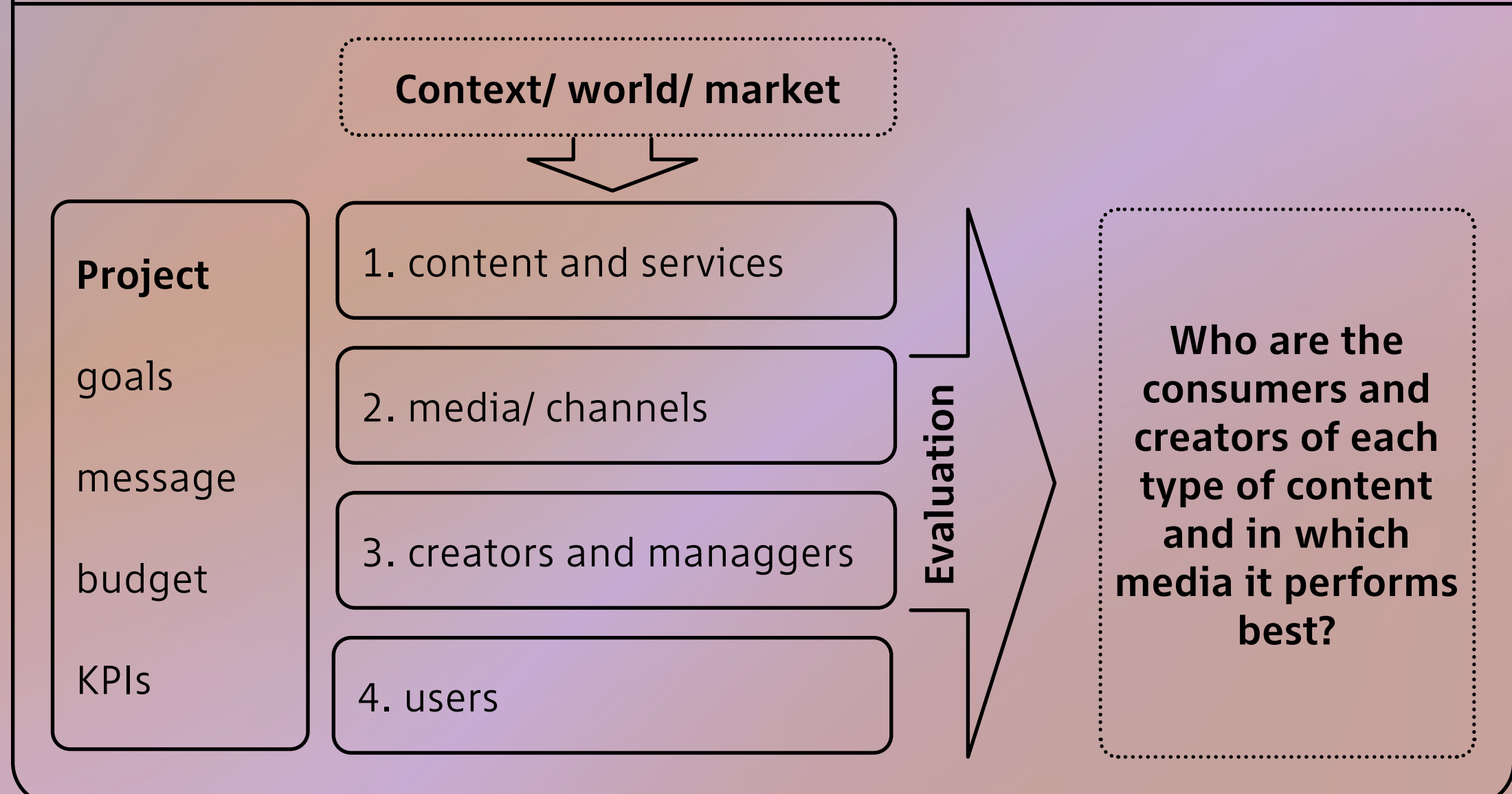
Virtual wear experience

Show experience

Communication experience

Shopping experience

Online Communication Model



OCM. Source: Author, adapted from Cantoni & Tardini (2006) and ELLE Education (n.d.)

CGI CREATION

engage

Wear experience

Virtual wear experience

Show experience

Communication experience

Shopping experience

Computer Generated Imagery involves creating realistic 3D samples of garments, products, and ambiance scenarios with specialized software. Permits unlimited creative freedom and can be applied for try-ons, virtual stores and window displays, virtual runways, advertising campaigns, and other communication and metaverse purposes, such as skins and NFTs.

Sources: SHOWstudio, Fast Company, ELLE Education

Also known as: computer-generated visuals (CGV),

Type: 3D design, ambiance

Time: 1 day - weeks

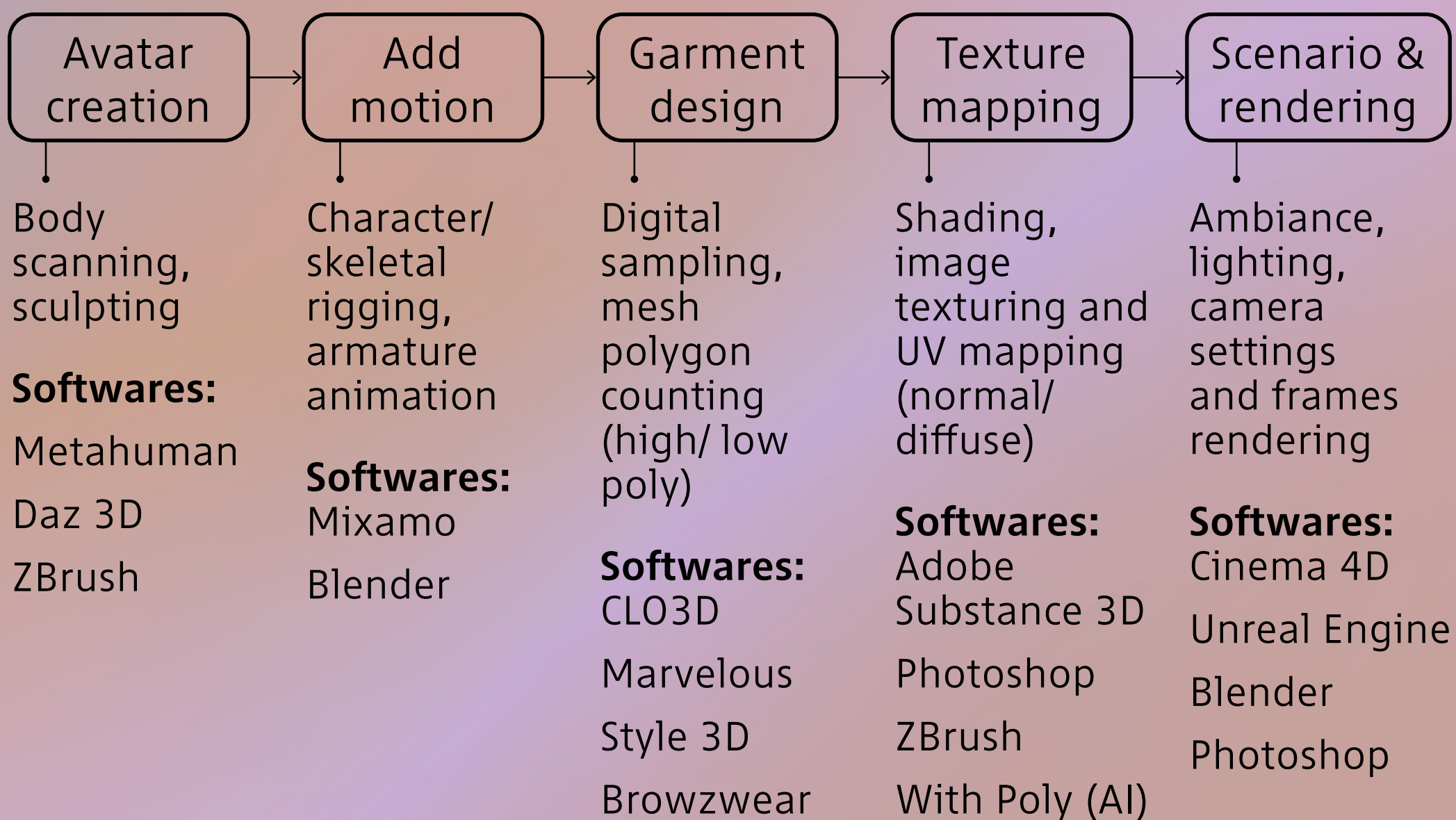
Deliverables: digital content

First-aid kit: workflow and software

Steps:

