



**THE  
SPROUT**  
DEEP DIVE  
REPORT

TREND 2024

# MILLE-FEUILLE REALITY

## CONTENTS

|  |       |
|--|-------|
| Main Aspects & Values                          | p. 05 |
| New Functional, Emotional and Identity Demands | p. 09 |
| Trend Facets & Innovation Opportunities        | p. 11 |
| Basic Requirements for Designing Experiences   | p. 60 |
| Factors that Drive the Trend                   | p. 63 |

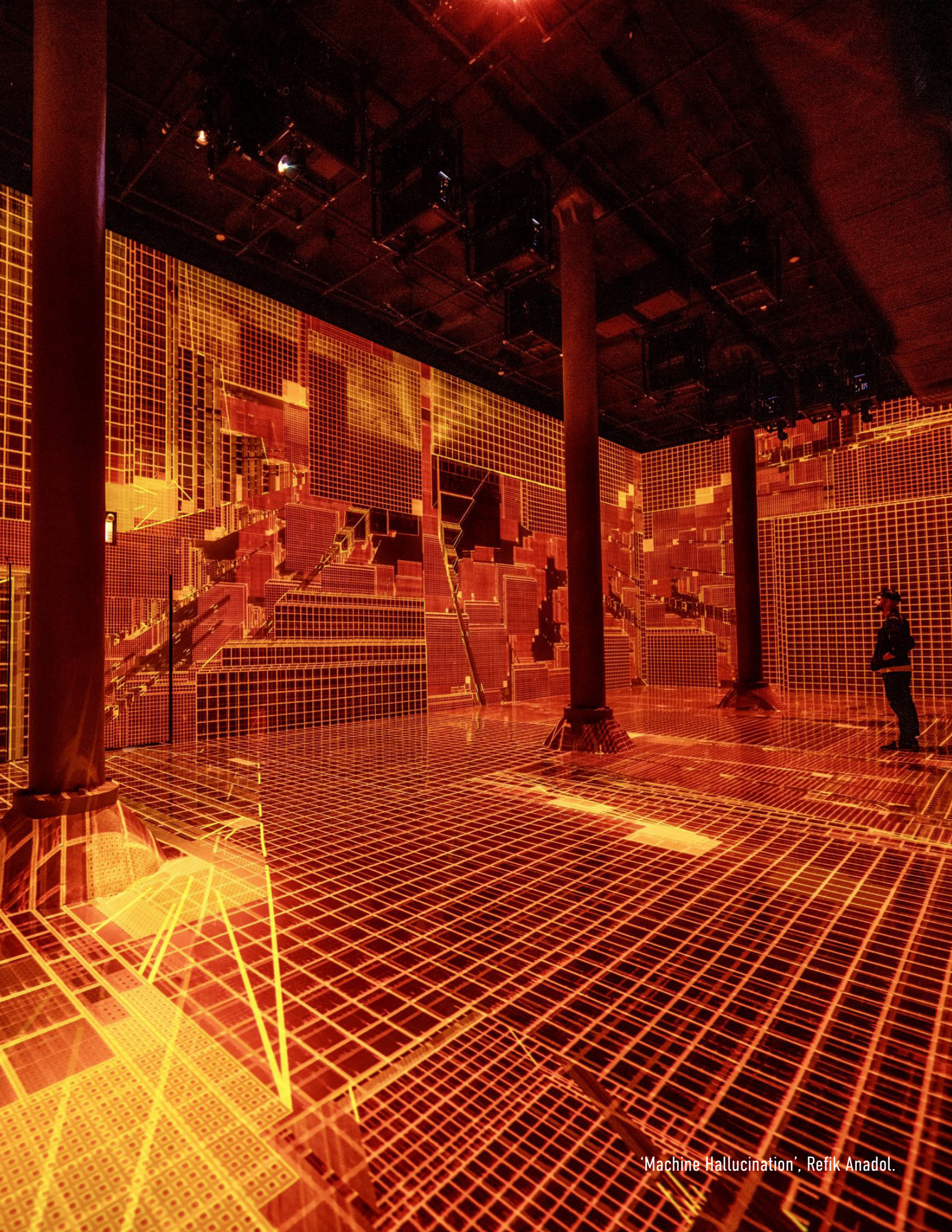
TREND 2024

# MILLE-FEUILLE REALITY

THE COVID19 HEALTH EMERGENCY HAS GENERATED A FUNCTIONAL NEED TO ADOPT NEW ONLINE PRODUCTS AND SERVICES IN ORDER TO ADDRESS THE LIMITATIONS OF THESE UNPRECEDENTED CIRCUMSTANCES. MORE IMPORTANTLY, IT HAS ENHANCED THE DESIRE FOR RICH, EXCITING AND SURPRISING EXPERIENCES. THIS TRANSITION TO AN EXTENDED REALITY HAS ACCELERATED, AND IS MEDIATED BY ARTIFICIAL INTELLIGENCE AND IMMERSIVE TECHNOLOGIES. IN THE FUTURE, PEOPLE'S ACTIONS WILL UNFOLD SIMULTANEOUSLY IN THE ANALOG, VIRTUAL AND DIGITAL REALMS. BRANDS WILL ADOPT NEW WAYS OF DESIGNING AS WELL AS MANAGING THEIR OFFERS AND CUSTOMER JOURNEYS. IN THIS NEW SCENARIO, THE HUMAN GESTURE AND SOCIAL RELATIONSHIPS WILL CONTINUE TO PLAY A FUNDAMENTAL ROLE IN TINGING NEW EXPERIENCES WITH FAMILIARITY, MEANING AND EMPATHY.

THE MILLE-FEUILLE REALITY TREND EXPLORES SOCIAL BEHAVIORS, CONSUMPTION HABITS, AND VALUES THAT WILL GUIDE DECISION-MAKING AS WELL AS FUNCTIONAL, EMOTIONAL, AND IDENTITY DEMANDS, IN THE NEXT 3 YEARS. THE REPORT OFFERS A SET OF IDEAS FOR HOW BRANDS CAN INNOVATE IN THEIR PRODUCT OFFERINGS, SERVICES AND EXPERIENCES, IN LINE WITH THE TREND.





'Machine Hallucination', Refik Anadol.

**AUGMENTED LIVING**

**HUMAN ATTITUDE**

**COLLECTIVE WELLBEING**

**HYBRID CREATIVITY**

**SENSORIAL AWAKENING**

[VALUES THAT WILL GUIDE DECISIONS AND BEHAVIORS]



Immersive technologies will profoundly alter the experiences of living, working, having fun, learning and relating. People will get used to acting in an environment enriched by a variety of natural and artificial stimuli. An extended reality (XR) - the result of fusing the analog, virtual and digital layers - will gain prominence transforming the knowledge and habits of human beings.

Immersive content will color the physical world, adding a magic foil that offers alternative readings of the environment. Brands will build a constellation of experiences for consumers to navigate and interpret through a non-linear narrative, a journey full of original and thrilling moments. Far from wanting to listen to stories (story-telling), people will want to experience and interpret those stories (story-living), reinforcing the construction of their 'augmented' identity.

Human energy will continue to be a transformative factor. Physical stimuli and body language - gestures, voice, touch, aroma, taste - will continue to elicit the deepest emotions. Human gestures will be enhanced through digital / virtual experiences, making them vivid, attractive and beneficial. The body will become a key component for managing experiences by interacting with a new generation of more empathetic and sensory software, materials and devices.

People's growing desire to reboot the mind and explore new pleasures and sensations will lead them towards experiences that integrate a complex set of physical, emotional and cognitive stimuli. Immersive options that fuel curiosity and discovery will make headway.

A new set of products, services, experiences and spaces that adapt to people's identities will be designed. These will adjust in real time to behavioral responses. The skin and the mind will be an open book. Hybrid spaces that act as containers where people go about their daily activities within an extended reality (XR) will begin to emerge.

The desire to live moments of collective effervescence will lead to an increase in the scale of virtual events, as well as an offering of performance platforms where people can act and express themselves



without inhibitions. People will use avatars, rendered bodies, and personal icons with their own particular features and gestures in order to multiply their presence and enhance social interaction.

The concept of beauty will change as a result of the multiple dialogues among art, technology and science. A sensory migration will happen, from a predominantly analog culture to one mediated by artificial intelligence (AI), augmented reality (AR), virtual reality (VR), and haptic interfaces. AI-powered creativity will lead the way because of its ability to complement what once was 100% human invention. Acting and creating in an extended reality (XR) will lead people to develop a new sensoriality, offering unprecedented expressive possibilities.

Virtual experiences in specific areas like work, learning, health consultations and shopping will improve verbal and non-verbal communication. Hyper-realistic immersive scenarios will allow messages to be expressed with extreme fidelity, information to be managed in a fluid manner and the practical actions of the participants to be enriched. The objective will be to generate greater understanding and strengthen ties between people, between individuals and the environment, and between the public and brands.







# FUNCTIONAL, IDENTITY, AND EMOTIONAL DEMANDS

**Live, work, learn, consume, have fun and relate in a fluid and frictionless way among the different layers of extended reality (XR).**

**Control - either for pleasure or convenience - in navigating through experiences that are spread throughout the analog, virtual and digital layers.**

**Live, interpret and share stories - whether real or fictional - to reinforce the construction of identity and peer community.**

**Adopt products and services that are healthy, safe, sustainable and transparent, both in terms of production and marketing.**

**Live deep and memorable emotions through natural and artificial stimuli.**

**Access brand experiences and content at any time and through different formats.**

**Manage experiences in a simple and intuitive way through the body and the virtual representation of physical features.**

**Expose oneself to powerful stimuli to reset the mind and explore new pleasures and sensations.**

**Nurture curiosity and discovery in order to escape the tedium of living and always consuming the same thing.**

**Act and express oneself without inhibitions to discover new emotions, as well as physical and mental abilities.**

**Personalize experiences and spaces based on identity, biology and behavioral responses.**

**Socialize with others to offset the growing feeling of isolation and loneliness.**

**Use avatars, rendered bodies and personal icons with identity features to multiply one's presence and social interaction in extended reality (XR).**

**Devise and carry out simultaneous actions in real life and in the digital-virtual space using new interfaces.**

**Optimize time and resources in carrying out specific tasks through virtual experiences that improve verbal and non-verbal communication with others.**

**Learn in a more emotional and effective way through role playing in real-life situations simulated with the help of technology.**





Virtual catwalk by Paolo Carzana,  
Central Saint Martins.

MILLE-FEUILLE REALITY

# TREND FACETS & INNOVATION OPPORTUNITIES

From an in-depth analysis of how the Mille-feuille Reality trend will influence the choices people make in the market, seven key characteristics emerge:

1. MULTIVERSE NARRATIVE
2. HUMAN ENERGY
3. EMOTIONAL SHAKE UP
4. BIO-ADAPTATIVE EXPERIENCE
5. COLLECTIVE HALLUCINATION
6. LAYERED CREATIVITY
7. SIMULATED LIFE

For companies, each of these characteristics represents an opportunity to innovate by offering products, services, communication and experiences that respond specifically to people's new desires and behaviors.



MILLE-FEUILLE REALITY

# MULTIVERSE NARRATIVE



Google offers AR animal models that allow users to see a real-size 3D image of a search result.

Our way of being and living will unfold simultaneously in the analog, virtual and digital realms, resulting in the integration of an extended reality (XR). Our working, relating, having fun, training, consuming, moving around the city or communicating habits will be complemented by immersive technologies - such as artificial intelligence (AI), holograms, haptic interfaces, virtual reality (VR), augmented reality (AR) and mixed reality (MR) - that will enrich the execution of those actions. People will get used to receiving and managing a variety of natural and artificial environmental stimuli.

Multiple layers will merge to create a two-way process. New technological resources will allow for the introduction of analog sensory components into digital / virtual experiences in order to make them more vivid. The result will be a heightened perception, both subtle and concrete, of our 'mille-feuille' environment. Conversely, immersive content will color the physical world by adding an illusory ('magic') foil. It will offer alternative readings of the environment, introducing the public to a kind of lucid dream, where fantasy will merge with reality, yet allowing for people to still be in control of their actions.

