

GUARDIANS & METANAUTS

*Shaping the Reality
of Future Humanity*

THEY HAVE
CONTRIB-
UTED TO
SHAPING
A VISION
OF THE FU-
TURE OF
IMMERSIVE
TECHS.



“The best way to predict the future is to invent it.”

- Alan kay (1971)



PREAMBLE.

BY MARIE LEBLANC

For over 20 years, Laval Virtual has been identifying the latest XR trends and leading a growing international community operating in all sectors of activity.

In 2016, as an international XR facilitator, Laval Virtual designed the Visionaries Think Tank: an 2-days exclusive prospective workshop for Scientists, Academics, Investors, Authors, Philosophers, Law Makers, Influencers, and/or Industrials from all over the world.

The aim? Identify early signals of XR technology advancements over the next ten years and their impacts.

This report provides the individual thoughts of each visionaries and the common vision resulting from the Visionaries Think Tank 2022.

Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

Simon RICHIR, Marie LEBLANC, Pierre-STUART ROSTAIN

NOTA BENE.

XR as a scientific and technological field is directly impacted by the rise of the Metaverse. If we had to quickly give a definition of this concept, we could say that it is:

“an extension of our space-time, a new dimension, a synthetic reality designed by Humans”

And as in any conquest of a new world, social organization will be a major challenge. Communities will first settle in and develop their infrastructures each in their own way.

This extension of our world will imply a continuity with our physical reality. It will increase all human and natural possibilities. XR technologies will be used as means of transport to this new territory and the quality of the experiences will condition our lifestyles.

The design of Metaverse experiences and content will therefore have a major impact on our society.

Today, through virtual worlds, we train ourselves to live in the metaverse ; just as astronauts prepare themselves for their mission to space by testing the true extent of their interconnectedness and resilience through simulated analog environments.

We train to extend our life experiences to the Metaverse by transposing telemedicine, education, service activities, entertainment, art and heritage to this new realm... Each use of these mentionned fields will adress needs related to distance, inclusion or learning.

01.

VISIONARIES' INSIGHTS.

Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

Simon RICHIR, Marie LEBLANC, Pierre-STUART ROSTAIN



BOB
COONEY.

***“IF WE DESIRE A
METAVERSE FOR
EVERYONE, THEN
EVERYONE MUST
HAVE A VOICE IN
ITS CREATION”***





STEPHANE
BOUCHARD.

***“XR IS
ATTRACTIVE AND
IT IS THEREFORE
ESSENTIAL
THAT CLAIMS
BE NUANCED
AND BASED
ON EMPIRICAL
PUBLISHED DATA”***





***“THE METAVERSE
SHOULD BE A
SAFE, LAWFUL,
INCLUSIVE, NON-
DISCRIMINATORY
SPACE, UPHOLDING
FUNDAMENTAL
HUMAN RIGHTS”***

**THIERRY
BENOIST.**





***“I AM FASCINATED
BY THE INEVITABLE
TSUNAMI OF
IMPACT COMING
STRAIGHT AT US.
ARE WE PREPARED?
CAN WE BE?”***

**DANIEL
DYBOSKI-BRYANT.**





SILKE
SCHMIDT.

***“WE NEED TO
MAKE SURE THAT
WE PROTECT OUR
HUMAN DIGNITY,
OUR FREEDOM
AND OTHER BASIC
RIGHTS IN VIRTUAL
WORLDS.”***





MARIIA
TINTUL.

***“FOR US TO
INNOVATE ON OUR
SOCIAL SKILLS AND
STRUCTURES, IT
WILL SIMPLY TAKE
A BETTER ANALYSIS
OF THE METAVERSE
BEHAVIOR”***



02.

COMMON VISION.

Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

Simon RICHIR, Marie LEBLANC, Pierre-STUART ROSTAIN



WHO ARE THE GUARDIANS OF THE METAVERSE?

Shaping the Reality of Future Humanity

Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

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Who will be the guardians of the metaverse?

Because multiple ecosystems of virtual worlds will soon cohabit in this synthetic extension, because each ecosystem will have its own governance and because we will need to protect the integrity of the individual when traveling between virtual worlds, we will need guardians.

It will also be a question of relying on ethics to build this new reality that will be used by future generations, whose perceptions of reality will have evolved.



PART 1.