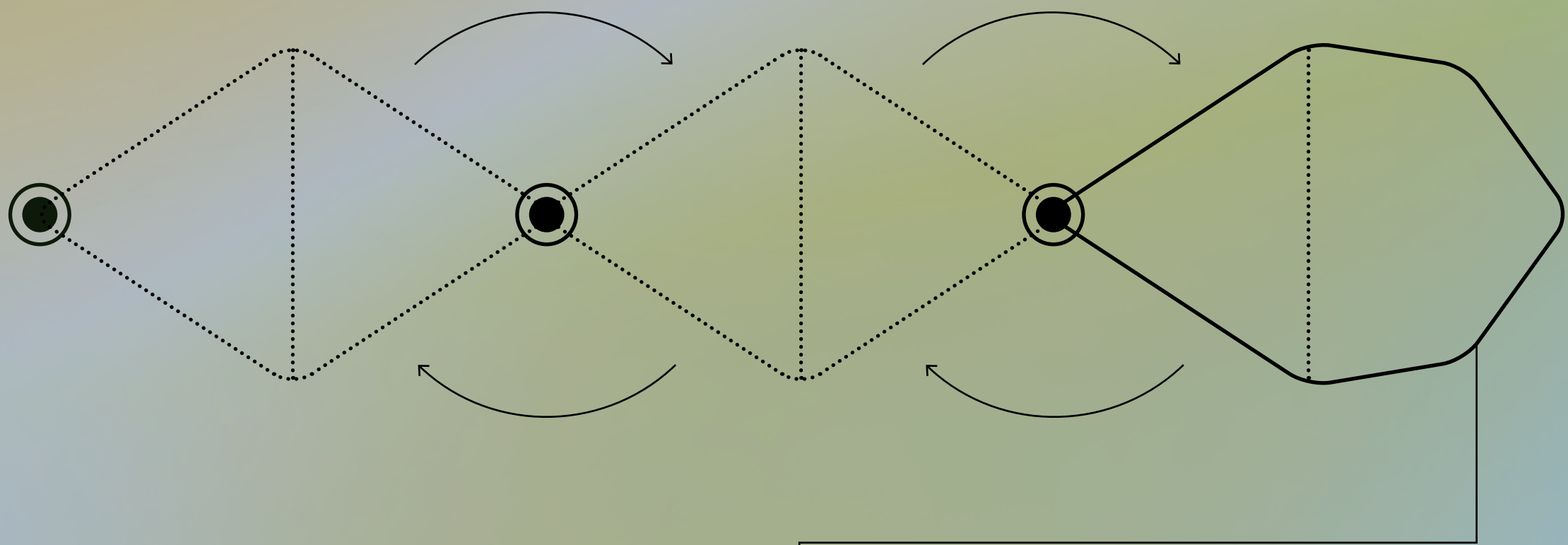
1. Define the context (e.g. media, audience) and a concept
2. Create or adapt models and samples in high fidelity with a 3D software
3. Apply and create textures
4. Set up the scenario and cameras, including props, lighting, and movement
5. Render final images or animations
6. Apply corrections, effects, compositions, and other post productions

CGI basic workflow



CGI basic workflow and softwares. Source: Author

IMPLEMENTATION



CONNECT **omni - converge**

Associate the before, during and after of the experience with other journeys, simultaneous or future

Keypoints: macro and omnispace

Tool checklist*:

- Blueprint
- Design System Documentation

BLUEPRINT

connect

Wear experience

Virtual wear experience

Show experience

Communication experience

Shopping experience

Starting from the Customer Journey Map and mapping actions and interactions of frontstage stakeholders, backstage processes and systems, and supporting infrastructure, the Blueprint is an overall representation of a service system. It aids in comprehending the customer experience, identifying pain points, and finding areas for improvement.

Sources: Nielsen Norman Group, MJV

Also known as: service mapping

Type: holistic mapping, omnispace strategy

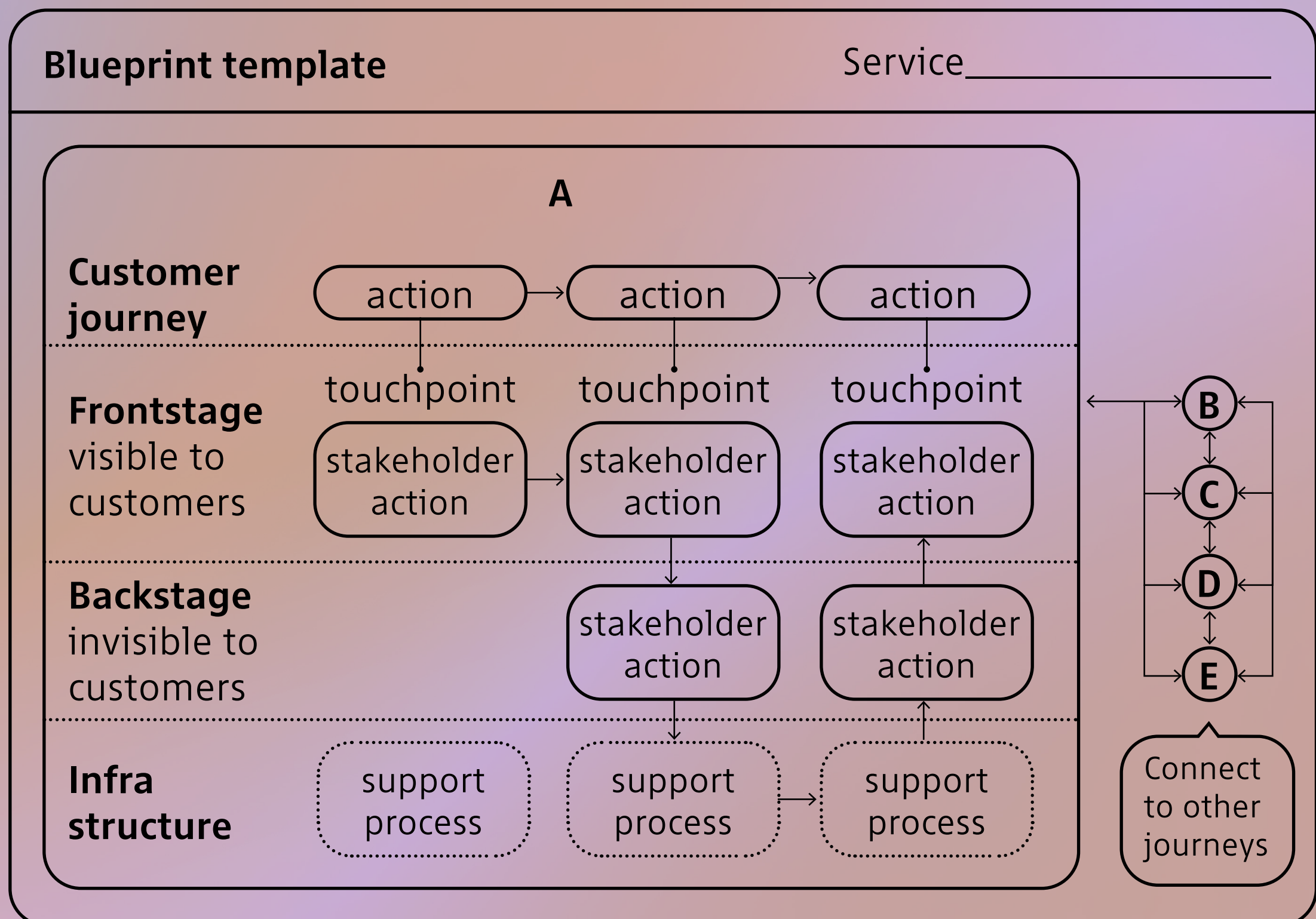
Time: 1h - 4h

Deliverables: visual diagram

First-aid kit: Service Blueprint template

Steps:

1. Begin with a complete CJM
2. Include direct actions and interactions of stakeholders in the frontstage
3. Map the backstage and infrastructure, including invisible processes and actions that support the system
4. Identify connections to other experiences
5. Test and refine
6. Create additional supporting processes and train stakeholder



Blueprint. Source: Author, adapted from Gibbons (2017)

DESIGN SYSTEM DOCUMENTATION

connect

Wear experience

A compiled resource containing all research findings and deliveries, including maps, sketches, patterns, digital files, technical specifications, material sourcing, and production notes. Serves for communication between stakeholders and research resources for future projects.

Sources: UXPin, World Fashion Exchange

Also known as: design archive

Type: cataloging

Time: simultaneous to the project

Deliverables: guidelines, documents, brand practices

First-aid kit: documentation system, project management tools

(e.g. Notion), repository platforms (e.g. Google Drive, Sharepoint), interactive boards (e.g. Miro/ Figma)

Steps:

1. Keep all important documents generated for the project
2. Set macro and micro catalog systems (e.g. brand aspects vs yearly collections)
3. Organize simultaneously with the project development or right after completing it
4. Update and keep it alive
5. Review it for use in future projects

Virtual wear experience

Show experience

Communication experience

Shopping experience

Brand Identity**Branding**

Style guide
Branding
Interface components

Signature

Fabric samples
Shapes
Patterns

Heritage

Historical archives
Press releases

Business

Research consolidation
Value proposition
Personas

Collections and experiences**Sketchbook**

Research
Ideation

Communication

Lookbook
Campaigns
CGI

Tech packs

Specs
Patterns
Digital and editable files

Blueprints

Experiences/ services
Stakeholders and supply chain

Documentation system template. Source: Author

CONCLUSION

Steve Jobs (Buxton, 2007)

Design is a funny word. Some people think design means how it looks. But, of course, if you dig deeper, it's really how it works. To design something really well, you have to 'get it.' You have to really grok [understand] what it's all about.