**People will navigate as they please through a constellation of diffused experiences in the analog, virtual and digital layers that will, at times, be indistinguishable from each other. A non-linear narrative will allow people to continue this journey full of simultaneous, original and exciting stimuli. Individuals will choose from among many paths of sensory immersion that will, contemporaneously, be nourished by the deepest human emotions. Technology, with emotional engineering at the forefront, will bring fluidity to connections in the physical world - the transitions from home space/reality to work space/reality or to store space/reality will be seamless, personal and intuitive.**

Far from wanting to listen to stories (story-telling), people will want to experience and interpret them (story-living), to reinforce the construction of their identity and their community. Status will be associated with freely experiencing the multi-layered world. The more



adventurous the options are to choose from, the more empowered an individual will feel. Brands will build a constellation of interconnected and diffused touchpoints (contact points) in extended reality (XR), in order to offer experiences and content at all times, through different formats. The key will be to attract the public to one of these touchpoints (such as the rabbit hole which allows Alice to enter Wonderland) and then have it flow to another point fluently. A successful retail experience will drive consistent consumer navigation to create endless interactions and multiple opportunities for monetization or engagement.

The memory of confinement as a result of the coronavirus crisis will increase the preference for experiences that retain their functionality and are 100% adaptable in their dynamics and formats in situations of extreme uncertainty: if, for example, one of the constellation touchpoints leaves the game (for example, the store is temporarily closed), the rest should be reorganized and continue to function, allowing the brand to closely accompany people in their new situation.

*Check out the social, technological, cultural and economic factors that are driving this trend: p. 63.*



## SIGNALS THAT ANTICIPATE THE TREND



**HoloVista** is a mixed reality and social media simulator game created by Aconite with the help of renowned photographers, art directors, narrative designers, artists and music composers. Located in a house with an aesthetic that fuses reality and fantasy, players must find and photograph hidden objects in different environments to post on the protagonist's social network: Carmen.



Singer **Grimes** presented a digital version of herself, called WarNymph, in order to continue to work and present her album *Miss Anthropocene* during her pregnancy and early motherhood. The avatar carries out promotional activities and appears in magazine images due to the artist's inability to attend photo sessions. Her goal is also to develop an idea of 'techno-feminism': to allow women to continue their careers without interruption when they want to become mothers.

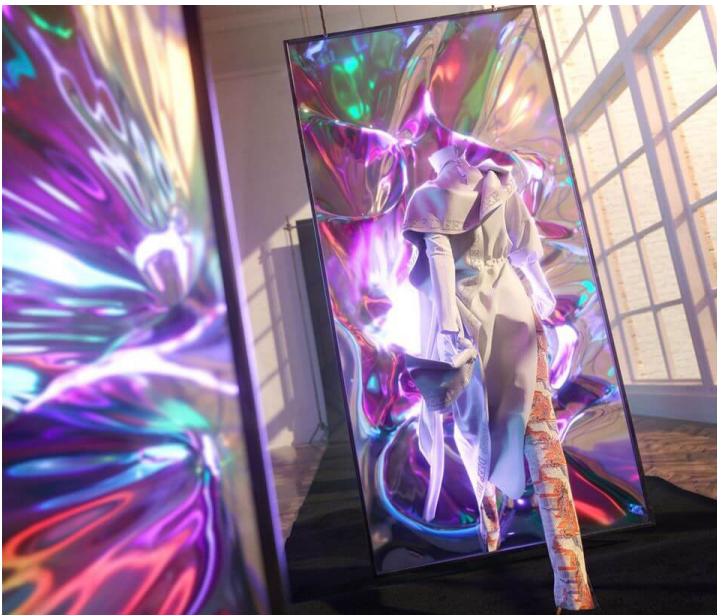


**Dreamscape Immersive** creates immersive VR narratives that allow people to explore cinematic stories. Groups of up to six people, equipped with backpack computers, headsets, and hand and foot sensors, enter a space with a vibrant haptic floor. Then they appear in the virtual universe as avatars and embark on a journey where they can physically touch and feel objects, detect aromas or other elements such as fog or wind to make the story more vivid.





**Lego and Nintendo** launched a line of interactive Super Mario Lego games, which includes an interactive Mario figurine connected to a smartphone via bluetooth. Additionally, the Super Mario figurine incorporates LCD screens into the eyes, mouth, and stomach as well as sound effects. There are also sensors to detect color, movement and special “action bricks” that can interact with the figurine in different ways.



The **Hot Second** pop-up store in London invites visitors to donate an unwanted piece of clothing in exchange for a digital garment that can be tested in capsules equipped with a camera, projector and “magic mirror.” Shoppers can take home digital images and photographic prints using their chosen garments.



Theater company **Dotdotdot** created an immersive experience about Jeff Wayne’s *The War of The Worlds* story, which integrates theater, VR, AR, and holograms. Twelve people are transported to the misty streets and luxurious halls of Victorian England, where they must follow the main characters on their mission to reclaim the city after an alien invasion. A 2,000-square-meter site with 10 rooms employ different forms of multisensory technology to enhance the experience.





The **Fortnite** video game invited rapper Travis Scott to perform a 10-minute virtual concert attended by 27.7 million people. The show included a digital avatar of the singer teleporting through different locations in the video game along with surreal images and animations. In the days leading up to the show, players were able to notice the progressive construction of the stage that was set up on Sweaty Sands beach.



# MULTIVERSE NARRATIVE: HOW TO INNOVATE IN THE NEXT 3 YEARS?

## **Mille-feuille Brand**

Conceive a mille-feuille universe that combines reality with fiction, where customers can experience history, try products, learn techniques and interact with key people from a brand. Whether it's a hyper-realistic or fantasy environment, the extended experience should be 100% social and should allow people to record (photos, videos, audios) special moments to share with friends.

## **Virtual Presentations**

Invite a select group of clients, buyers and journalists to a virtual auditorium, with high-definition 3D images and spatial sound, where discussions about the origin of a collection with the creators of the brand can take place. The interaction could be done through personalized digital avatars, as well as including virtual presentations of the products with a catwalk or an exhibition. The brand could send each person a VR device as an invitation.

## **Choose your own Adventure**

Create stories with a "choose your own adventure" logic, that invite the public to circulate physically, digitally and virtually among the different touchpoints of a retail constellation to follow a non-linear, interactive and open-ended narrative. An artistic installation in a public space could lead to a social network, a store window or a music platform, adding another fragment of the story, while each of these touchpoints, in turn, could lead to others. Based on their choices, each customer will live a personalized branding experience.

## **Enriched Stores**

Design enriched stores that incorporate various levels of information activated through customer actions to aid in decision-making. Stopping for a few seconds in front of a product or taking it into one's hands could be the signal that prompts the display of additional information in augmented reality (AR), whether it be inspirational, or about the production process, the materials / ingredients used or advice on how to consume it. An augmented reality (AR) tutorial on a smartphone could guide customers through the first few uses of the product.

## **Simultaneous Events**

Design shows that happen simultaneously in different layers of extended reality (XR) optimized with specific aesthetic and performance characteristics. For example, a musical release could integrate an immersive experience that allows the public to access the artist's inspirational journey before seeing the singer's performance on stage from the living room of their house. At the same time, other people could experience that same recital live (in a theater), while other individuals could attend a virtual version of the performance within a video game.

## **Extended Merchandising**

Develop a new generation of brand merchandising that replicates the emotions and memories of what people lived through in an immersive experience. Examples could include an object seen and touched in a fantastical universe that could be especially printed as a souvenir, to a video documenting the moment in which the person spoke with the designer of the brand, made to share on social networks.





MILLE-FEUILLE REALITY

# HUMAN ENERGY

'Tell me why', developed by Dontnod, Microsoft and GLAAD, is the first video game whose lead character is a transgender person who must discover memories of their troubled childhood.

Human energy will continue to be a transformative factor. Physical stimuli and body language - gestures, voice, touch, aroma, taste - will continue to provoke our deepest emotions. Conserving and enhancing the human gesture in extended reality (XR) will lead to reintegrating the senses into digital / virtual experiences in order to make them vivid, attractive and beneficial. The objective will be to produce moments of “chemistry” that manage to emotionally and physically move each particle of one’s being so that the experience remains imprinted in our sensorial memory.

The body will become fundamental to managing experiences. Biometric data linked to behavior will be the key to accessing, driving, reporting, paying, signing and validating. Virtual representations of physical features - through different types of avatars - will allow the construction of hybrid identities so that people can interact with interfaces and operate them intuitively, thereby transitioning from the “Internet of Things” (IoT) to the “Internet of Bodies’ (IoB).

**A new generation of more empathetic and sensory software, materials and devices - developed with haptic technology, artificial intelligence and emotional engineering - will be critical to enhancing interactions with the body and mind. Voice commands, gesture detection, smart surfaces, facial recognition, and environmental sensors will organically integrate into experiences. People will be more open to using immersive tools that enhance the natural senses and human instinct.**

Touch will be a key sense in the future. In personal experiences, the desire for tactility will be reproduced through wearables or active skins, which can directly stimulate the nervous system taking



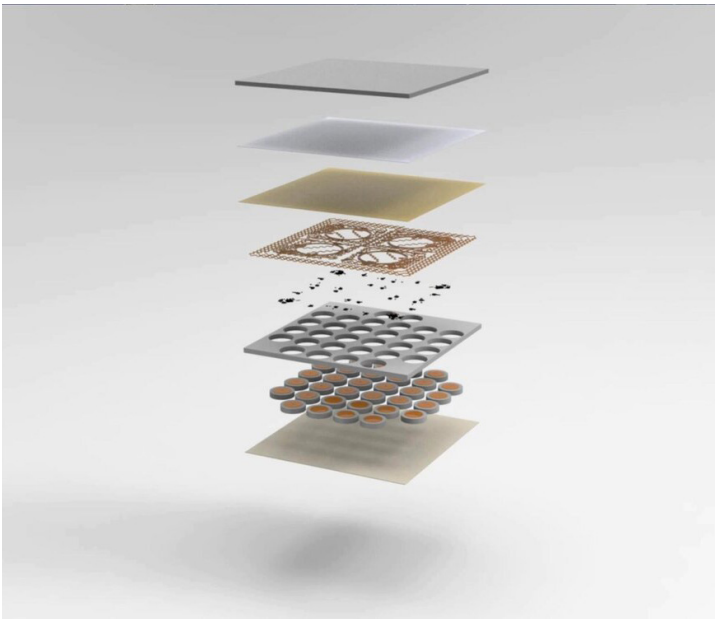
sensations to another level. In public experiences, where physical contact must be reduced or eliminated because of health risks, interfaces that allow for the management of the environment with human behavior will be useful: gaze, gesture, voice, body heat.

*Check out the social, technological, cultural and economic factors that are driving this trend: p. 63.*



'Tell me why', Dontnod, Microsoft and GLAAD.

## SIGNALS THAT ANTICIPATE THE TREND



Researchers from **Northwestern University** developed an artificial fur patch. This thin, flexible, and wireless 'epidermal virtual system' is equipped with vibrating moving parts to provide a sense of touch through small gentle touches of the epidermis in VR experiences.



**Tesla** developed Teslasuit, a suit that integrates a haptic feedback system that provides the user with the sensation of touch in VR and AR. Electrostimulation enhances the learning experience during workouts by increasing immersion, promoting 360 ° awareness, and engaging muscle memory. The biometric system collects user data, in real time during training, that can be used to transmit emotional state, stress level and key health indicators.

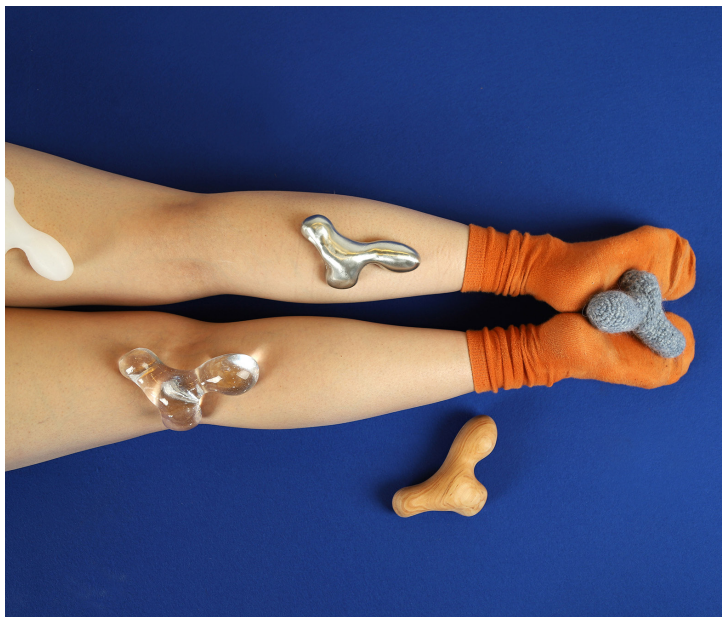


The Reciprocal Syntax installation, by design studio **BCXSY**, is a metaphor for the creative process that allows two people to build, together, an audiovisual landscape through play. The facility features a sensor-equipped seesaw, surrounded by a semi-transparent fabric, where images are projected as they are created in real time, depending on the movements of the participants mounted on the seesaw.