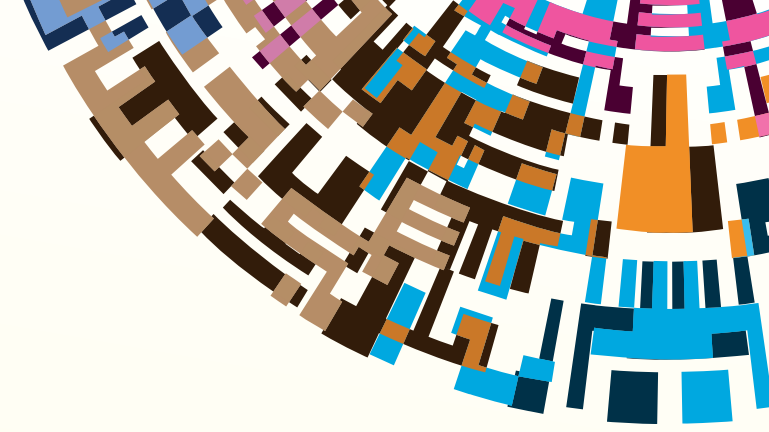
THE METANAUTS' JOURNEY

OR HOW TO FIND YOUR WAY?



Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

Simon RICHIR, Marie LEBLANC, Pierre-STUART ROSTAIN

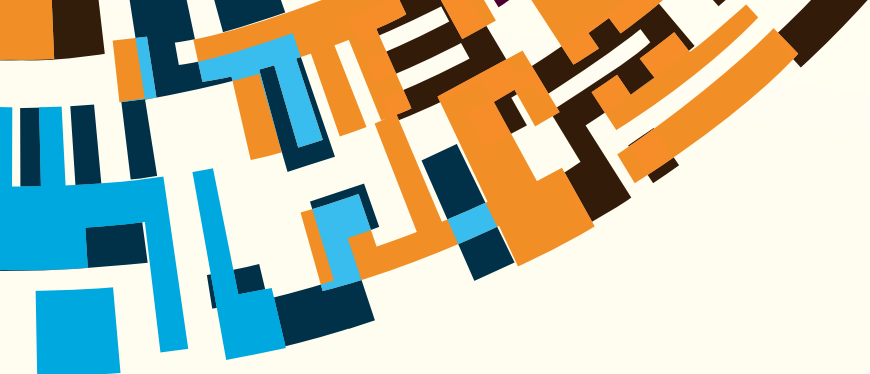


Space: the final frontier. These are the voyages of the starship Enterprise. Its five-year mission: to explore strange new worlds. To seek out new life and new civilizations. To boldly go where no man has gone before!

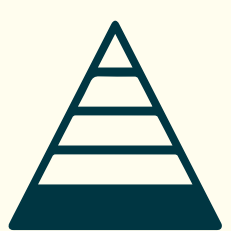
- Introduction of Startreck episodes

“Metanaut” comes from a common in-depth reflection on new borders... Just as astronauts, the metanaut will be the explorer of this new realm. He will conduct research around “new forms of life and new civilizations”.

Any entity or individual participating directly or indirectly in the design of the Metaverse (suppliers, developers, users) will thereby become a Metanaut, status which come with several duties...



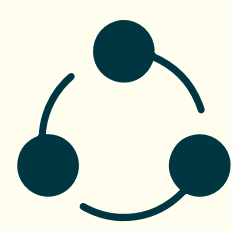
METANAUTS' 3 COMMANDMENTS.



01.

TO BASIC HUMAN
NEEDS

YOU WILL ANSWER



02.

TO
INTEROPERABILITY

YOU WILL CONTRIBUTE



03.

A RELEVANT &
SUSTAINABLE FRAME

YOU WILL PROMOTE

01. TO BASIC HUMAN NEEDS **YOU WILL ANSWER**

Part of our conversation followed the idea that the design of the metaverse - entirely created by humans - can also be described as the design of a product, i.e. in response to a problem.

We will therefore have to identify the problems that the Metaverse will have to answer.

We can build what we want, but if we don't build it for people's needs and uses, why should they care? People are interested in meaningful experiences over time.

Humans have basic needs: physiological, security, love and belonging, self-esteem and self-actualization (Maslow's Pyramid). The Metaverse will have to meet these needs to fully deliver on its promise.

One of the major challenges for the XR community will be to understand that it is interesting to create experiences in the Metaverse "because we know how to do them" or for "profit", but that it is also necessary to create experiences that meet basic human needs first.



**“THERE WILL BE A SHIFT
FROM XR COMMUNITY TO
XR HUMANITY”**

*THERE WILL BE A SHIFT FROM XR COMMUNITY TO XR HUMANITY. THERE WILL BE A SHIFT
FROM XR COMMUNITY TO XR HUMANITY. THERE WILL BE A SHIFT FROM XR COMMUNITY TO*