In recent years, the fashion industry has been undergoing radical digital transformations, resulting in new challenges and opportunities for companies and designers to offer engaging and personalized experiences. Digital technologies have revolutionized how we enjoy our lives and express our fashion.

Analyses, findings, and results ^

A first understanding of what experiences mean to humans enlightened us about how fashion is still sparse into pieces of the phenomenon experience. We could see that customers perceive all parts of a brand as a whole and why it is crucial to connect everything into a frictionless growing experience. A panoramic analysis of the digital factor in our lives shows that, while many companies have begun to embrace these changes into a more seamless and omnispaces experience, others are struggling to keep up with the pace of digital innovation.

Meanwhile, technological development hangs on the notion of human well-being and consumption, but past solutions to solving these needs have been too focused on mass production and industrial growth. Beyond doubts, many good things came from the past years' cultural and societal developments, but controversial paradigms such as questionable sustainability and accessibility also need attention.

Of course, with design (especially fashion) being directly related to the development of consumable and desirable things, the popularization of the field brought a distorted idea that humans need to purchase something new to achieve their well-being. When we dig deep into the meaning of design and combine related fields, we can join forces to build a much more valuable discipline. The design is very broad but also holistically multidisciplinary. As for the example of how customer experiences are seen as a whole, we should also see design as one force.

Although the present study proposes the FX Jewel framework as a source of learnings, tools, and good practices from other design fields, it does not intend to fix rules. The purpose of reviewing multidisciplinary processes was to explore how fashion can be integrated with other domains. As a final value, traditional fashion products have strong forces over the human body and psyche. But when entering the realms of digital and interaction design, it becomes a new type of product, with other constraints and requirements. It is clear, though, that emotional response remains a source of value for digital fashion experiences.

Future research ^

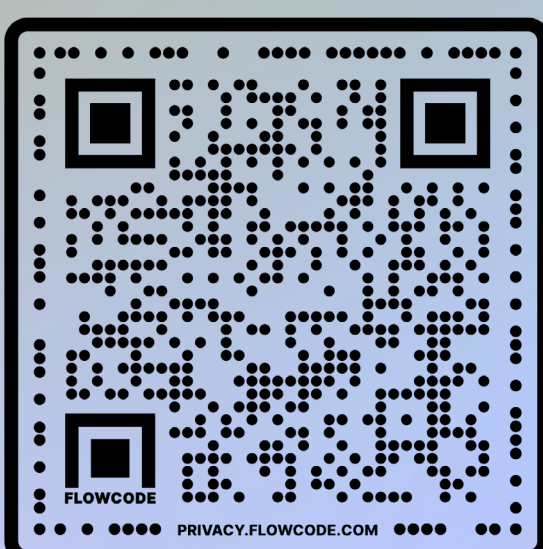
As noted by Bill Buxton (2001): “design is about the future.” Paradoxically, we tend to perceive technology as something of the future. Even if it is guaranteed to become a common extension of our lives, it is still something of tomorrow. Not only do we have this futuristic vision of technology as fiction, but also implementation and adoption of innovation go through many forward and backward stages.

Take as an example Chat GPT. While writing this essay, it was a helpful tool for simplifying the research, but a lack of complete accuracy made it only a source for comparison. On 31st March 2023, Chat GPT got banned by the GPDP (Garante per la Protezione dei Dati Personali, the Italian Data Protection Authority) for processing data from Italian users due to the lack of privacy laws and no age protection mechanisms (GPDP, 2023). Similar bans may be implemented in other countries while OpenAI reviews its terms and transparency. That shows how perspectives of innovation always encompass ethical revisions and sustainability regulations to shape technology adoption.

Of course, there are still many other tools powered by AI, and it remains for individuals (e.g. designers and researchers), the common sense for careful use of such innovations, as it also does not substitute human judgment or creativity. For instance, all the AI’s responses published in this document were analyzed concerning the literature and fully quoted with the inputs and dates of discussion.


Buxton (2007) endorses that our future is not entirely a burden for designers, but our discipline can help everyone in this journey. That is why we defend a conscientious democratization of “design thinking” for meaningful problem-solving.

Just as tools and technology continue to evolve, so does the intention behind the FX Jewel and the toolkit used in this research. Updates will be made and published on a website in due time. Community feedback is crucial for the development of our discipline, and any input is welcome for further improvement. Please feel free to contact me and share your perspective.



SCAN ME

to see more or
share your thoughts

flow.page/erikarox 

REFERENCES

Bibliography

List of videos

Tools

Adam, H. and Galinsky, A.D. (2012) **Enclothed cognition**. Journal of Experimental Social Psychology 48, pg. 918–925

Azure (n. d.) **Artificial intelligence (AI) vs. machine learning (ML)**. Microsoft Solutions. Available at: <https://azure.microsoft.com/en-us/solutions/ai/artificial-intelligence-vs-machine-learning/#introduction>

Azzarello, N. (2020) **the future fashion show? LG x balmain reimagine the front row experience with digital guests**. Designboom, 01 oct 2020. Available at: <https://www.designboom.com/technology/future-fashion-show-lg-balmain-front-row-digital-guests-10-01-2020/>

Benyon, D. (2014) **Spaces of Interaction, Places for Experience**. SYNTHESIS LECTURES ON HUMAN-CENTERED INFORMATICS. Morgan&Claypool Publishers.

Berndt, S. & Obermiller, J. **An introduction to the golden ratio**. Adobe. Available at: <https://www.adobe.com/creativecloud/design/discover/golden-ratio.html> [accessed Jan 2023].

Bertola, P.; Teunissen, J. (2018). **Fashion 4.0. Innovating fashion industry through digital transformation**. Research Journal of Textile and Apparel. Vol. 22 No. 4, 2018 pp. 352–369 © Emerald Publishing Limited 1560-6074 DOI 10.1108/RJTA-03-2018-0023

BOF & McKinsey (2022) **State of Fashion 2022**. Available at: <https://www.mckinsey.com/~media/mckinsey/industries/retail/our%20insights/state%20of%20fashion/2022/the-state-of-fashion-2022.pdf>

BOF & McKinsey (2023) **State of Fashion 2023**. Available at: <https://www.mckinsey.com/industries/retail/our-insights/state-of-fashion>

BRACHEM, J. & STÜBBE, L. (2022). **Ways of Wearing**. The Fashion Studies Journal. Available at: <https://www.fashionstudiesjournal.org/digital-engagement-a/2022/8/15/ways-of-wearing>

Buxton, B. (2007) **Sketching user experience : getting the design right and the right design**. San Francisco, Morgan Kaufmann Publishers.

Collins, K. & Li, C. (2023) **Interoperability in the Metaverse**. World Economic Forum, BRIEFING PAPER. Jan, 2023. Available at: https://www3.weforum.org/docs/WEF_Interoperability_in_the_Metaverse.pdf

Cambridge Dictionary. **Translation of experience**. English–German dictionary. Available at: <https://dictionary.cambridge.org/dictionary/english-german/experience> [accessed Dec 2022].

Cambridge Dictionary. **Iteration**. Cambridge Advanced Learner's Dictionary & Thesaurus. Available at: <https://dictionary.cambridge.org/pt/dicionario/ingles/iteration>

Cantoni, L. et al. (2019). **Editorial: Fashion communication: Between tradition and digital transformation.** Studies in Communication Sciences 18.2 (2018), pp. 269–285. Available at: https://www.researchgate.net/publication/344940282_Editorial_Fashion_communication_Between_tradition_and_digital_transformation

Chentakul, M. (2018) **Why we should apply UX to fashion design.** UX Collective at Medium, 22 Oct. 2018. Available at: <https://uxdesign.cc/ux-fashion-2dff96a983a8>

CLO-SET CONNECT. (n. d.) **Metaverse.** Available at: <https://connect.clo-set.com/metaverse>

Calò C. (2022) La sfilata di moda come opera d'arte. Giulio Einaudi Editore.

Craik, J. (1994). **The Face of Fashion: Cultural Studies in Fashion.** Routledge.

De Looze, M. P. & Vink, P. (2008) **CRUCIAL ELEMENTS OF DESIGNING FOR COMFORT.** Product Experience, pg. 441 - 460. Elsevier Science.

De Klerk, A. (2022) **The fascinating history of the catwalk show.** Harper's Bazaar, 24 Jan, 2022. Available at: <https://www.harpersbazaar.com/uk/fashion/a35783366/history-catwalk-show/>

Desmet, P. M. A. (2012). **Faces of product pleasure: 25 positive emotions in human-product interactions.** International Journal of Design, 6(2), 1-29

Desmet, P. M. A. (2012) (2). **PRODUCT EMOTION.** Product Experience, pg. 379 - 397. Elsevier Science.