Researchers from the **Swiss Federal Institute of Technology** revealed a portable interface that allows VR users to feel objects in virtual environments. The silicone-like, electrode-like skin supplement is packed with sensors and activators that work together to realistically mimic the sense of touch. The prototype is limited to a finger device; however, more applications are expected in the future.



The Rituals of Sexual Pleasure series of sex toys, designed by **Coby Huang**, are tools for exploring pleasure without using penetration or vibration to achieve orgasm. A kit with objects of different organic forms and haptic materials play with body sensoriality. Materials such as wood, glass, silicone, tin and wool are incorporated to create sensations of soft and hard, cold and warm, heavy and light, smooth and rough.

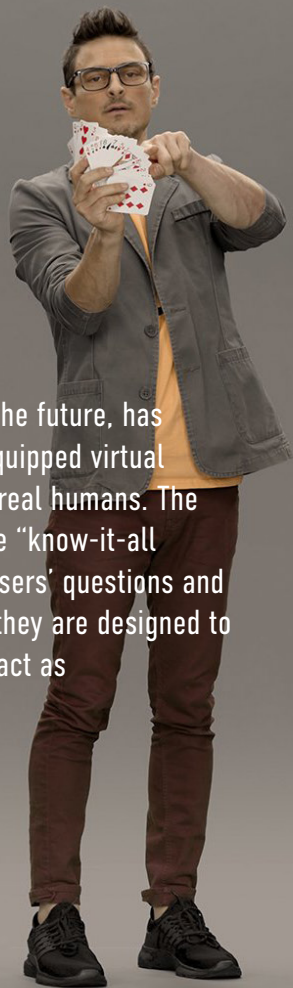


*Corporealités*, artist **Jesper Just**'s installation at Perrotin Gallery New York, consists of a series of LED sculptures programmed with video alongside a "real" spatial intervention within the gallery space. The architectural arrangement encourages the creation of unexpected and illogical pathways. In the videos, dancers from the American Ballet Theater overlap and intertwine, intermittently observed through a microscopic camera lens. Extreme zoom makes genres and identity ambiguous, while screens reflect fragmented bodies, forging a tangible connection through physical and digital spaces.





Star Labs, Samsung's factory of the future, has developed Neon, a series of AI-equipped virtual beings that look and behave like real humans. The avatars are not programmed to be "know-it-all bots" or an interface to answer users' questions and demands (like Siri or Alexa), but they are designed to chat and sympathize, in order to act as hyper-realistic companions.





# HUMAN ENERGY: HOW TO INNOVATE IN THE NEXT 3 YEARS?

## Human Retail

Create powerful touchpoints that include a human presence as a gateway to virtual and digital experiences with the objective of gaining trust and closeness with the public. The goal of creating empathy could also be accomplished with simple actions, such as coaching teams in the art of listening in order to be able to offer candid conversations with customers. Subsequently, a human voice could guide the audience in their actions within an extended reality (XR).

## Virtual Consultants

Propose virtual consultation services with hyper-realistic avatars that allow live interviews with specialists in medicine, wellness and training. The experience would be complemented with personal devices that can measure people's physical condition and provide health indicators giving experts real-time data and allowing them to optimize their diagnosis and advice.

## Client Follow-up

Devise delivery systems tinged with sensoriality as well as exciting and novel elements ranging from keywords spoken by the delivery person to micro-experiences that accompany the unboxing of the package. For example, packaging using NFC technology that could trigger audiovisual content on the customer's phone upon opening the box. A character from the brand could virtually accompany the first trial/use of the product.

## Sensorial Dating

Offer virtual dating applications that incorporate "touch" through haptic interfaces that enrich sensoriality and body language at a distance. Develop sexting platforms that include connected sex toys controlled remotely by users, as well as personalized boxes with erotic stimuli (aromas, flavors, textures) to increase pleasure.

## Connected Garments

Design functional garments and accessories with haptic technology connected to virtual guides allowing for improved physical training at a distance or medicinal treatments online. Create healthy wearables that allow people to correct body posture, stimulate blood circulation, enhance cell regeneration or increase body hydration, among other benefits.





MILLE-FEUILLE REALITY

# EMOTIONAL SHAKE-UP

(Un) Balance, by Elyne Legarnisson, is an experience that uses virtual and physical tools to cause participants to break their habitual movement patterns.

There is a growing desire to awaken the public through powerful stimuli to deconstruct perceptions and cultural conventions, as well as create the possibility for experiencing new pleasures and sensations. In other words, some brands will want to provide an emotional shake up that will trigger a restart of the mind overwhelmed by routine. Capturing people's attention in an environment of over-information and anxiety will require a unique cocktail of incentives that breaks people's expectations and makes them react.

Experiences will manipulate the sensory system of individuals to create surprising illusions and unexpected moments that awaken emotions (negative and positive) that will stay in people's memories. The strategy will be to create short circuits between the sensations captured by the body and the perceptions created by the mind. This is a complex game involving human physical, emotional and cognitive aspects.

**The attraction for experiences that nurture curiosity and discovery will grow because of the desire to escape the tedium of living and always consuming the same thing. Immersive installations guided by physical, virtual and digital stimuli will encourage the public to reorient themselves in extended reality (XR) to create illogical paths and provoke the process of serendipity. Surrealism, humor and the absurd will be unified genres within this new (i)logic.**

In an extended reality (XR), the play of simultaneous actions in the physical, digital and virtual world guided by an equally 'understood' narrative, will provoke unexpected moments that alter routines and color them with a halo of fiction. The design of these experiences should reinforce the active role that people play in the plot, so that they become true protagonists in deciding how to live the story



without limitation to their whims and curiosity.

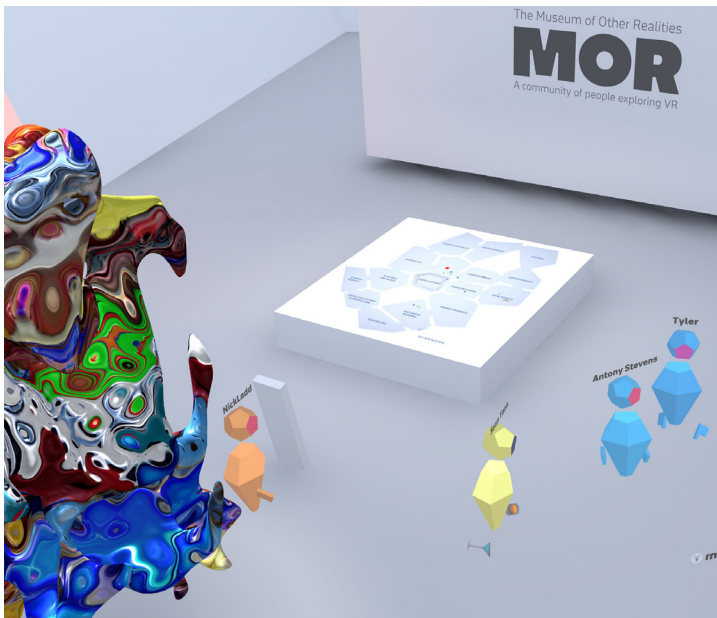
The desire for virtual escapism could be another strategy for living moments of evasion and getting people away from those aspects of their lives that they dislike and do not know how to modify. This could include anything from inhabiting parallel universes and participating in activities that cannot be carried out in people's daily lives to imaginatively changing aspects of their existence, or exploring fantastic worlds that feed illusion and inspire.

*Check out the social, technological, cultural and economic factors that are driving this trend: p. 63.*



(Un)Balance, Elyne Legarnisson.

## SIGNALS THAT ANTICIPATE THE TREND



The **Museum of Other Realities (MOR)** is a digital museum that exhibits work created with VR tools or intended for immersive experiences. Special interfaces encourage visitors to find and interact with friends within the immersive space to share the experience of enjoying works of art.



The non-profit organization **Forest Bathing International** offers virtual nature baths to reduce stress and anxiety. Through virtual tours on their website, led by guides in different countries, people can receive the beneficial stimuli of seeing vegetation when they cannot travel. A study by the University of California revealed that watching nature shows makes people happier.



On her **Cornucopia** show, Björk worked with designer **Chiara Stephenson**, who devised an unusual staging to tinge the experience with subtle sensibility. The stage had multiple bright platforms, raised to different levels, with a translucent string fabric curtain creating a permeable barrier. Digital video art, inspired by the nature of Tobias Gremmler, was projected both on the curtain and on the wall behind Björk and his musicians. Artists could travel across platforms, appear on different parts of the stage, and pierce through veils, to surprise the audience.





Jessica Smarsch, founder of the startup **Constructing Connectivity**, developed Connexstyle, a wearable-shaped shirt that has 'technical sleeves' lined with sensors that measure muscle activity, joint rotation and are linked to a mobile app that visually tracks progress, helping patients who have suffered from a stroke regain muscle function.



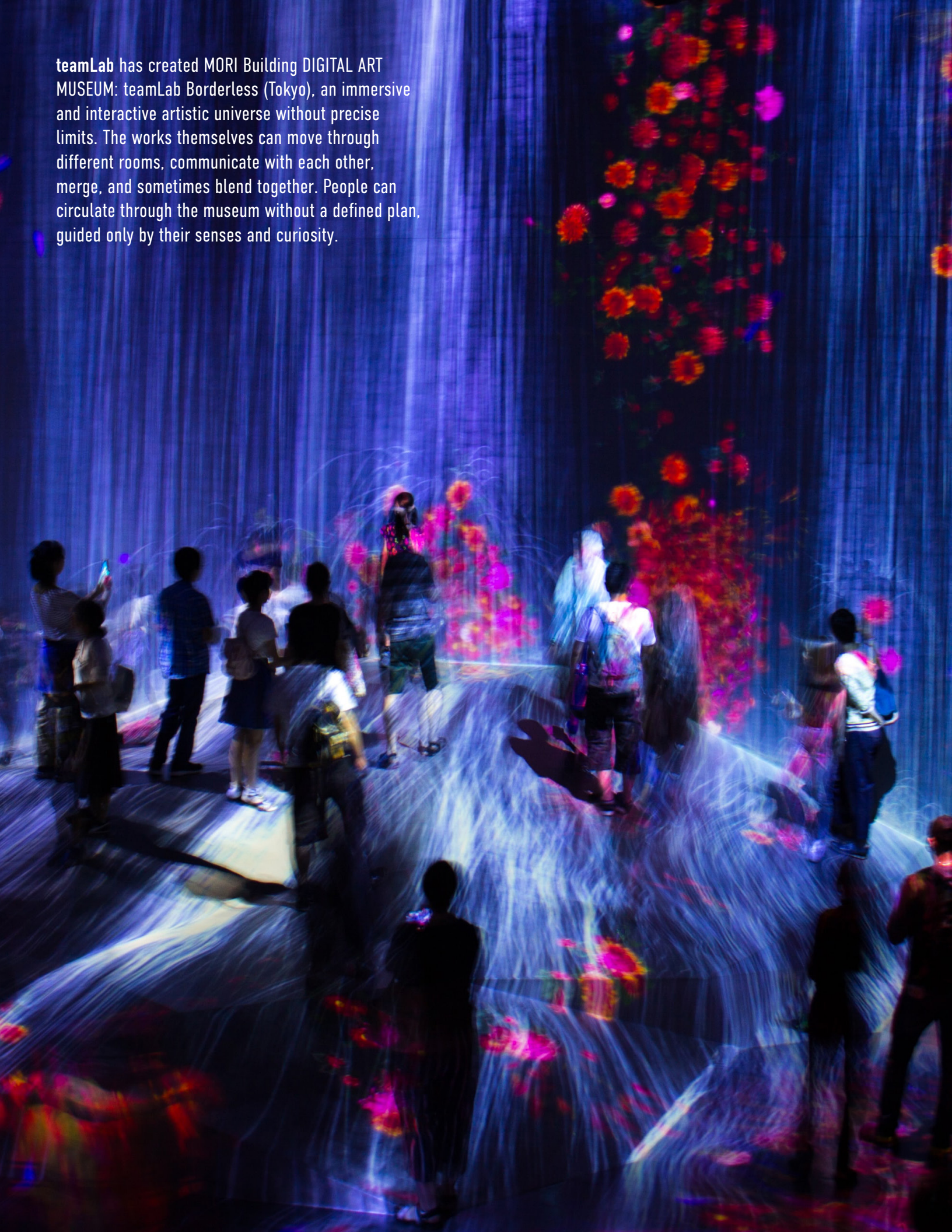
**Doug Aitken** designed a sonic canopy in the Brazilian rain forest that has, at its center, a 700-foot-deep hole with geological microphones at its bottom that capture live sounds of shifting tectonic plates. These sound impressions are reproduced in real time within the empty space, forming a continuous sequence. The canopy's curved glass exterior creates an optical distortion that visually blurs everything except what is directly in front of the viewer to create a moment of introspection.