Desmet, P. M. A. & Fokkinga, S. F. (2013) **Ten Ways to Design for Disgust, Sadness, and Other Enjoyments: A Design Approach to Enrich Product Experiences with Negative Emotions.** Research Gate, International Journal of Design Vol. 7 No. 1. Available at: <https://www.researchgate.net/publication/269408553>

DSCENE. (2021). **PFW: ANREALAGE Spring Summer 2022 Collection. With SS22 Collection, Anrealage brings romantic sci-fi mood.** Design Scene. <https://www.designscene.net/2021/10/anrealage-ss22.html>

Dungl, J. (2021) **The Difference Between Multi-, Cross-, and Omnichannel Marketing.** Marmind, 26 Jun. 2021. Available at: <https://www.marmind.com/blog/omnichannel-multichannel-marketing/>

FADELL, T. (2022) **BUILD. An Unorthodox Guide to Making Things Worth Making.** Digital edition: Harper Collins.

Fard, A. (2022) **Newbie Heuristic Evaluation Mistakes To Avoid.** UX Booth, 18 Jan. 2022. Available at: <https://www.uxbooth.com/articles/newbie-heuristic-evaluation-mistakes-to-avoid/>

Fessenden, T. (2021) **Design Systems 101.** Nielsen Norman Group. Available at: <https://www.nngroup.com/articles/design-systems-101/> [accessed Jan 2023].

- Franceschini , M. (2014) **Nanni Strada: Shaping the Practice of Fashion Design**. THE BLOGAZINE, 27 Aug. 2014. Available at: <http://www.theblogazine.com/2014/08/nanni-strada-shaping-the-practice-of-fashion-design/>
- Garrett, J. J. (2010). **The elements of user experience** (2nd ed.). New Riders Publishing.
- Gentili; C.; Spiller N.; Noci, G. (2007) **How to Sustain the Customer Experience: An Overview of Experience Components that Co-create Value With the Customer**. European Management Journal Vol. 25, No. 5, pp. 395–410, Elsevier Ltd
- Gimbel, S. (2020). **Carl Jung and the Concept of Collective Consciousness**. Wondrium daily. Available at: <https://www.wondriumdaily.com/carl-jung-and-the-concept-of-collective-consciousness/> [accessed Jan 2023].
- Glam Observer (2023) **History of Fashion Week**. Archive, 07 fev 2023. Available at: <https://glamobserver.com/history-of-fashion-week/>
- GPDP (2023) **Intelligenza artificiale: il Garante blocca ChatGPT. Raccolta illecita di dati personali. Assenza di sistemi per la verifica dell'età dei minori**. Rome, 31 Mar. 2023. Available at: <https://www.garanteprivacy.it/home/docweb/-/docweb-display/docweb/9870847>
- Hackl, C. (2020) **Is Direct To Avatar The Next Direct To Consumer?** Forbes, 19 Ago. 2020. Available at: <https://www.forbes.com/sites/cathyhackl/2020/08/09/is-direct-to-avatar-the-next-direct-to-consumer>
- Hassenzahl, M. (2011) **User Experience and Experience Design**. Research Gate. Available at: https://www.researchgate.net/publication/259823352_User_Experience_and_Experience_Design [accessed Oct 2022].
- Hekkert, P. & Leder, H. (2008) **PRODUCT AESTHETICS**. Product Experience, pg. 259 - 285. Elsevier Science.
- Hirschmiller, S. (2022) **Metaverse Online And Teamed With DRESSX Digital Fashion In-Store**. Forbes, 11 Apt. 2022. Available at: <https://www.forbes.com/sites/stephaniehirschmiller/2022/04/11/printemps-builds-own-metaverse-and-partners-with-dressx>
- Hvas Mortensen, D. (2022) **User Research: What It Is and Why You Should Do It**. Available at: <https://www.interaction-design.org/literature/article/user-research-what-it-is-and-why-you-should-do-it> [accessed Jan 2023].
- IDEO.org (2015) **The Field Guide to Human-Centered Design**. Design Kit, 1st edition, printed in Canada.
- Interaction Design Foundation (1). **Extended Reality (XR)**. Available at: <https://www.interaction-design.org/literature/topics/extended-reality-xr> [accessed Oct 2022].
- Interaction Design Foundation (2). **The Gestalt Principles**. Available at: <https://www.interaction-design.org/literature/topics/gestalt-principles> [accessed Jan 2023].

- Interaction Design Foundation (3). **Usability vs Desirability in Mobile UX.** Available at: <https://www.interaction-design.org/literature/article/key-question-in-user-experience-design-usability-vs-desirability> [accessed Jan 2023].
- Interaction Design Foundation (4). **The 7 Factors that Influence User Experience.** Available at: <https://www.interaction-design.org/literature/article/the-7-factors-that-influence-user-experience> [accessed Feb 2023].
- Just Looking Gallery (2021). **10 Influential Fashion Illustrators from the 1920's to the 2020's.** Blog, 23 Jan 2021. Available at: <https://www.justlookinggallery.com/blog/2021/1/23/10-designers-that-changed-fashion-illustration>
- Kupillas, K. C. (2018) **Change generates learning curves.** UX Collective. Available at: <https://uxdesign.cc/change-generates-learning-curves-ffbe8d0ec675>
- Laurel, B. (1986). **Interface as Mimesis.** User Centered System Design: New Perspectives on Human-computer Interaction, pg. 67 - 86.
- Lee, E. A. (2018) **Cyber Physical Systems: Design Challenges.** 11th IEEE International Symposium on Object and Component-Oriented Real-Time Distributed Computing (ISORC), 2008, pp. 363-369, doi: 10.1109/ISORC.2008.25.
- LEITCH, L. (2021). **Anrealage SPRING 2022 READY-TO-WEAR.** Vogue Runway. <https://www.vogue.com/fashion-shows/spring-2022-ready-to-wear/anrealage>
- Liberare. **About us.** Available at: <https://liberare.co/pages/about-us>
- Lipovetsky, G. (2009) **O império do efêmero: a moda e seu destino nas sociedades modernas.** Translation from Maria Lucia Machado. São Paulo: Companhia das Letras.
- Magnani, C. (2022) **Revisiting Fashion Online: The Past, Present, and Future of Immersive Fashion Digital Experiences.** The Fashion Studies Journal, 15 Aug. 2022. Available at: <https://www.fashionstudiesjournal.org/digital-engagement-a/2022/8/15/revisiting-fashion-online-the-past-present-and-future-of-immersive-fashion-digital-experiences>
- Mauro, S. E. (n.d.) **Retail Store Interior Design Trends & Ideas.** DGI Communications. Available at: <https://www.dgicomunications.com/retail-store-design/>
- Marhamat, B. (2022) **The History Of Brick-And-Mortar Retail And What's In Store For The Future.** Forbes Business Development Council, 16 Ago. 2022. Available at: <https://www.forbes.com/sites/forbesbusinessdevelopmentcouncil/2022/08/16/the-history-of-brick-and-mortar-retail-and-whats-in-store-for-the-future>
- McAtter, O. (2019) **Campaign close-up: MSCHF Founder Gabriel Whaley.** Campaign UK, 01 May 2019. Available at: <https://www.campaignlive.co.uk/article/campaign-close-up-mschf-founder-gabriel-whaley/1583477>

- Mcdowell, M. (2021) **Why AR clothing try-on is nearly here.** The Business of Fashion, July 26, 2021. <https://www.voguebusiness.com/technology/why-ar-clothing-try-on-is-nearly-here>
- Mcdowell, M. (2021) **Virtual stores: Fashion's new mode of shopping.** Vogue Business, 24 Nov. 2021. Available at: <https://www.voguebusiness.com/technology/virtual-stores-fashions-new-mode-of-shopping>
- Mcdowell, M. (2019). **Loomia's electronic jacket heats up the e-textile market.** Vogue Business. Available at: <https://www.voguebusiness.com/technology/loomia-heated-electronic-jacket-e-textiles>
- Merriam-Webster Dictionary. **Experience.** Available at: <https://www.merriam-webster.com/dictionary/experience#synonyms> [accessed Dec 2022].
- Minthe, C.(2023) **Louis Vuitton X Yayoi Kusama “Like Art, Beautiful Fashion Can Bring Joy”.** Vogue Arabia, 6 jan 2023. Available at: <https://en.vogue.me/fashion/louis-vuitton-yayoi-kusama-interview/>
- Moran, K. (2017) **The Aesthetic-Usability Effect.** Nielsen Norman Group. Available at: <https://www.nngroup.com/articles/aesthetic-usability-effect/> [accessed Oct 2022].
- Moran, K. (2019) **Usability Testing 101.** Nielsen Norman Group. Available at: <https://www.nngroup.com/articles/usability-testing-101>
- Nanda, F. (2022) **Video Games Skins: A Brief History.** Medium, 9 may 2022. Available at: <https://medium.com/@felixnanda/video-games-skins-a-brief-history-fc24d9e05812>
- Naysmith, C. (2022) **Gaming Skins Just Became A \$50 Billion Industry.** Yahoo!Finance, 28 nov 2022. Available at: <https://finance.yahoo.com/news/gaming-skins-just-became-50-143352555.html>
- Netflix. (2022) **The Future Of Fashion.** Documentary series “The Future Of”. Vox Media Studios, The Verge and 21 Laps Entertainment, 28 de jun 2022.
- Nielsen, J. (2020) **10 Usability Heuristics for User Interface Design.** Nielsen Norman Group. 15 nov. 2020. Available at: <https://www.nngroup.com/articles/ten-usability-heuristics/>
- Norman, D. A. (2013). **The design of everyday things.** MIT Press.
- Norman, D. A. (2007). **The design of future things.** Basic Books
- Nygaard, S. (2021) **I Wore Digital Clothes For A Week.** YouTube, 24 st 2021. Available at: <https://www.youtube.com/watch?v=qVfJheBp7Ys>
- O’Neil, S. (2008). **Interactive Media: The Semiotics of Embodied Interaction.** Springer. DOI: 10.1007/978-1-84800-036-0
- Online Etymology Dictionary. **Experience.** Available at: <https://www.etymonline.com/word/experience> [accessed Dec 2022].

Pacce, L. (2021) **Lucas Leão cria desfile figital na BRIFW**. Webstories. Available at: <https://www.lilianpacce.com.br/webstories/lucas-leao-cria-desfile-figital-na-brifw/>

Paton, E. (2017) **Imagining the Retail Store of the Future**. The New York Times, 12 Apr. 2017. Available at: <https://www.nytimes.com/2017/04/12/fashion/store-of-the-future.html>

Pejcha, C. S. (2023) **Michaela Stark transforms the corset from an emblem of conformity into a tool of liberation**. Document Journal, 4 jan 2023. Available at: <https://www.documentjournal.com/2023/01/michaela-stark-corset-designer-body-morphing-lingerie-profile-interview>

PETIT, R. (2017) **Why are Fashion shows filled with unwearable garments?** Medium <https://renaudpetit.medium.com/why-are-fashion-shows-filled-with-unwearable-garments-c07bfa736cd0>

Pitcher, L. (2022) **How Do You Make a Corset That Celebrates Bigger Bodies?** The Cut, 14 nov 2022. Available at: <https://www.thecut.com/2022/11/corset-michaela-stark.html>

Pradeep, K. (2018) **Our Second Skin — Meet Dr. Sabine Seymour, Founder of SUPA**. HCVC on Medium. Available at: <https://blog.hardwareclub.co/our-second-skin-meet-dr-sabine-seymour-founder-of-sup-a45cbfdb3c0f>

Raveendran, Maria. (2018) **“The Power of Fashion”** TEDxUTSC, video. Available at: https://www.ted.com/talks/maria_raveendran_the_power_of_fashion. [accessed Oct 2022]

Raymond, M. (2019). **The Trend Forecaster’s Handbook** (Second Edition). London, Laurence King

ROBLOX & PARSONS (2022) **METaverse FASHION TRENDS’ REPORT**. Roblox blog Available at: https://blog.roblox.com/wp-content/uploads/2022/10/FINAL_2022-Metaverse-Fashion-Trends-report_Roblox-x-Parsons.pdf

Rasmussen, M. (2022) **Kami is the First Virtual Influencer with Down Syndrome**. Virtual Humans, 24 May 2022. Available at: <https://www.virtualhumans.org/article/kami-is-the-first-virtual-influencer-with-down-syndrome>

Ren, F. (2022) **Omni Space Is A Digital Twin of A Shopping Mall**. UXPlanet at Medium, 10 Jan 2022. Available at: <https://uxplanet.org/omni-space-is-a-digital-twin-of-a-shopping-mall-7a71a752fc64>

Roesler, A.; Woods, D. (2008) **DESIGNING FOR EXPERTISE**. Product Experience, pg. 215 - 237. Elsevier Science.

Salazar, K (2019) **User Experience vs. Customer Experience: What’s The Difference?** Nielsen Norman Group, 29 Jul, 2016. Available at: <https://www.nngroup.com/articles/ux-vs-cx/>

- Salazar, K (2016) **Customer Journeys and Omnichannel User Experience**. Nielsen Norman Group, 29 Jul, 2016. Available at: <https://www.nngroup.com/articles/customer-journeys-omnichannel/>
- Schiaparelli. (n.d.) **THE STORY OF THE HOUSE**. MAISON SCHIAPARELLI. Available at: <https://www.schiaparelli.com/en/21-place-vendome/the-story-of-the-house/>
- Schultz, H. (2021) **What Is a Brick-and-Mortar Store? 6 Types of B&M Businesses**. Master Class, 18 Ago. 2021. Available at: <https://www.masterclass.com/articles/brick-and-mortar-store-guide>
- Seymour, S. (2008) **Fashionable Technology – The Intersection of Design, Fashion, Science, and Technology**. SpringerWienNewYork
- Seymour, S. (2010) **Functional Aesthetics: Visions in Fashionable Technology**, SpringerWienNewYork
- Shedroff, N. (2009). **Experience Design, a Manifesto for the Creation of Experiences**. New Riders.
- Silverberg, D. (2021) **The History of the Shopping Cart**. Shopify blog. Available at: <https://www.shopify.com/blog/history-of-the-shopping-cart>
- Sobande, F. (2021) **CGI influencers are here. Who's profiting from them should give you pause**. Fast Company, 10 May 2021. Available at: <https://www.fastcompany.com/90682915/cgi-influencers-are-here-whos-profiting-from-them-should-give-you-pause>
- Solomons, M. R. (2005) **Consumer Psychology**. Chapter of the Encyclopedia of Applied Psychology, 1st edition. Elsevier, Jan. 2005. DOI:10.1016/B0-12-657410-3/00219-1.
- Sonic Retro. **Sonic Adventure 2 Christmas Theme**. Available at: https://info.sonicretro.org/Sonic_Adventure_2_Christmas_Theme
- Sonneveld, M. H. & Schifferstein, H. N. J. (2008) **THE TACTUAL EXPERIENCE OF OBJECTS**. Product Experience, pg. 41 - 67. Elsevier Science.
- Sparks, Philip. (2020) **Missed Fit**. Fashion Studies, vol. 3, no. 1, 2020, pp. 1–37. Available at: <https://www.fashionstudies.ca/missed-fit>
- Stadelmann, L. (2018) **Using Jungian Archetypes in Design Thinking**. LinkedIn. Available at: <https://www.linkedin.com/pulse/using-jungian-archetypes-design-thinking-lukas-stadelmann/>
- STATE. **Primeiro desfile presencial desde o início da pandemia e apresentado por Lucas Leão e Brazil Immersive Fashion Week em Outubro**. State news. Available at: <https://www.state.is/news/primeiro-desfile-presencial-desde-o-inicio-da-pandemia-e-apresentado-por-lucas-leao-e-brazil-immersive-fashion-week-em-outubro>
- Symonds, E. H. (1933). **THE POWER OF FASHION**. Journal of the Royal Society of Arts, 81(4196), 529–545. <http://www.jstor.org/stable/41359208>

- Tan, E. & Jansz, J. (2008) **THE GAME EXPERIENCE**. Product Experience, pg. 531 - 556. Elsevier Science.
- Teslasuit. (n.d.) **A breakthrough in human performance training**. Teslasuit homepage. Available at: <https://teslasuit.io/>
- The Fabricant (2021). **Digital Fashion House 3.0**. Medium. Available at: <https://thefabricant.medium.com/the-fabricant-91e88b5b6b76>
- Thomas, S. R. (2022) **Selling on TikTok and Taobao: The growing power of online video platforms**. Harvard Business Review, Oct. 2022. Available at: <https://hbr.org/2022/09/selling-on-tiktok-and-taobao>
- Travers, C. (2020) **Who is Virtual Influencer and Magalu Spokesperson Lu?** Virtual Humans, 22 Dec 2020. Available at: <https://www.virtualhumans.org/article/who-is-virtual-influencer-and-magalu-spokesperson-lu>
- Uncommon Creators. (2022) **How Fashion Designer Elsa Schiaparelli Changed the Face of Fashion**. Uncommon and curated. <https://uncommonandcurated.com/2022/08/18/how-fashion-designer-elsa-schiaparelli-changed-the-face-of-fashion/>
- Vertua, S. (2021) Italy's First Fashion Show Celebrates 70th Anniversary. L'Officiel, 13 Feb. 2021. Available at: <https://www.lofficielusa.com/beauty/first-fashion-show-made-in-italy-celebrates-70th-anniversary>
- Walter, Z. F. **What is Gamification?** Gamify, World Leaders in Game Marketing. Available at: <https://www.gamify.com/what-is-gamification> [accessed Jan 2023].
- Watt, J. (2012). **Vogue: Elsa Schiaparelli**. São Paulo: Globo, 29 nov 2012
- Ward, T. (2017) **Fashion and Technology Are Merging. And It's Astounding**. Futurism, 06 Mar. 2017. Available at: <https://futurism.com/fashion-technology-merging-astounding>
- WGSN (n. d.). **Future Consumer 2024**. Available at: <https://createtomorrowwgsn.com/3573967-wp-fc2024/>
- Woman's Journal. (1991) **Very Muirish**. October. Available at: <http://www.jeanmuir.info/articles/verymuirish>
- Woods, D. & Roesler, A. (2008) **CONNECTING DESIGN WITH COGNITION AT WORK**. Product Experience, pg. 199 - 213. Elsevier Science.
- Wunderman Thompson Commerce. (2022) **THE FUTURE SHOPPER REPORT 2022**. 6th edition. Available at: <https://www.wundermanthompson.com/insight/the-future-shopper-2022>
- Wunderman Thompson Intelligence (2021). **Into the Metaverse**. Insight, 14 Sep. 2021. Available at: <https://www.wundermanthompson.com/insight/new-trend-report-into-the-metaverse>