**Google's Arts & Culture** platform recreates some of the most popular tourist destinations in the world and offers views from the Eiffel Tower, Taj Mahal, Machu Picchu or the Giza pyramids. When using an AR app, 360 ° images respond to the movements of the phone giving the feeling of being in these digital places. The project also wants to take people to places they can't normally go to, even during normal times, from a re-creation of the interior of the Hindenburg aircraft that crashed in 1937, to the Cern nuclear research laboratory in Geneva.



teamLab has created MORI Building DIGITAL ART MUSEUM: teamLab Borderless (Tokyo), an immersive and interactive artistic universe without precise limits. The works themselves can move through different rooms, communicate with each other, merge, and sometimes blend together. People can circulate through the museum without a defined plan, guided only by their senses and curiosity.



# EMOTIONAL SHAKE-UP: HOW TO INNOVATE IN THE NEXT 3 YEARS?

## Embrace the Unknown

Conceive immersive experiences that encourage people to explore fantastic situations, cultures, and even worlds that challenge the senses and core beliefs. Offer extended environments where one can develop new skills such as climbing, cooking or dancing, among other things. The feelings of adrenaline and challenge will be the hooks that lure more followers.

## Live the Brand

Present customers with the possibility of becoming characters or “actors” in an augmented open-source narration, for example, allowing them to put themselves in the shoes of Coco Chanel, Lionel Messi or an actor in a series or film. Participants could be transported to significant moments in the brand’s history and would then be given the possibility of acting in those scenes thereby enhancing the resonance of the message.

## Mental Spa

Develop a cognitive spa that allows for mental reset through a combination of natural and artificial stimuli. A possible strategy is one whereby short circuits between perceptions and senses are caused, thereby generating moments of estrangement. Shortly afterwards, the person can then reconnect with him or herself. Devise personalized immersive spaces that help train concentration, increase memory and sharpen the mind to improve decision-making.

## Virtual Escapism

Offer hyper sensory immersive trips in spaces equipped with virtual reality (VR), a system for reproducing natural conditions (temperature, air quality, humidity), intelligent data-driven narrative systems and a set of special stimuli (aromas, sounds, touch surfaces) to transport people to exotic destinations: from relaxing on a deserted beach in Thailand on a hot afternoon to enjoying the luminescence of the aurora borealis.

## Lucid Dreaming

Design virtual therapeutic exercises that recreate the memories and dreams of a person so that he/she can relive them in a conscious state and act on them, like in a lucid dream. Use (i)logical stories that arise from the unconscious to create tangible objects: for example, an aesthetic or narrative detail of a positive dream could be translated into a decoration element for the home.

## Augmented Emotions

Create playful and social interfaces that visually enhance participants’ emotions: if someone blushes after reading a message, sensors could detect their change in temperature and skin color to add an augmented animation that could either hide that reaction or, on the contrary, exaggerate it.





MILLE-FEUILLE REALITY

# BIO-ADAPTATIVE EXPERIENCE



'Savage Beauty' is an analog and digital art experience created by artist Kari Kola, that transforms Ireland's Connemara Mountains with light and color.

There will be a greater demand for the personalization of experiences and spaces as a result of the increased use of digital / virtual products and services. Adaptive offers will be designed based on people's identities; these will be adjusted, in real time, to the behavioral responses of individuals. Advanced data collection and analysis systems will integrate biometric data (biofeedback) and neuroscience to add a new type of customization. The skin and the mind will be an open book.

**Hybrid spaces will emerge serving as containers for people going about their daily activities - such as living, playing, working and buying, individually or collectively - within an extended reality (XR).**

The necessary fusion of analog, virtual and digital layers will revolutionize architecture: physical environments will modify their functionality and aesthetics based on sensors that automatically detect and respond to human behavior; virtual environments will be configured from the fusion of analog spaces; augmented buildings will be integrated with devices that facilitate recreating alternative and illusory stories in their spaces; neutral designs will be enriched with augmented reality (AR).

The diffusion of the brand experience in a constellation of touchpoints will allow certain actions to be relocated in order to better adapt to the public's requirements: augmented reality (AR) could help people better understand products and services therefore decrease returns from online shopping; product trials could happen exclusively in a virtual layer without having to go to a store; a customer avatar could



materialize through a hologram in the physical store to consult with a salesperson or be transported to a craftsman's workshop to see first-hand how a product is made.

*Check out the social, technological, cultural and economic factors that are driving this trend: p. 63.*

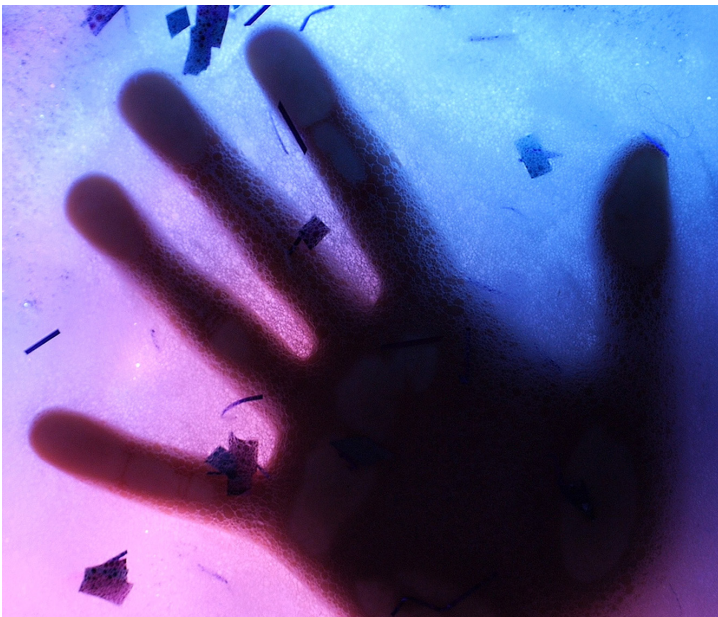


'Savage Beauty', Kari Kola.

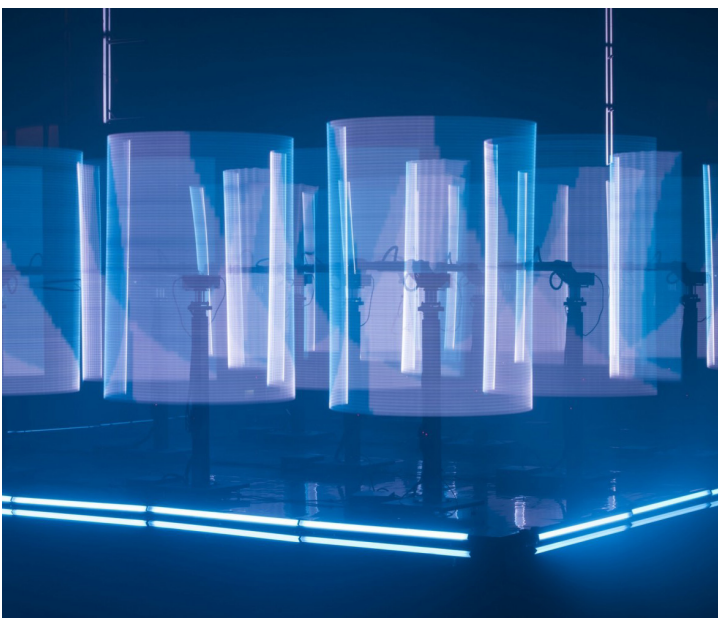
## SIGNALS THAT ANTICIPATE THE TREND



**Panasonic** launched the world's first high dynamic range (HDR) VR glasses. The technology enables high-definition, quality content to be viewed in a compact, lightweight design. The company worked with 3M and Kopin Corporation to develop an optical module that enables distortion-free and natural image viewing in a single focus.



During quarantine, the **Bompas & Parr** studio developed the concept of a virtual spa, with ASMR treatments and other alternative healing therapies such as remote Reiki and slime videos available for download from an interactive website. The experience includes a menu of "psychological tastings" with personalized flavors that stimulates the user's psyche to improve their psychological and emotional well-being.

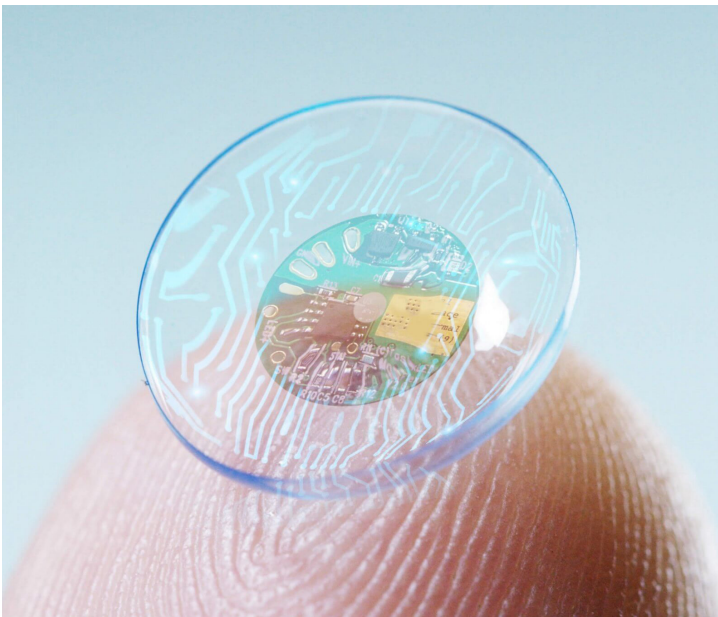


The **TETRO + A** studio presented the CODA installation, a ballet made up of 20 robotic arms that combines lighting design with kinetic movement and sound. Located in the courtyard of the Grand Hôtel-Dieu in Lyon, the work explored the possibilities of technology as a means of creating artistic and dramatic moments by replacing humans as the main protagonists.





The Venn Room is an installation by **Space Popular** studio which explores the fusion between physical and virtual architecture when people, in separate places, communicate with each other through extended reality (XR). In this type of remote communication experience, a virtual hybrid environment is created by merging the homes of the participants.




The company **Mojo Vision** has designed smart contact lenses that use AR to place information inside the user's eyes. The lenses use 14k-pixel-per-inch micro-screens to project health-related statistics and other data. They also include wireless radio, image recognition technology, and motion sensors.



**Björk** collaborated with **Microsoft** to create AI-generated music, based on the weather and position of the sun, through a live camera with computational vision located on the roof of a building. Called 'kórsafn' which means 'choir archive' in Icelandic, the piece uses the sounds of the singer's archive in an original way and is played in the lobby of the Sister Hotel in New York.





**Studio Drift** created a kinetic sculpture for the opera *L'Orfeo* of the National Touring Opera in the Netherlands, made of 10 kilometers of ultra-fine nylon threads, suspended in the shape of a rectangular prism. The installation hangs over the heads of the artists and changes with the movement of eight motors, one in each corner, so that it can take different forms, from looking completely solid to seeming as fluid as water.



# BIO-ADAPTATIVE EXPERIENCE: HOW TO INNOVATE IN THE NEXT 3 YEARS?

## Dynamic Decor

Apply the concept of dynamic skin in the design of spaces through architectural solutions that integrate AR and VR to enrich and modify surfaces. The furniture could also be enriched with new aesthetic elements added with immersive technologies. Stores could temporarily modify their skin to align decor with product collection launches.

## De-stressing Rooms

Work on attention span in special sensory rooms to subvert perceptions, change moods, or reduce stress, before communicating the brand's message or fully entering a store. Design smart spaces equipped with emotion recognition sensors that provide better information in order to optimize personal and collective well-being.

## Emotions *à la Carte*

Design a culinary service that analyzes each person's DNA, habits, data and biofeedback information to offer them a set of personal flavors, aromas and textures, and a guide on how to combine them with each other, to stimulate the senses and provoke different emotions accordingly with the user's wishes.

## Pertinent Offers

Design smart online product and service offering systems that collect and process information about the general mood of the day - influenced daily by social, political and economic factors - through keywords mentioned on social networks, to automatically adapt messages and reorganize the products offered in e-commerce and m-commerce.