Bibliography

List of videos

Tools

Video #1 - **Somnium Space 2022 Fashion Show**. Available at: <https://www.youtube.com/watch?v=wySsSG7d5lQ>

Video #2 - **I Wore Digital Clothes For A Week**. Available at: <https://www.youtube.com/watch?v=qVfJheBp7Ys>

Video #3 - **Balmain Spring Summer 2021 Fashion Show**. Available at: <https://www.youtube.com/watch?v=p49HbjuX9fw>

Video #4 - **Anrealage Spring-Summer 2022 Collection "DIMENSION" AT "U"**. Available at: <https://www.youtube.com/watch?v=LIFSsNGtwEU&t=6s>

Bibliography

List of videos

Tools

Desk research

Aela School (2023) **CSD Matrix: A Tool To Boost Your Project**. Editorial Aela, 6 Feb. 2023. Available at: <https://aelaschool.com/en/userexperience/csd-matrix-tool-boost-project>

Azarova, Mayya (2021) **Secondary Research in UX**. Nielsen Norman Group, 20 Feb. 2022 Available at: <https://www.nngroup.com/articles/secondary-research-in-ux>

MJV Technology & Innovation (2012) **Design Thinking: inovação em negócios**. MJV Press, Rio de Janeiro, 2012. pg. 32; 65

Ethnography

Azarova, Mayya (2021) **Ethnography in UX**. Nielsen Norman Group, 19 Nov. 2021 Available at: <https://www.nngroup.com/videos/ethnography-ux/>

User Interviews (n.d.) **Ethnography**. Discovery Research Methods. Available at: <https://www.userinterviews.com/ux-research-field-guide-chapter/ethnography>

Netnography

Yilmaz, Naz (2023) **Ethnography and netnography in the context of UX research**. Bootcamp at Medium, 11 Mar. 2023. Available at: <https://bootcamp.uxdesign.cc/ethnography-and-netnography-in-the-context-of-ux-research-9d296e6c1814>

Crouch, Giles (2021) **Netnography & Ethnography in UX Strategy**. Medium, 17 Sep. 2021. Available at: <https://gilescrouch.medium.com/netnography-ethnography-in-ux-strategy-fdd4b36b46fd>

Shadowing

Interaction Design Foundation (5). **Shadowing in User Research - Do You See What They See?**. Available at: <https://www.interaction-design.org/literature/article/shadowing-in-user-research-do-you-see-what-they-see>

MJV Technology & Innovation. **Design Thinking: inovação em negócios**. MJV Press, Rio de Janeiro, 2012. pg. 53

Surveys & Interviews

IDEO.org (2015) **The Field Guide to Human-Centered Design**. Design Kit, 1st edition, printed in Canada

Survey Monkey. **Survey vs interview for research: discover the difference**. Available at: <https://www.surveymonkey.co.uk/mp/survey-vs-interview/>

User Interviews (n.d.) **Surveys**. Evaluative Research Methods. Available at: <https://www.userinterviews.com/ux-research-field-guide-chapter/surveys>

Roadmap

Gibbons, S. (2020) **3 Types of Roadmaps in UX and Product Design**. Nielsen Norman Group, 1 Nov. 2020. Available at: <https://www.nngroup.com/articles/roadmap-types/>

Gastaldello, G. (2021) **How to create an effective UX roadmap that aligns stakeholders**. Maze, 14 Dec. 2021. Available at: <https://maze.co/collections/ux-ui-design/ux-roadmap/>

IDEO.org (2015) **The Field Guide to Human-Centered Design**. Design Kit, 1st edition, printed in Canada

Affinity diagram

Dam, R. F. (2022) **Affinity Diagrams: How to Cluster Your Ideas and Reveal Insights**. Interaction Design Foundation. Available at: <https://www.interaction-design.org/literature/article/affinity-diagrams-learn-how-to-cluster-and-bundle-ideas-and-facts>

MJV Technology & Innovation (2012) **Design Thinking: inovação em negócios**. MJV Press, Rio de Janeiro, 2012. pg. 72

Persona Building

MJV Technology & Innovation (2012) **Design Thinking: inovação em negócios.** MJV Press, Rio de Janeiro, 2012. pg 80

UX Design Institute (2022) **What are UX personas and what are they used for?** Design, 25 May 2022. Available at: <https://www.uxdesigninstitute.com/blog/what-are-ux-personas/>

Empathy map

Osterwalder, A. et al. (2014) **Value proposition design.** Strategyzer

Gibbons, S. (2018) **Empathy Mapping: The First Step in Design Thinking.** Nielsen Norman Group, 14 Jan. 2018. Available at: <https://www.nngroup.com/articles/empathy-mapping/>

Value Proposition

Osterwalder, A. et al. (2014) **Value proposition design.** Strategyzer

Customer Journey Map

MJV Technology & Innovation (2012) **Design Thinking: inovação em negócios.** MJV Press, Rio de Janeiro, 2012. pg. 85

Gibbons, S. (2018) **Journey Mapping 101.** Nielsen Norman Group, 9 Dec. 2018. Available at: <https://www.nngroup.com/articles/journey-mapping-101/>

Brainstorming

Interaction Design Foundation. **Brainstorming.** Available at: <https://www.interaction-design.org/literature/topics/brainstorming>

IDEO.org (2015) **The Field Guide to Human-Centered Design.** Design Kit, 1st edition, printed in Canada

Moodboard

Guerra, V. (2020) **How to Enhance UX Design with Mood Boards.** XD Ideas, Adobe XD, 28 Jul. 2020. Available at: <https://xd.adobe.com/ideas/process/ui-design/how-to-enhance-ux-design-with-mood-boards/>

Yang, L. (2023) **Mood Boards in UX: How and Why to Use Them.** Nielsen Norman Group, 26 Feb. 2023. Available at: <https://www.nngroup.com/articles/mood-boards/>

Storyboard

IDEO.org (2015) **The Field Guide to Human-Centered Design**. Design Kit, 1st edition, printed in Canada

Krause, R. (2018) **Storyboards Help Visualize UX Ideas**. Nielsen Norman Group, 15 Jul. 2018. Available at: <https://www.nngroup.com/articles/storyboards-visualize-ideas/>

Information Architecture

Benyon, D. (2014) **Spaces of Interaction, Places for Experience**. SYNTHESIS LECTURES ON HUMAN-CENTERED INFORMATICS. Morgan&Claypool Publishers.

Miro (n.d.) **What is a flowchart?** Available at: <https://miro.com/flowchart/what-is-a-flowchart/>

Interface Wireframing

Frost, B. **Atomic Design Methodology**. Chapter 2. Available at: <https://atomicdesign.bradfrost.com/chapter-2/>

Gordon, K. (2021) **How to Draw a Wireframe (Even if You Can't Draw)**. Nielsen Norman Group, 20 Jun. 2021. Available at: <https://www.nngroup.com/articles/draw-wireframe-even-if-you-cant-draw/>

Aela. (2022) **Wireframe: How To Get Started?** Editorial Aela, 21 Sep. 2022. Available at: <https://aelaschool.com/en/interactiondesign/wireframe-get-started/>

Usability Testing

Moran, K. (2019) **Usability Testing 101**. Nielsen Norman Group. Available at: <https://www.nngroup.com/articles/usability-testing-101>

UserTesting. **How usability testing works**. Resources. Available at: <https://www.usertesting.com/blog>

High Fidelity Interface Prototyping

Apple Developer. **Human Interface Guidelines**. Available at: <https://developer.apple.com/design/>

Material Design. **Introduction**. Available at: <https://m2.material.io/design/introduction>