## Sensitive Stores

Design dynamic analog and virtual spaces that change by capturing external factors such as the weather and its impact on people's emotions (biofeedback), allowing for the modification of aesthetic and sensory details in order to turn negative feelings into positive ones. A store could change the colors and intensity of its lighting, scents, digital décor, and music to improve mood on dark winter days. The brand's digital platforms could align to the same objective and modify their colors, drawings, messages and sounds.



MILLE-FEUILLE REALITY

# COLLECTIVE HALLUCINATION



'Catharsis', the work of architect Arthur Mamou-Mani, is being transformed into an immersive, interactive and collective experience to be part of the Burning Man 2020 festival, turned into a virtual event due to COVID19.



People will want to socialize with others to counter the growing feeling of isolation and loneliness. New experiences will allow people to reconnect through the various means and resources offered by extended reality (XR). Products and services that promote collective wellbeing in the face of social atomization will be the most sought after and successful.

The desire to live moments of collective effervescence will lead to an increase in the scale of virtual events (recitals, conferences, demonstrations, among others). The challenge will be to implement the technical, organizational and creative means necessary to increase the number of participants in those virtual experiences while, at the same time, enhancing proximity and the possibility of interacting with the protagonists, as well as with the rest of the public.

**People will adopt the use of virtual common spaces that facilitate sharing community moments with different purposes: affective, professional, combative. In 100% virtual events, avatars could be built to accurately reproduce facial expressions and body gestures in order to improve social interaction. The scenarios where these interactions take place should be enriched with functions that make the most of verbal and non-verbal communication.**

Extended reality (XR) technologies will open up infinite possibilities for creating hyper-realistic entertainment and socialization experiences where it will be possible to feel new emotions, discover unexplored universes and gain new knowledge. In these cases, the objective will be to offer exceptional moments and memorable trips, which are different from what is being offered in the analog layer. In the coming years, a set of personal VR and AR devices will emerge that



are non-invasive and more practical to use than the current ones.

Experiences will be conceived as performance platforms where stories will feed on people's ability to act and express themselves. It will be vital to provide participants with the possibility of playing different roles to enhance a range of emotions, as well as physical and mental abilities that are different from the ones that are normally experienced on a daily basis. Offering liberating moments and nurturing spontaneity with the goal of overcoming fear of ridicule will be one aspect of success of these collective experiences configured with the new (i)logics of entertainment and fun.

*Check out the social, technological, cultural and economic factors that are driving this trend: p. 63.*



'Catharsis', Arthur Mamou-Mani.

## SIGNALS THAT ANTICIPATE THE TREND



NASA has created the NeMo-Net game that invites people to embark on a virtual ocean research expedition and help map coral reefs around the world. The objective is to analyze 3D images of the ocean floor taken by cameras deployed on drones and planes. Players travel in a boat called Nautilus and learn how to identify the coral and mark their findings with a brush. The data is sent to NASA's pleiades supercomputer for comparison by the system with low-resolution satellite data.



Independent craft beer and pub chain **BrewDog**, opened a series of virtual pubs to allow people to get together with friends and collectively enjoy drinking beer. Virtual pubs include a series of events such as tastings, home-made masterclasses, live music, and comedy contests. The objective is to replicate bars around the world and offer exclusive gifts and products, in an attempt to generate meetings in a situation of social distancing.

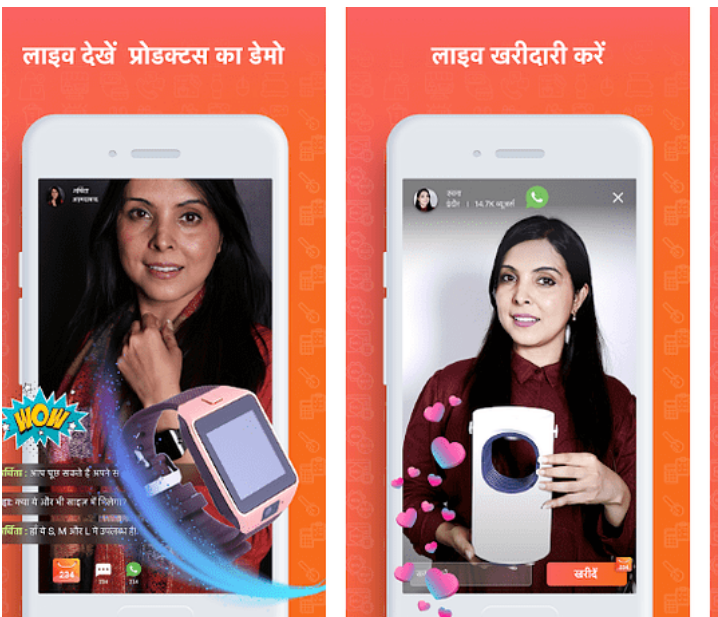


**VTime** is the first extended reality (XR) social network in which users can go out with real people to tour virtual destinations, either in VR or AR. While VR users are fully immersed in one of the destinations offered by the platform, AR users unite by placing a 360 ° live diorama of the destination on any flat surface in the analog world. AR users can interact with others, change their view of the destination, customize their avatar, exchange images and send private messages.





Startup XR Parallax explores the new ways that people can physically gather to experience stories and entertainment. During the Tribeca Film Festival they carried out the Cave experience, whereby thirty participants saw and heard the same VR narration at the same time from their own location in a room. The audience was transported to northern Europe 12,000 years ago, when stories were told around a campfire and were written on the cave walls. Each participant was represented as an avatar to experience the story live.



In India, the Meesho application enhances peer-to-peer sales by training people as mini-entrepreneurs to help them manage digital stores on platforms like WhatsApp. Users set up their “stores”, build catalogs with products from numerous retailers without investing in stock, and earn a monthly commission. Bulbul.tv is a streaming platform for selling and buying products. In TikTok style, the network allows sellers to show products with different actions and performances in short videos.

## 杭州健康码



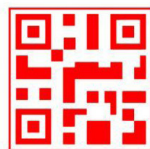
【绿码】

凭码通行



【黄码】

实施7天内隔离, 连续 (不超过) 7天健康打卡正常 转为绿码



【红码】

实施14天隔离, 连续14天 健康打卡正常转为绿码

防控疫情

人人有责

To help enforce quarantine restrictions in China, Alibaba created the Alipay Health Code app, available for smartphones. Users get a green, yellow, or red rating based on their personal health records, allowing them to travel, or not, on public transportation. The interface helped to reopen Wuhan, the epicenter of the country’s pandemic, and also assured those outside that they would not accidentally encounter the sick.





Facebook is developing a VR social app called Horizon that combines social media with immersive experiences with the hope of improving acceptance of this new format by the public. Accessible as an app for Oculus headsets, the game will allow people to enter a virtual world where users can design their own cartoon avatars and interact with other players or build communities.



# COLLECTIVE HALUCINATION: HOW TO INNOVATE IN THE NEXT 3 YEARS?

## Enriched Communication

Conceive interfaces that incorporate enriched virtual spaces (high definition, spatial sound, hyper-realistic avatars, facial expressions and precise hand movements) that improve verbal and non-verbal communication, in order to facilitate socialization. Encourage this type of experience especially when carrying out family and group rituals, such as meetings, celebrations and memorials.

## Gamified Shopping

Gamify the shopping experience with fun and playful challenges that encourage people to visit different touchpoints in order to earn points to access exclusive brand content and benefits. Challenges can range from putting together a digital puzzle where each piece is a photograph of an object taken at various locations, to creative activities and performances in various settings.

## Personal Renderings

Create spaces where it is possible to render the body and digitize features, movements, gestures and voice in order to compose virtual collages. Create easy-to-use interfaces where people can customize their bodies in action with virtual clothing, accessories and makeup, as well as decorate the stage with objects. Those moving collages could then be turned into videos to share on social media.

## Virtual Collectives

Develop platforms that enable new forms of creative collaboration on a large scale. Provide interfaces to facilitate the creation of a more physical and gestural reality - for example, with a 3D sketching method or haptic sound system - in virtual common rooms where groups of people connected from different places can interact.

## Mixed Conferences

Offer an augmented reality (AR) conference system that allows for live talks accompanied by 3D visual presentations. Incorporate voice recognition devices that activate multimedia content when key words are heard in order to delve deeper into the topic at hand, such as a 3D evolution of rich text. Virtual platforms with similar technical characteristics could expand the audience to a global scale.

## Fictional Celebrations

Design parties and dance clubs with amazing scenery that can be entered with an avatar from anywhere. The avatar's movements would be exact reproductions of the physical movements captured by body sensors inserted into portable or wearable devices.





MILLE-FEUILLE REALITY

# LAYERED CREATIVITY

'Memories of Passersby I' is an installation by Mario Klingemann, auctioned at Sotheby's, that integrates a complete AI system and generates portraits of imaginary faces.

People will develop a new sensoriality for acting and creating within an extended reality (XR) that will constantly challenge perceptions and offer unprecedented expressive possibilities. The concept of beauty will change as a result of the multiple dialogues among art, technology and science. There will be a sensory migration from a predominantly analog culture to one mediated by AI, VR, AR, and haptic technology. Shaping an aesthetic with its own rules will require embracing new immersive creative skills and seamlessly moving between the multiple layers.

**An unprecedented type of AI-powered creativity will gain ground because of its ability to complement 100% human invention. The interaction between AI and the artist will allow the limits of creation to be expanded since AI is not socially conditioned and thinks for itself. This will allow for the creation of novel patterns, original pieces and even a new idea of beauty derived from the material received. Algorithms could be configured to violate conventional aesthetic patterns.**

People will want to personalize avatars, rendered bodies and a new generation of icons (emojis) with their own individual identity features in order to multiply their social presence. The personalization of immersive art - permanent or ephemeral - will be possible with the use of technologies that create works (images, sounds, stories) based on people's interests, tastes and moods. This will creatively enrich personal universes in the different virtual, digital and analog layers and will lead to the creation of new languages of communication.

Ideally, experiences should establish an open dialogue with users in order to define their final configuration and functionality. Individuals will apply all their ingenuity in finding new uses for digital and virtual





tools to carry out daily activities - working, learning, training, buying, selling, relating - and transcending the limitations imposed by the environment. The capacity for action will be increased in extended reality (XR) presenting the opportunity to coordinate and carry out simultaneous activities in the street and in the digital-virtual space through new media, potentially enhancing political, environmental and socio-cultural activism.

*Check out the social, technological, cultural and economic factors that are driving this trend: p. 63.*

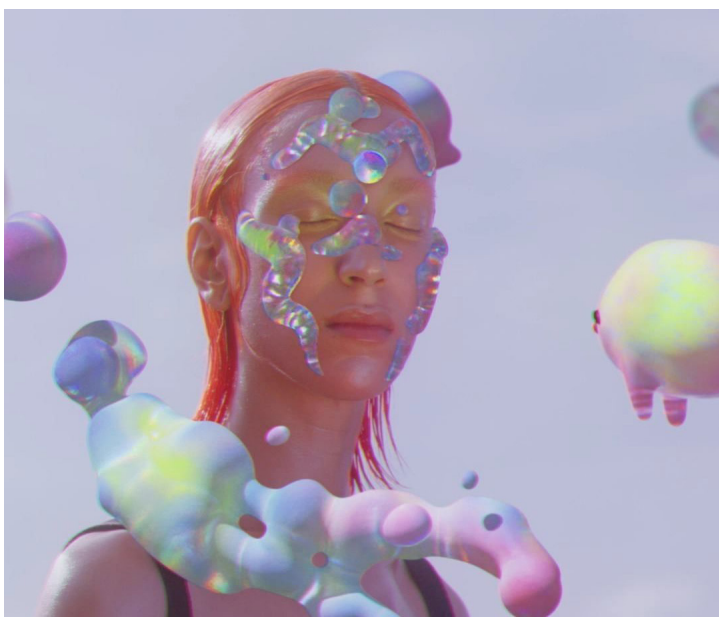


'Memories of Passersby I', Mario Klingemann.

## SIGNALS THAT ANTICIPATE THE TREND



Choreographer **Wayne McGregor** joined **Google Arts & Culture Lab** to turn his archive into a creative tool. The system, equipped with AI and machine learning, mapped half a million simple movements and choreographic sequences, organizing them by visual similarity. Anyone can select poses and connect them to create their own choreography.



**Ines Alpha** offers a 3D digital makeup service with creations in AR. For the The New Order campaign, she envisioned a photo booth from the near future in which technological progress has enabled people to wear 3D makeup in real life. In this photo booth, people could choose between different make-up designs inspired by the ingredients, benefits, packaging and colors of various perfumes.



In times of social distancing, artists **Sebastián Errazuriz** and **Zander Eckblad** developed the All Show platform that includes an online exhibition and allows collectors and the general public to preview works of art at home using AR.