Digital sampling

Browzwear. **Homepage**. Available at: <https://browzwear.com/>

CLO3D. **Homepage**. Available at: <https://www.clo3d.com/en/>

Style 3D. **Homepage**. Available at: <https://www.linctex.com/>

DE LA GARZA, F. A. (n.d.) **Digital Fashion Designer: 3D Disruption in Fashion and the Design of the Future**. ELLE Education Available at: <https://elle.education/en/business/digital-fashion-designer-3d-disruption-in-fashion-and-the-design-of-the-future/>

A/B testing

Nielsen, J. (2005) **Putting A/B Testing in Its Place**. Nielsen Norman Group, 14 Ago. 2005. Available at: <https://www.nngroup.com/articles/putting-ab-testing-in-its-place/>

Optimizely (n.d.) **Bucket testing**. Available at: <https://www.optimizely.com/optimization-glossary/bucket-testing/>

Rodden, K. et al. (2010) **Measuring the User Experience on a Large Scale: User-Centered Metrics for Web Applications**. Google, 2010. Available at: <https://static.googleusercontent.com/media/research.google.com/pt-BR//pubs/archive/36299.pdf>

Online Communication Model

Cantoni, L. & Tardini, S. (2006). **Internet**. Routledge

DE LA GARZA, F. A. (n.d.) **How to Develop a Fashion Communication Strategy for Products or Services**. ELLE Education. Available at: <https://elle.education/en/business/how-to-develop-a-fashion-communication-strategy-for-products-or-services>

CGI Creation

DE LA GARZA, F. A. (n.d.) **How Can 3D Fashion Design Be Applied to Fashion Communications Strategies?** ELLE Education. Available at: <https://elle.education/en/business/how-can-3d-fashion-design-be-applied-to-fashion-communications-strategies/>

SHOWstudio. **THE FUTURE OF FASHION IS: CGI**. 10 May 2021. Available at: <https://www.fastcompany.com/90682915/cgi-influencers-are-here-whos-profiting-from-them-should-give-you-pause>

Sobande, F. (2021) **CGI influencers are here. Who's profiting from them should give you pause.** Fast Company, 10 May 2021. Available at: <https://www.fastcompany.com/90682915/cgi-influencers-are-here-whos-profiting-from-them-should-give-you-pause>

Blueprint

Gibbons, S. (2017) **Service Blueprints: Definition.** Nielsen Norman Group, 27 Ago. 2017. Available at: <https://www.nngroup.com/articles/service-blueprints-definition/>

MJV Technology & Innovation (2012) **Design Thinking: inovação em negócios.** MJV Press, Rio de Janeiro, 2012. pg. 87

Design System Documentation

UXPin. (2022) **Design System Documentation in 9 Easy Steps.** STUDIO Blog, 10 Oct. 2022. Available at: <https://www.uxpin.com/studio/blog/design-system-documentation-guide/>

World Fashion Exchange (2022) **Tech Pack 101: Everything you need to know about fashion tech packs.** Available at: <https://www.worldfashionexchange.com/blog/tech-pack-101-everything-you-need-to-know-about-fashion-tech-packs/>

ANNEX

ANNEX 1 - PACT

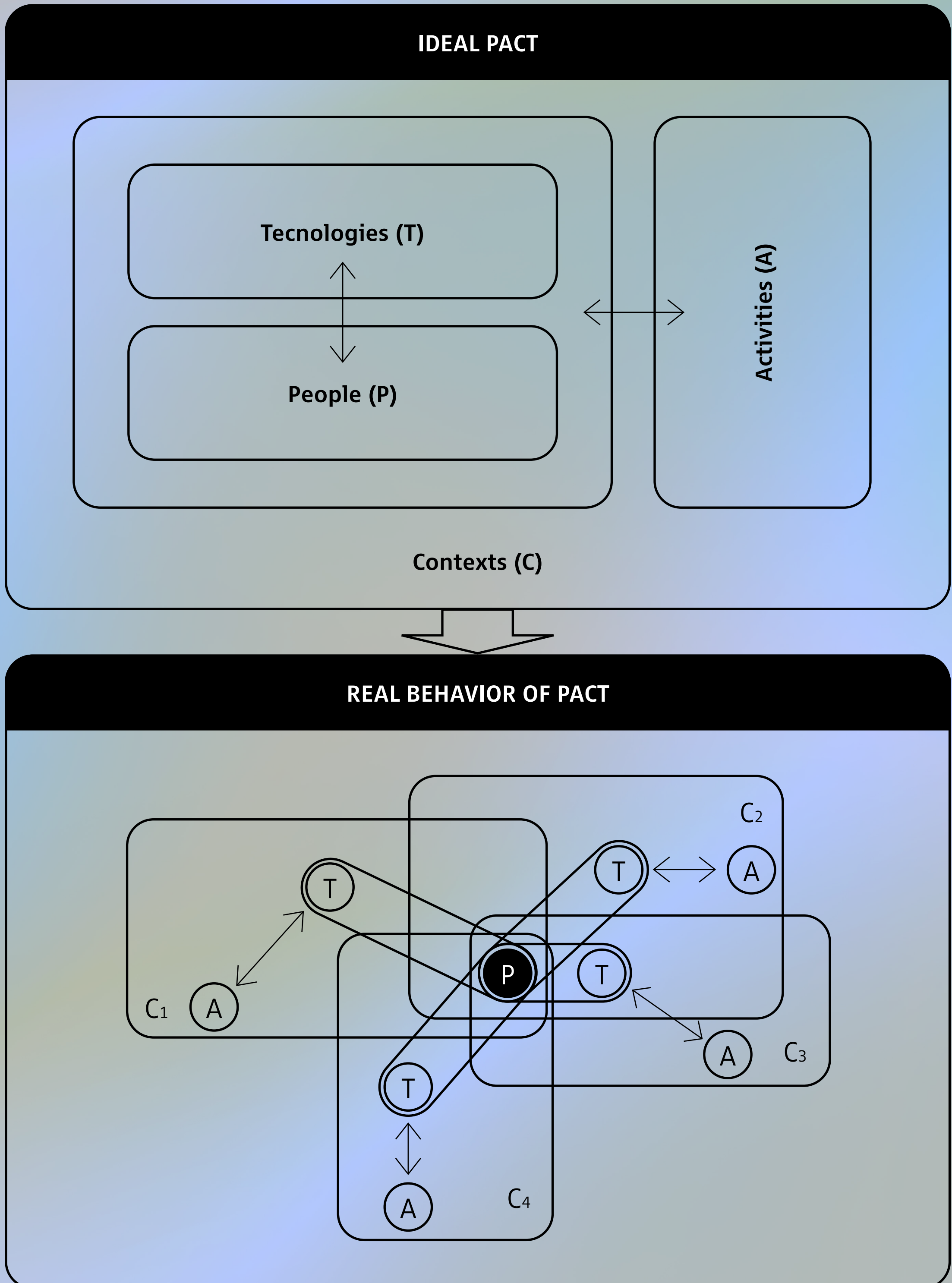


Figure: PACT systems. Source: Author, adapted from Benyon (2014)

ANNEX 2 - DEVELOPMENT OF THE "ANATOMY OF EXPERIENCE"