Crosby Studios has created the Air Max Day Sofa. An AR sofa constructed from the material of “digitally recycled” Nike quilted jackets. The cushions use various shades of bright green and are decorated with the brand’s logo and the motto “Just Do It”. A custom Instagram AR filter allows users to digitally insert and test the design within their homes.



The UK pavilion for the 2020 Dubai World Expo explores the relationship between AI and poetry. A system equipped with machine learning creates poems based on works from different cultures, in an attempt to build an idea of broad identity without prejudice. The 20-meter cone-shaped pavilion features LED legends that scroll along the façade, in English, Arabic, Chinese and French.



The Carlings brand launched The Last Statement, a white VR-equipped t-shirt that, seen through the phone, can sport different designs and political messages. The user can choose from a range of specially created graphics accessible through Instagram or Facebook, working on the same principles as facial filters.



**KAWS** has collaborated with **Acuite Art** to launch a series of AR sculptures that are publicly exhibited in 12 cities. The project explores a new exhibition model that transcends the physical world and reduces transportation and travel for a global art world. The experience includes a collectible edition of AR and an open edition for rent, both available through the AR art sale platform.



# LAYERED CREATIVITY: HOW TO INNOVATE IN THE NEXT 3 YEARS?

## Extended Brands

Integrate artificial creativity (managed with AI) to read the design archives of a fashion company and develop an aesthetic with the brand's visual codes suitable for an extended reality (XR). Colors, drawings and prints from past collections would be the fuel to generate digital designs and works of art capable of integrating into the brand's virtual universe. These could also be offered to customers in order to personalize their discourses.

## Hybrid Tutorial

Conceive personalized 'do-it-yourself' (DIY) services guided by virtual and live experts (barber, plumber, tailor, makeup, among others), for example, a chef who guides the apprentice throughout the process of making a recipe. Develop augmented reality (AR) tutorials that allow dispersed groups of people to interact, in real time, with hyper-realistic avatars of experts that they can follow and take advice from.

## Virtual Collections

Design collections of clothing, accessories, makeup and objects so that people can decorate their different avatars (from 100% rendered bodies to a group of emojis and icons with their own features) and express their identity in digital and virtual layers. Virtual makeup could be designed by a digital artist. Fashionable analog products would take on different looks and messages when experimented within AR or VR; those same products could be sold with their digital / virtual version for use with avatars.

## Asynchronous Activism

Create unprecedented activism formats that bring people together and enhance participation in the digital / virtual layers. Devise and coordinate actions that happen simultaneously in the different layers, including the analog one. For example, virtual events that are geolocated in different cities at the same time allowing participation with personalized avatars using slogans on digital signs.

## Augmented Art

Offer a subscription based curatorial service that regularly provides works of art with augmented reality (AR), which adapt to analog spaces (houses, offices, gardens). Create and sell works of art in augmented reality (AR) that customers could buy and geolocate wherever they want, temporarily or for a limited time, accessible to the public or for private viewing only.

## Disruptive Movements

Encourage people to explore their creativity in dance. Use interactive experiences in extended reality (XR) whereby participants must act in an alternative scenario guided by virtual tools (3D images, spatial sound) and physical accessories (haptic interfaces) thereby disrupting their habitual movement patterns. Encourage the collective creation of original dance styles that can be challenging for everyone.



MILLE-FEUILLE REALITY

# SIMULATED LIFE

Treehugger is an immersive exhibition designed by Marshmallow Laser Feast at The Odunpazari Modern Museum that recreates a forest with 'digital fossils' through VR.

People will invest their time only in products and services that give them extra value for functionality or emotionality. The growing demand for virtual experiences in specific tasks such as work, learning and shopping, will lead to the adoption of platforms that improve social interaction, by transmitting verbal and non-verbal communication (body language) in hyper-realistic 3D scenarios with spatial sound. Getting individuals to feel at ease in these settings will be key to getting their attention and participation. Experiences should allow for expressing messages with extreme fidelity, managing information in a fluid way and enriching the practical actions of participants.

**The proliferation of activities such as medicine, psychology and personal care in the virtual layer will increase the use of interfaces that accurately simulate the relationship between the patient and the specialist, giving practitioners confidence in their interactions, especially where personal health is at stake. Likewise, a surge in research and in the use of technological resources that allow for the collection, diagnosis and visualization of data from new perspectives will occur.**

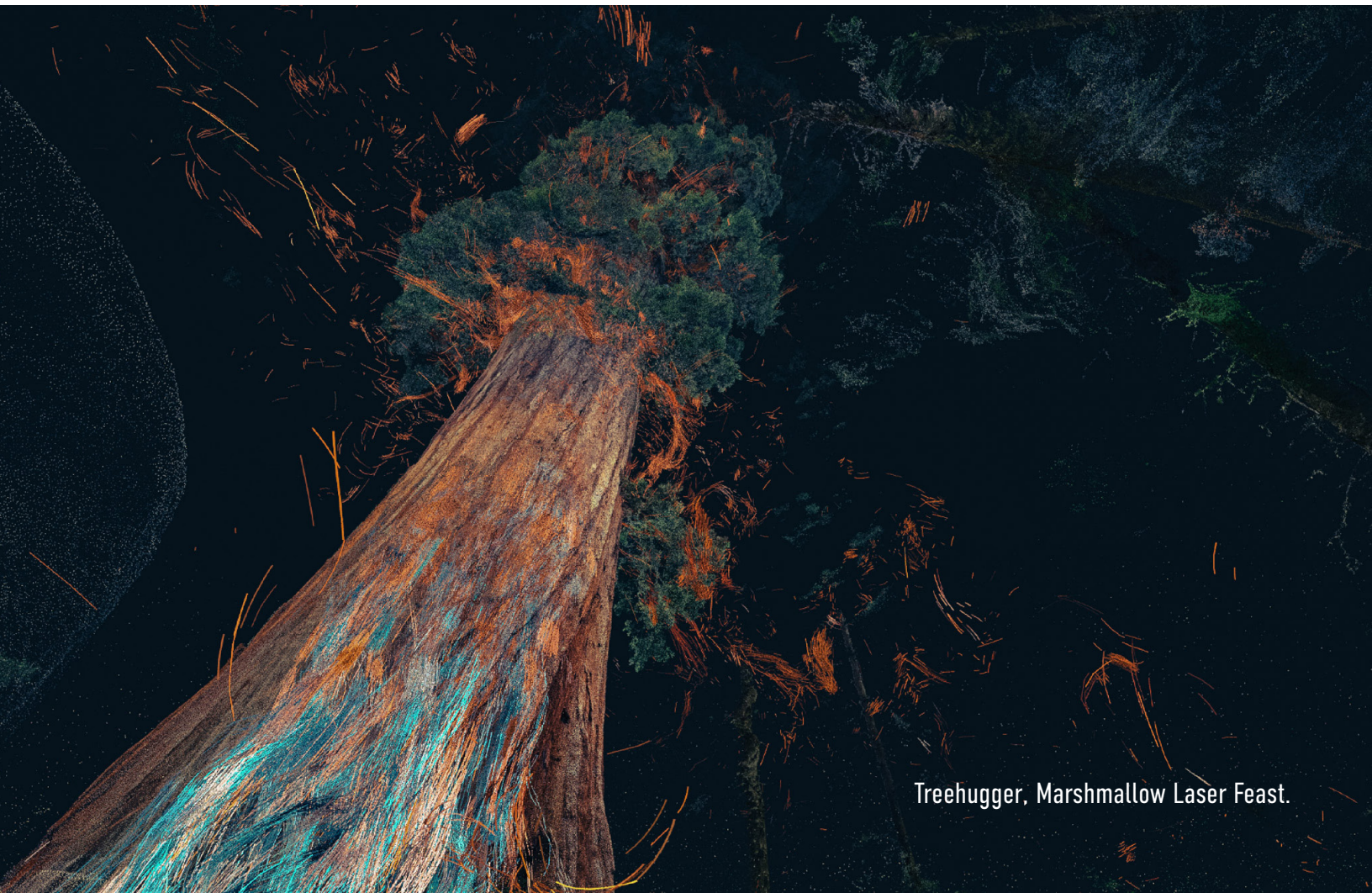
Hybrid experiences that combine analog resources (i.e. a toolkit of elements that stimulate the senses such as touch, taste and smell), with digital / virtual enhancements (i.e. connections with the visual and auditory) will increase in sectors such as sexuality, gastronomy and cosmetics, among others.

The integration of technologies such as AI, VR, AR, MR, robotics, IoT and machine learning will increase the offshoring of activities that can be carried out remotely. Learning experiences will be reformulated to equip people with knowledge and skills that take full advantage of the



new tools of extended reality (XR), for example, specific situations can be simulated to train professionals on technical skills and emotional capabilities.

*Check out the social, technological, cultural and economic factors that are driving this trend: p. 63.*



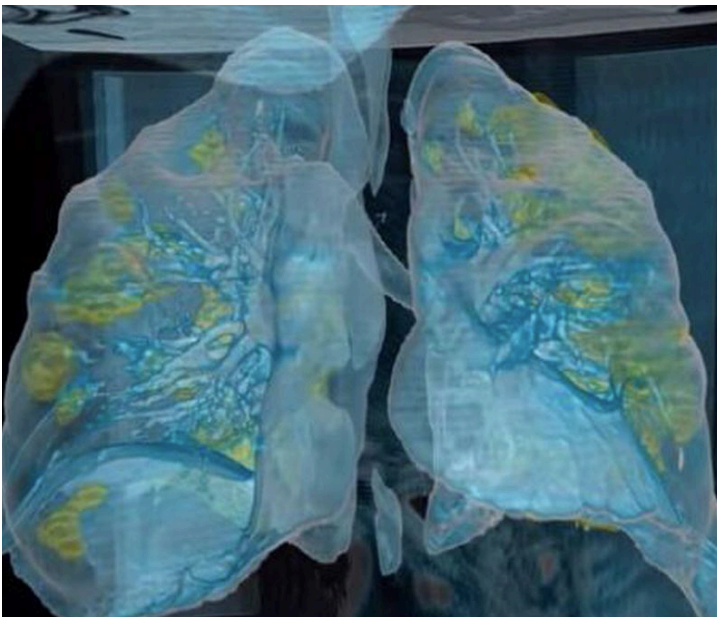
Treehugger, Marshmallow Laser Feast.



## SIGNALS THAT ANTICIPATE THE TREND



Justin Timberlake Outside In is an American Express Music experience that allows fans to dig deep into the stories behind the Man of The Woods album, with the artist as their personal guide. Extended Reality (XR) images bring a complete picture of Justin to the screen, as though he is literally in the fans' living room as he talks about his latest LP.

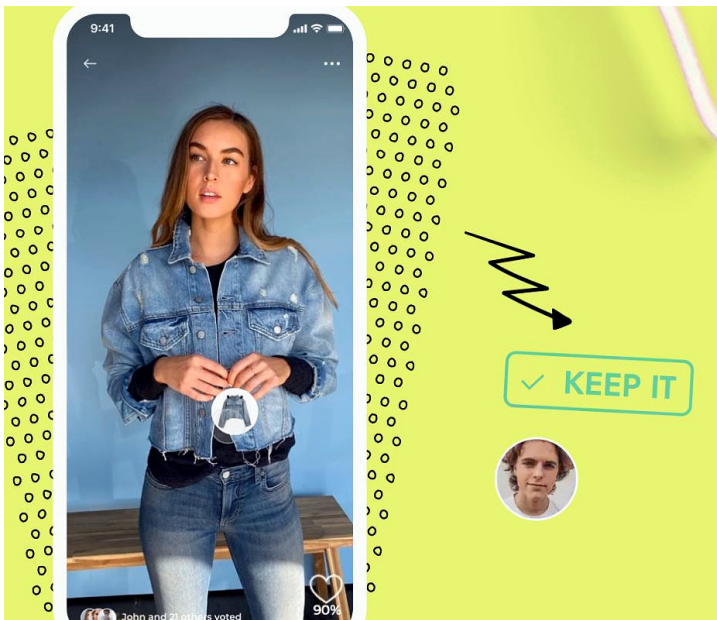


George Washington Hospital in Washington D.C. uses VR technology to 3D view the damaged lungs of the first COVID-19 patients. A video shows the reaction of the body of an infected man in his 50s: the lungs are shown in translucent blue and the infected areas in yellow.

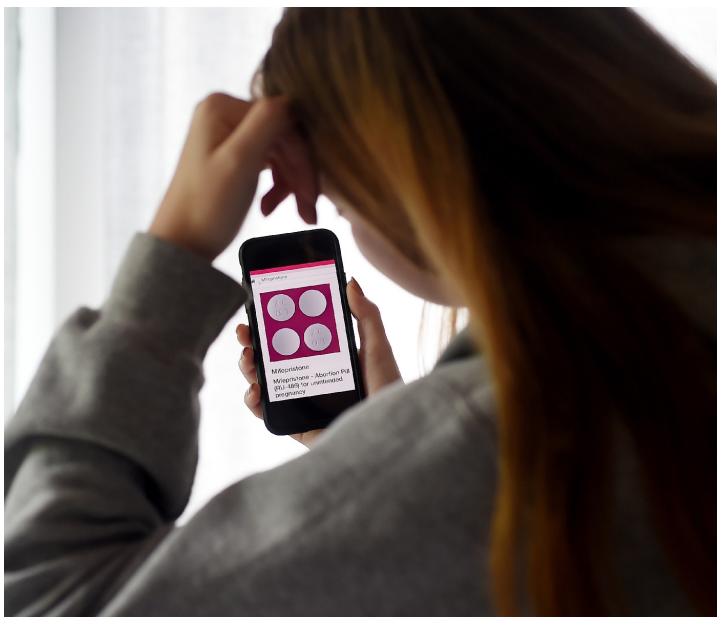


During the coronavirus lockdown, stylist Caitlin Collentine of Wabi Sabi Beauty began offering clients hairstyling sessions on FaceTime, for \$55, in order to help them cut their hair themselves. Using client photographs taken from different angles, the stylist was able to indicate the correct movements and cuts in order to obtain the desired style.





Flip Fit introduced an application that allows users to receive a fitting room in their living room with articles they requested after viewing them on the social networks of friends and influencers. Users can find inspiration for clothing, receive fashion pieces tailored to their style, and benefit from peer validation as their friends help them decide what to buy. The goal is to ensure that people buy only what they will actually use.



The **TelAbortion** program obtained special permission from the F.D.A. in the U.S.A. to administer medications and remote consultations, so that women could self-perform abortions during the period of social distancing caused by COVID19. After an ultrasound and a laboratory test, the patient could access a medical teleconsultation and receive a package containing mifepristone pills, tea bags, mint, sanitary napkins, an ibuprofen prescription, and nausea medication. Medical staff performed virtual monitoring during all stages.

### Envisioning Parkinson's Disease Psychosis: Virtual Reality Experience



**Acadia Pharma** created a VR experience that allowed attendees of a medical conference to get into the skin of Parkinson's sufferers who developed psychosis. Those who experienced the exercise recognized the severity of the problem and placed PDP on their list of top Parkinson's comorbidity problems to be addressed.



Dutch startup **The Fabricant** is the world's first digital fashion brand offering virtual apparel as a sustainable alternative to fast fashion. At the same time, they provide the possibility to personalize avatars within new extended reality social networks without having to produce physical garments.



# SIMULATED LIFE: HOW TO INNOVATE IN THE NEXT 3 YEARS?

## Virtual Fitting Room

Offer an AR / VR service for product visualization and testing to help customers better understand what they will buy thereby reducing return rates in m-commerce and e-commerce. Incorporate body scanning and computational vision technologies so that the platform determines the perfect size of the garment selected by the user. Integrate trial scenarios, for example, to virtually try on a dress to assess the silhouette or the combination with one's physical features, as well as offering the possibility of visualizing oneself walking in a venue.

## At-home Sensoriality

Design hybrid experiences in terms of branded content that can be experienced at home, such as receiving a box with a variety of fragrances to smell every morning while listening to an audio on one's smartphone unveiling the inspiration behind each aroma. Similar formats could be used in the gastronomy sector (with teas, coffees, wines or spices to taste) or in fashion and decoration (with fabrics and materials to touch).

## Simulation-based Learning

Design learning and work platforms with immersive technologies, AI and haptic interfaces that allow participants to practice new knowledge and skills, as well as become familiar with the emotions and pressures generated by particular situations through simulation exercises: for example, law students could venture into a virtual trial to deal with an adverse court or health personnel could learn to manage a protection protocol against a new virus.

## Scientific Adventures

Create immersive scientific outreach experiences that allow for the viewing of difficult-to-access natural phenomena: molecular structures, intrinsic properties of materials, geological layers, eruptions within a volcano, etc. An important factor towards engaging the public in the learning processes will be the idea of adventure.

## Data Visualization

Develop virtual data visualization systems to make abstract information more understandable and concrete in work or education settings: from dynamic 3D graphics that show the evolution and interaction of economic variables (with the possibility of virtually intervening in the data to modify its trajectory in real time) to holographic systems that reproduce the human organs in detail and allow for the visualization of the effects of a new medicine.

## Develop Empathy

Develop immersive systems that simulate the mental and psychological mindset of people with diseases - for example, how a schizophrenic patient perceives their environment - helping teachers, students and health professionals gain a better understanding of the pathology, with the idea that seeing through someone else's eyes increases empathy.





Biome, Pussykrew, Replay Boardroom Gallery

# BASIC REQUIREMENTS FOR DESIGNING EXPERIENCES

**Design healthy and clean environments** - with optimal air quality, high sanitary standards, AND low to zero noise pollution - that help people feel good both physically and emotionally.

**Deepen the personalization of a product or service offer and customer journey** with the support of advanced data systems and biofeedback, as well as DNA studies and consumer habits.

**Provide conditions that allow for clients and staff to feel safe, comfortable and lucid**, facilitating the creation of satisfactory connections and human relationships.

**Guarantee customer privacy** through data protection and the transparency of the technical measures adopted by the company against cyber theft and illegal data manipulation.

**Introduce contactless technologies** for fast payments and other low value-added services.

**Simultaneously work on the design and management of the critical three layers** - analog, virtual and digital - by incorporating the use of XR technologies - augmented reality (AR), virtual reality (VR), and mixed reality (MR).

**Incorporate highly functional services** so that customers can access purchased products quickly and easily: stand-alone delivery services, digital lockers, subscription services, vending machines, sidewalk pickups, speedy home delivery.

**Take measures to avoid the digital divide** that could occur in the future due to excess use and access of technological devices and immersive experiences.

**Provide smooth and frictionless connections** (harmonious, personal and intuitive) among various human, physical, digital and virtual touchpoints.

**Guarantee the functionality, simplicity and accessibility** of each touchpoint to facilitate the management of an experience.

**Develop an alert system** against fake news that manipulates facts, or hyper-realistic avatars causing confusion with people's identity (deep fake), which could happen in XR experiences.

**Be aware of new mental health disorders** linked to exposure for prolonged periods in digital and virtual experiences that generate attitudes of isolation or disassociation with reality.



# SOCIAL, TECHNOLOGICAL, CULTURAL AND ECONOMIC FACTORS THAT DRIVE THE MILLE-FEUILLE REALITY TREND

ACCELERATION OF DIGITAL TRANSITION  
EXPANSION OF IMMERSIVE TECHNOLOGIES  
EMOTIONS IN THE SPOTLIGHT  
INTERSECTION OF ENTERTAINMENT FORMATS  
THE GOAL OF WELLBEING

**64%**

OF AMERICANS THINK THAT INTER-  
NET AND TELEPHONES WILL NOT  
REPLACE FACE-TO-FACE

**350 BILLION**

USD THE INVESTMENT IN  
EDUCATIONAL TECHNOLOGIES IN 2025

**52%**

OF PEOPLE IN FRANCE  
CONSIDERED CONFINEMENT  
AS A 'MOMENT OF REFLECTION'

**400 MILLION**

GLOBAL ANNUAL DOWNLOADS  
OF MENTAL HEALTH APPS

**30%**

OF TOTAL SALES WERE  
INTERNET PURCHASES  
IN APRIL 2020 IN THE UK



**FROM 25% TO 60%**  
THE INCREASE IN INFORMATION RETENTION  
WHEN CHILDREN LEARN ONLINE

**49%**  
INCREASE IN E-COMMERCE  
FROM MARCH TO APRIL 2020  
IN THE USA

**1,700 MILLION**  
USD THE SIZE OF THE MIXED REALITY  
MARKET IN 2022

**750.000**  
THE NUMBER OF OCVLUS QUEST  
HEADSETS SOLD IN 2019

**54%**  
OF AMERICAN TEENAGERS  
SAID THEY SPENT TOO MUCH  
TIME ON THEIR PHONE

**48%**  
OF INCOME FROM VIDEO GAMES  
COMES FROM MOBILE GAMING

**34,5 BILLION**  
USD ESTIMATED VIRTUAL REALITY  
WORLD MARKET WORTH BY 2023

**16%**  
OF PEOPLE IN FRANCE  
CREATED NEW SOCIAL TIES  
DURING CONFINEMENT

**40%**  
OF UNITED STATES WORKERS  
HAVE OCCUPATIONS THAT COULD  
BE CARRIED OUT REMOTELY





## ACCELERATION OF DIGITAL TRANSITION

### MILLIONS HAVE TRIED AN ONLINE SERVICE FOR THE FIRST TIME

The coronavirus crisis has accelerated the digital transition of consumer habits and the retail experience, boosted the growth of online shopping, and optimized sales with home delivery and online payments. The fact that millions of people have tried a new online service for the first time, from apps to buying organic fruits and vegetables from local producers to online training programs with live teachers, has given a substantial boost to m-commerce and e-commerce. The same urgency to overcome the limitations imposed by the pandemic has caused commercial infrastructures to adapt, generating an increase in multiple service combinations: online shopping with autonomous delivery services, digital lockers, vending machines, sidewalk pick-ups or speedy home delivery.

### INCREASE IN E-COMMERCE

In the US, e-commerce sales in the first quarter of 2020 (prior to the lockdown) were \$ 160.3 billion - an increase of 11.9% compared to the same period of the previous year - and represented 11.8% of total sales (US Department of Commerce). However, according to Adobe's Digital Economy Index, sales increased 49% in April 2020, compared to the previous month, driven by food purchases (+ 110%), electronics items (+ 58%) and books (+ 50). In the United Kingdom, in April 2020, internet sales represented 30% of total sales (Office for National Statistics).

### EXPANSION OF DIGITAL SERVICES REACH

Technologies that were known and familiar before the lockdown expanded their reach to sectors of the population that until a few months ago were reluctant to incorporate them. The health risk of using cash promoted the adoption of contactless or remote payment interfaces, as well as a greater use of electronic banking. Many people learned to use teleconsultation services in medical matters and noted that it is a useful option for quickly obtaining certain health diagnoses. The greater functionality, accessibility and simplicity of these services will be the key to their stable incorporation into people's lives in the future.



## BOOST IN ONLINE LEARNING TOOLS

Approximately 1.5 billion students worldwide - almost 90% of all primary, secondary and tertiary schools - were unable to physically attend schools during the most critical moment of the pandemic (UNESCO). However, a large proportion of these students continued to learn with different e-learning or homeschooling approaches by adapting to new teaching strategies and content that were made available through digital platforms. Far from thinking about a new educational experience, the emergency forced a grand trial experiment of transferring traditional teaching to the digital universe. For the first time, institutions, teachers and students tried new tools that yielded some positive results. Various studies have shown that there is a greater retention of information by students when learning online (25-60%), than in a traditional classroom (8-10%). The study also found that this system allows each student to manage their reading rate and optimize time. Remote learning, moreover, is better adapted to the habits of children and young people who are used to focusing their attention on multiple tasks at the same time.

## RISE OF NEW TECHNOLOGIES IN EDUCATION

Before the coronavirus crisis, the e-learning segment represented 2% of the education sector globally, a percentage that will increase in the medium term when different educational institutions make remote learning a stable part of their teaching strategy. The increase in investment in education technologies, such as applications to learn languages, online tutorials, video conferencing tools and online learning software, could go from \$ 18.66 billion in 2019 to \$ 350 billion in 2025 (World Economic Forum).

## INCREASE IN REMOTE WORKING

The effect of the coronavirus crisis has also had a great impact on the jobs sector, forcing millions of workers to carry out their tasks remotely, as well as test digital tools, mainly e-meeting platforms and videoconferencing. The need to suspend travel between cities and countries has highlighted the excessive spending of material and human resources on travel in order to hold meetings 'in person'; meetings which are now seen as perfectly acceptable and



manageable online, with the added benefit of optimizing job performance. In February 2020, before the economic impact of the pandemic became a reality, 40% of American workers had occupations that could potentially be performed remotely while the remaining 60% couldn't (Pew Research Center). At the end of March 2020, effectively 40% of adults between 18 and 64 years old, more than 60 million people, reported working from home (Pew Research Center). In this new scenario, many companies have asked certain employees to tele-work permanently. In April 2020, Twitter announced that it would allow certain employees to work from home in a stable way while other technology companies, such as Google and Facebook, postponed the return to offices until 2021.