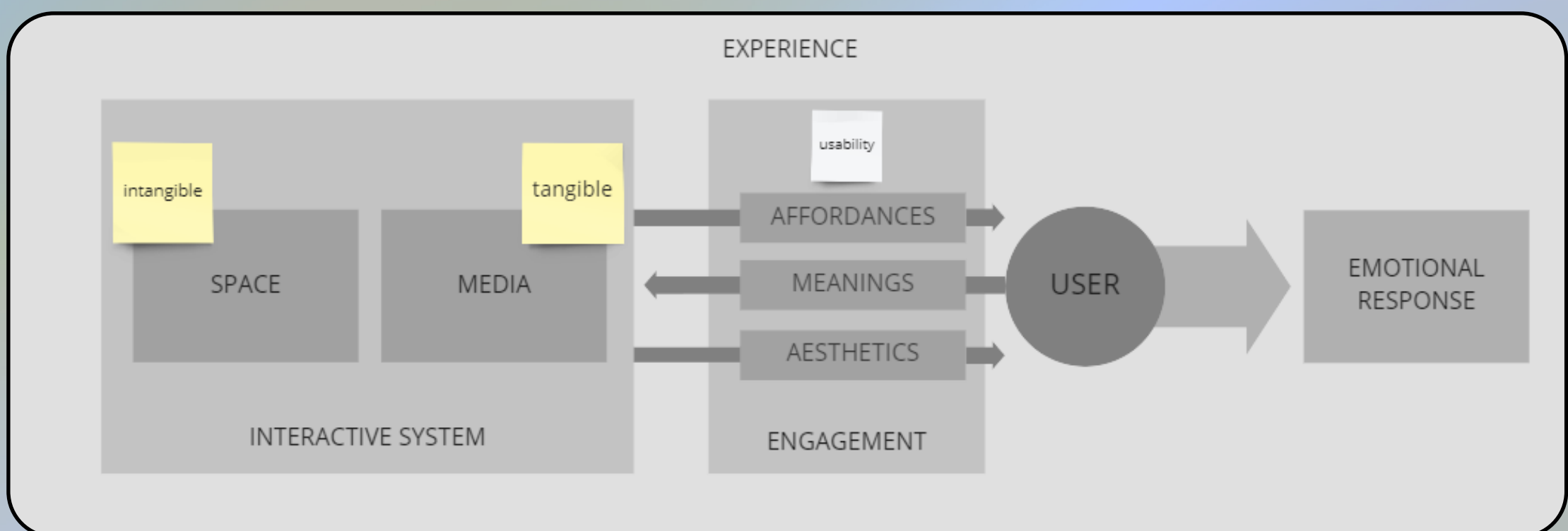
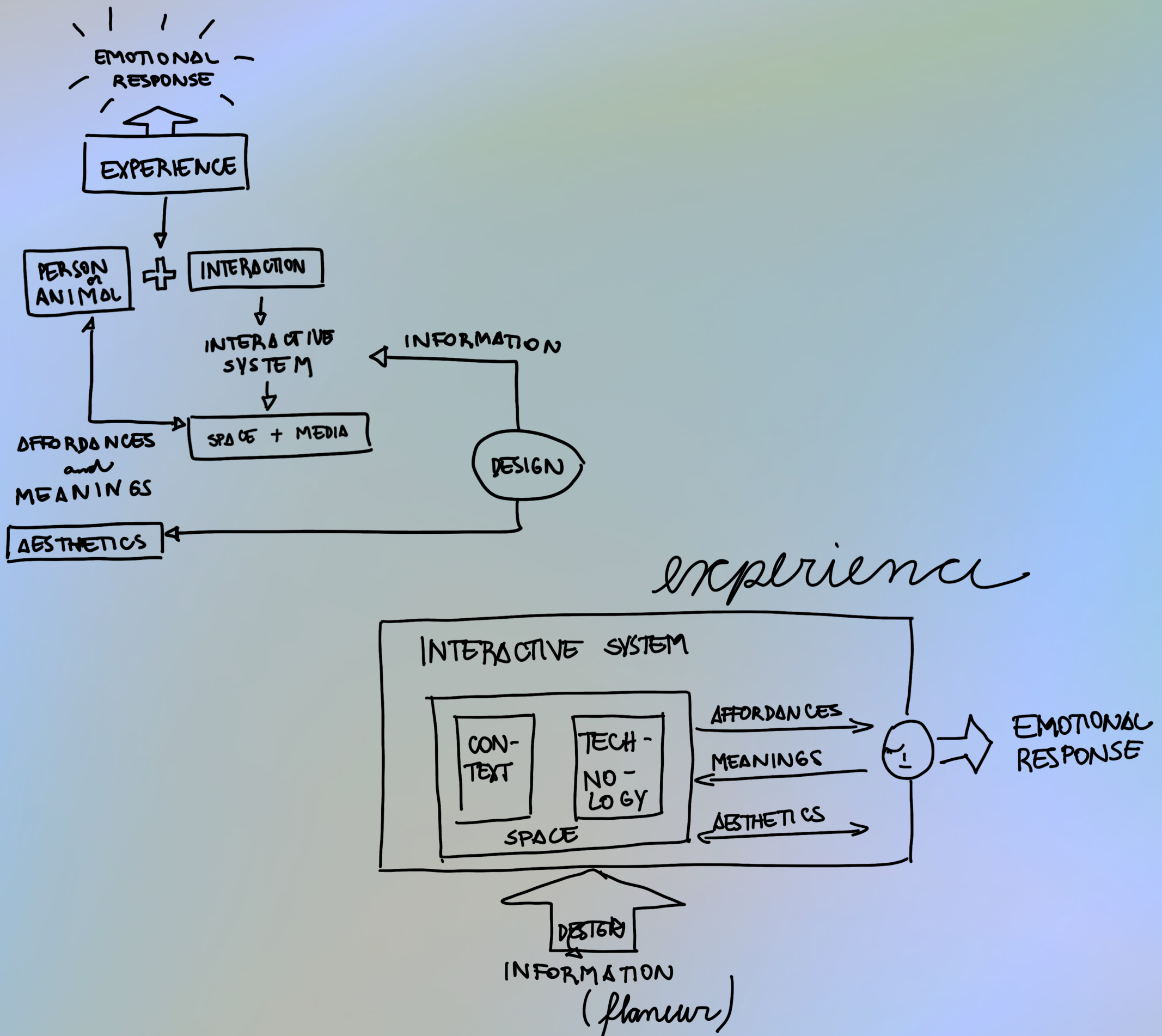


Figure: Development versions of the "Anatomy of Experience". Source: Author

ANNEX 3 - ARCHITECTURE AND WIREFRAME OF THE THESIS ARTIFACT

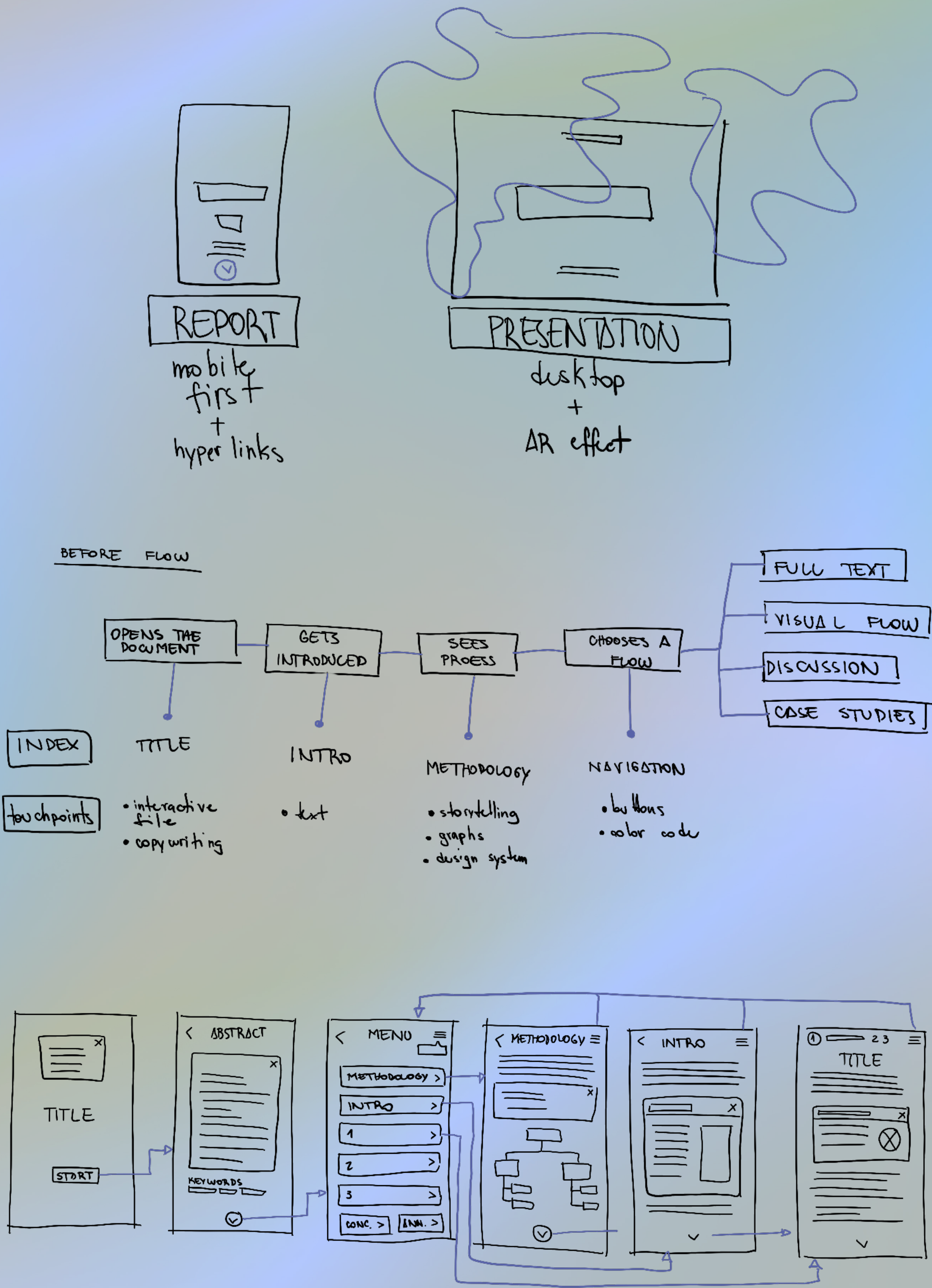


Figure: Sketching of the thesis as an artifact. Source: Author



POLITECNICO

MILANO 1863

THE AUTHOR



Erika Rox is a passionate designer with deep interest for culture, nature, and technology. Born and raised in Brazil, she is a fashion strategist, UX researcher, and innovation consultant who approaches her work with curiosity and keen observation. With a focus on enhancing user experiences, Erika combines her design expertise with research and strategy to co-create impactful solutions.

erikarox.com 