#### HIGHER STANDARDS IN FUNCTIONAL AND SAFETY REQUIREMENTS

However, in order to permanently increase the acceptance of online tools in the workplace, it is necessary to improve connectivity, image quality, sound, and incorporate resources that facilitate non-verbal communication, in order to generate greater confidence in coordination and negotiation processes. The security and protection of shared data are also critical issues to solve, as demonstrated by the multiple problems reported with Zoom.



## EXPANSION OF IMMERSIVE TECHNOLOGIES

### TECHNOLOGY CONVERGENCE

The technological revolution has accelerated in recent years due to greater investment, technical improvements and fusion among tools. Artificial Intelligence (AI), machine learning, Augmented Reality (AR) and Virtual Reality (VR), big data and the Internet of Things (IoT), find new applications every day. These technologies combined with robotics, computational vision, bio-feedback sensors, holograms, haptic interfaces, blockchain, synthetic biology, 3D printing, the 5G network, cryptocurrency, mesh and fog computing, will completely transform the way people live, work, buy, are entertained and communicate.

### A LIVING NETWORK CONNECTING PEOPLE, PLACES AND THINGS

The emerging concept of spatial web anticipates a future where computer technologies will totally merge virtual, digital and analog elements to create a unified reality. This will shape a “living network”, made up of the interconnections among people, places and things, their virtual counterparts and the interactions, transactions and transportation among them.

### INCREASED PUBLIC RECEPTIVITY

People are already used to incorporating revolutionary technologies into their daily lives. In fact, they have recently done so in a playful way through the use of augmented reality (AR) filters in social networks and video games, or immersive tools to visualize objects at home. The advanced data collection and analysis systems that help artificial intelligence (AI) adapt and personalize products and services are already present in everyday applications that have increased general receptivity.

### ARTIFICIAL INTELLIGENCE OPTIMIZATION

Advances in artificial intelligence (AI) software and hardware are giving rise to a multitude of smart devices that can recognize and react to images, sounds, and other patterns to learn more efficiently from experience, with a reduced connection to the cloud and minimal energy power. MIT researchers created a chip that can make inferences using neural network calculations three to seven times faster than previous chips and with up to 95% less power consumption. This advance is key to widely incorporating AI into



mobile devices in the near future.

## GROWTH OF VIRTUAL REALITY

As virtual reality (VR) becomes more accessible (with smaller headsets), more defined, and has more quality content, people will embrace it in their everyday lives. In 2019, 705,000 Oculus Quest headsets were purchased for home entertainment experiences. Facebook, which owns the brand, billed \$ 100 million for the sale of virtual reality (VR) content for these types of headsets in 2019, while sales for all Oculus interfaces grew strongly in the first months of 2020. One of the paths for the expansion of VR will be its adoption as an effective communication tool that will help incorporate body language (non-verbal communication) in remote connections. The global VR market estimate for 2023 is \$ 34.5 billion (Greenlight Insights).

## MIXED REALITY ECOSYSTEMS

Augmented reality (AR) and mixed reality (MR), have the advantage of being technologies that allow adding a layer of digital and virtual elements to the analog world without making people lose consciousness of the immediate environment, while facilitating collective experiences in a single space, and without the need of isolating oneself with a headset like in VR. Apple has begun building a native augmented reality (AR) ecosystem with the ARKit and RealityKit libraries, the Reality Composer app, and a new app in development, called Gobi, that will use the iPhone screen. The Korea Institute of Science and Technology Information and the Korea Creative Content Agency project that the mixed reality market could reach \$ 1.7 billion by 2022.



## EMOTIONS IN THE SPOTLIGHT

### STIMULATION OF ALL THE SENSES

Many of the recent technological experiences have forgotten a fundamental component that is needed in order to be able to empathize with human beings: sensoriality, which allows people to define their perceptions and feelings with the environment as well as with other individuals. Gradually, new research is beginning to gain ground highlighting the importance of transcending visual and sound stimuli and incorporating other human senses - such as touch, smell, and taste - into digital and virtual experiences in order to achieve long-term acceptance.

### THE IMPORTANCE OF TOUCH

The Touch Research Institute of Miami Medical School has determined that when a person is touched there is a movement in the skin that stimulates the nervous receptors capable of recognizing the sensations of itching, vibration, pain, pressure or texture. When contact is gentle, heart rate, blood pressure, and the release of cortisol all slow down, providing better control of stress hormones. Being touched also stimulates an increase in the number of natural killer cells, the front line of the immune system. Likewise, serotonin, a natural antidepressant of the body, increases and allows, among other things, a deeper sleep.

### THE REVOLUTION OF HAPTIC TECHNOLOGY

Advances in haptic technology will lead to the convergence of robotics with virtual reality (VR), augmented reality (AR) and mixed reality (MR), to recreate the sense of touch with the aim of making experiences more conscious and helping to improve creation, manipulation and control of objects in extended reality (XR). The Imperial College of London uses haptic technology to simulate interactions between a doctor and the human body during medical examinations and surgical procedures to train future professionals, in addition to providing real-time feedback on the training. Different companies making headsets and virtual reality (VR) content for entertainment and video games are incorporating haptic extensions to their products. There are new categories of haptic devices that work in tandem with biometric data or artificial intelligence (AI), to generate benefits in people's wellbeing and



health. For example: Apollo Neuro is a portable interface that can reproduce haptic patterns adjusted to the individual, as well as mimic a heartbeat to reduce stress.

## THE POWER OF NOVELTY

The social context and dynamics of contemporary life are fraught with high levels of anxiety and attention deficits that make it difficult for people to communicate with the environment, including brands. In recent times, different strategies have emerged to capture the public's attention by manipulating stimuli and information, as well as generating emotional shock. An example of this is the effectiveness of fake news. According to psychologists Gordon Pennycook and David Rand, in a world full of surprises, humans have developed an exquisite ability to quickly detect and target information or unexpected events. Sensory neuroscience has shown that only unexpected information can pierce through to higher stages of neural processing. Every time we are exposed to the same information, and as the brain learns that that stimulus has no associated reward, neural responses gradually decrease. Novelty is related to motivation. Dopamine, a neurotransmitter associated with the anticipation of reward, increases when faced with something new. The influence of novelty increases the hippocampus's ability to create synaptic connections between neurons that increase the potential to learn new concepts. Likewise, the appeal of fake news is reinforced in that it can induce false memories (Psychological Science) and appeal to deep emotions that are difficult to identify.



## INTERSECTION OF ENTERTAINMENT FORMATS

### GREATER DIVERSITY OF HOME ENTERTAINMENT

The coronavirus crisis accelerated the adoption of a wide menu of home entertainment options: streaming services, online and offline video games, content via social networks, apps to explore personal creative talents, audiovisual platforms to see live artistic performances, video conferencing interfaces to connect with friends and family, playful experiences with virtual reality (VR) and augmented reality (AR).

### CONVERGENCE OF CONTENT, INTERFACES AND PLATFORMS

The need to speed up the response to the dizzying demand of the public, a public that was forced to stay at home for several weeks, led companies to increase and improve infrastructure and content. It also accelerated the convergence of different entertainment options: social networks became concert halls, video conferencing tools into virtual parties, video games into music stages, among others. Much of the innovations that has been taking place in the field of entertainment has been a market response to people's ingenuity in finding new forms of expression, communication and fun in an environment of social isolation.

### INCREASE IN VIDEO STREAMING

Consumption of streaming video has been on the rise for more than a decade but in 2019 the number of subscribers to these platforms, 613 million, exceeded the number of users of cable services, 556 million globally (Motion Picture Association of America). In the first months of 2020, thanks to the lockdown, users of streaming platforms increased even more, as did the time spent on online content consumption. Disney+, for example, increased its subscriptions by 75%, from the beginning of February 2020.

### VIDEO GAMES LEAD THE WAY

Videogames continue to consolidate as one of the leading entertainment sectors, with a projected value of \$ 159 billion by 2020, which represents four times the income of the film industry - 43 billion dollars in 2019 - and almost three times that of the music industry - \$ 57 billion in 2019 (Newzoo). About half of the income from video games - 48% - comes from games that are used on mobile devices. E-sports, i.e. video games that involve competitions





between multiple players located in different parts of the world, could exceed \$ 1 billion in 2020 (Newzoo).



## THE GOAL OF WELLBEING

### THE RISKS OF EXCESS VIRTUALITY

The excessive use of technological devices and the time invested in digital experiences have shown to have negative consequences on mental health. The increase in anxiety and feelings of loneliness had already been reported prior to the COVID-19 pandemic. According to the World Health Organization (WHO), 322 million people worldwide suffer from depression and at least a third of the world population will suffer from some type of anxiety disorder during their lives. In 2018, 54% of American teens said they were spending too much time on their phone (Pew Research Center). Amid the pandemic, nine out of ten adults in the USA (93%) said a major interruption of their internet or cell phone service during the outbreak would be a problem in their daily lives (Pew Research Center).

### THE BREAKING OF SOCIAL TIES

During the health crisis, one in three adults over 45 felt lonely, whereas prior to this period the proportion was one in five (KFF). According to the respondents, loneliness has a negative impact on their mental (58%) and physical (55%) health, their personal relationships (49%) and their ability to do their job (33%). The majority of Americans (58%) considers technology to be one of the main reasons why people feel lonely and socially isolated (KFF). A study on friendship ties conducted in the USA in 2019 revealed that adults between 21 and 37 years old (the so-called 'millennials') are the loneliest generation: they have no acquaintances (25%), they have no close friends (27%) and they have no best friends (30%) (APA, YouGov).

### INTERNET IS NOT A SUBSTITUTE FOR FACE-TO-FACE

The search for experiences and spaces that restore the feelings of community in the analog field will increase in the future. Regarding internet consumption habits among adults, in response to isolation, approximately three-quarters (76%) of Americans said they had used email or messaging services to communicate with others. But while digital connections could provide an alternative during the time of social distancing, only a minority (27%) thought that interacting through these technologies was as effective as



in-person contact. About 64% of Americans think the internet and phones will help, though they are not a replacement for face-to-face encounters (Pew Research Center).

## RE-ESTABLISHMENT OF CONTAINMENT

The desire to create containment networks has been evident in the last 12 months. Recent events have accelerated this need. A Sciences Po study in France revealed that 16% of people created new social ties during the confinement period. Of all newly developed relationships, 69% were with neighbors and 15% with strangers found online. This suggests that, although online sociability is a substitute for physical social relationships, there is also a local and analog dimension.

## UNPRECEDENTED ONLINE THERAPIES

The global psychological crisis has accelerated in recent years due to the critical environment at the political, economic, environmental and social levels, which is why sectors such as wellness, medicine, sexuality and psychology are testing innovations to face the increased demand for therapies (for more information see the *Betterness 2023* trend Deep Dive Report). In recent months, new stressors have been added: health risk and social isolation. During the pandemic, institutions such as the US Center for Disease Control and Prevention (CDC) and the World Health Organization (WHO) began using chatbots to share relevant information, suggest behavioral changes, and offer emotional support. Chatbots can be useful in filling the gap between knowledge and action through repetition, providing step-by-step instructions and advice as many times as necessary for changing user behavior (Nature). Collaborations between these mental health tools and virtual assistants such as Siri or Alexa are beginning to emerge as well.

## VIRTUAL PSYCHOLOGY

Different studies reveal that psychological therapy carried out virtually (video conference, for example) is effective in addressing a variety of problems such as depression, adjustment, anxiety, post-traumatic stress (APA), among others. Also, alternative



formats are gaining ground in the field of psychology. Globally, more than 400 million downloads of mental health apps are produced annually, demonstrating an openness towards improving wellbeing virtually. The digital health tools sector is expanding, with more than 10,000 apps (WEF) focusing on improving, for example, mood or sleep. A recent study of 18 random applications showed that these interfaces are beneficial for people with mild forms of depression (Pooja Chandrashekar, Harvard University). The National Health Service (NHS) of the United Kingdom and the National Institute of Mental Health (NIMH) of the United States, have pointed out that mental health applications are cost-effective and scalable solutions in addressing the gap in mental health treatment.

## RETHINKING LIFE

It is safe to assume that the recent health crisis has reinforced a collective desire from broad sectors of society to rethink certain aspects of their lives. Three quarters of the French population considered confinement as “a moment of reflection” (52%), or a way of “focusing on essential aspects of life, such as family, friends and children” (23%). While the proportion of those who rated the lockdown as a “source of stress” (19%) or a “waste of time” (6%), was lower (Sciences Po).



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