02. TO INTEROPERABILITY **YOU WILL CONTRIBUTE**

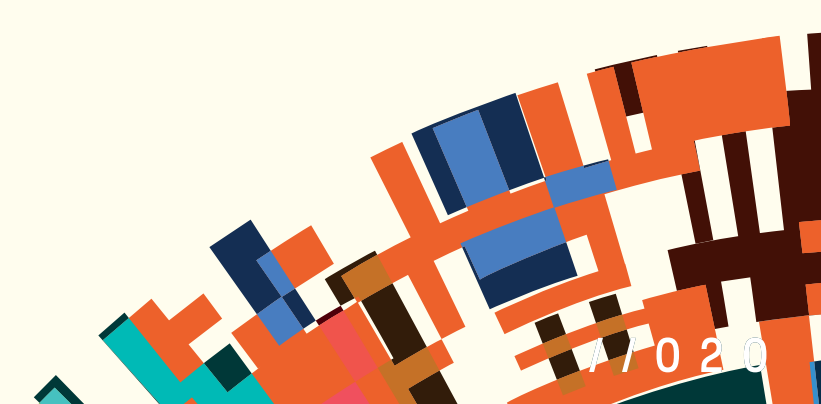
Few virtual worlds exist today, after all. More and more will find their place in this extended dimension. And when they all become traversable then we will be able to talk about the Metaverse.

XR will play a fundamental role in the construction of the Metaverse, as will blockchain, artificial intelligence, and cloud computing, among others. The task is complex, both technologically and societally.

The advent of the Metaverse will take place when technologies have made navigation between virtual worlds possible, when all identities (avatars, wallets, assets, etc.) can be accommodated, and when avatars are compatible with the UX of different virtual worlds.

Interoperability will also be an answer to the problems of archiving and obsolescence of XR experiences, by making experiences backwards compatible with new generations of hardware and software.

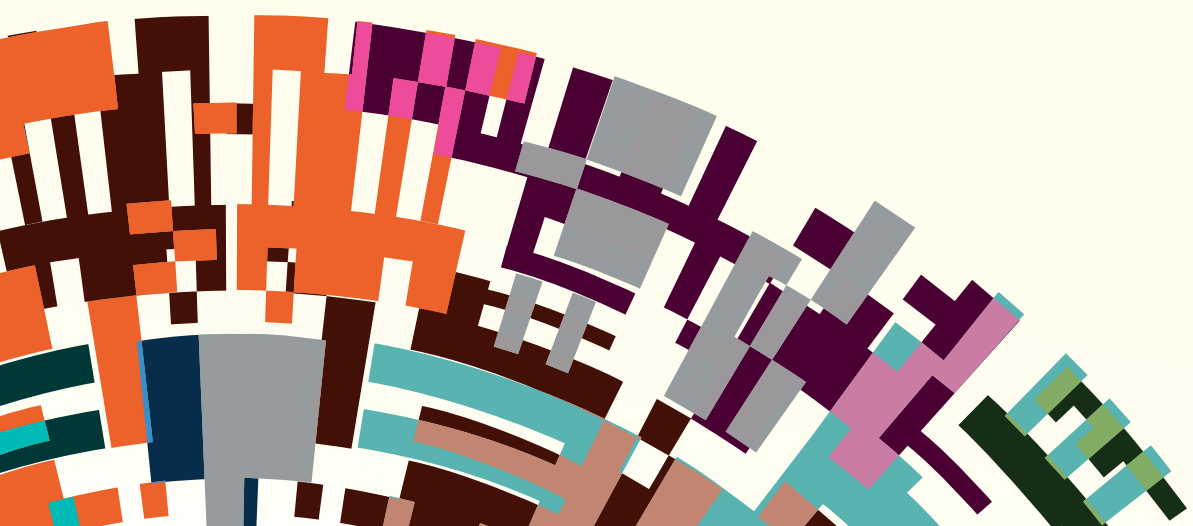
Ethical questions will then arise on the impact of the persistence of these worlds on our physical and environmental reality, but also on our existence.



AS THE INTERNET, THE METAVERSE BELONGS TO EVERYONE. AS THE INTERNET, THE METAVERSE

BELONGS TO EVERYONE. AS THE INTERNET, THE METAVERSE BELONGS TO EVERYONE.

**“AS THE INTERNET, THE
METAVERSE BELONGS TO
EVERYONE”**



03. A RELEVANT & SUSTAINABLE FRAME **YOU WILL PROMOTE**

Like the gold rush, we have seen a phenomenon appear in recent years characterized by a rapid influx of “metanauts” attracted by a region producing crypto-currencies. And this new territory accessible thanks to the Web3, and not yet technologically mature, is explored by some today in a rather trivial way. However, this territory offers us a whole field of possibilities. Each new experience in the Metaverse should open up new life perspectives for everyone. Social innovation in the Metaverse will be even more important than technological innovation.

Each Metanaut must be able to stimulate the growth of the Metaverse in a relevant and sustainable way. But the development of technologies, including XR, requires a lot of investment today. For example, 90% of XR companies in Europe are SMEs* and do not have the necessary business models to accelerate their development. How to lower the development costs of XR solutions?

Similarly, there will be a need to decompartmentalize business lines, because the Metaverse is not only technological. The designers of Metaverse experiences will have to be developers/creators, with a societal culture and knowledge of human physiology.

Start-ups have a role to play in the construction of this project, not only on the technological side, but also on the societal side. The start-up format favors agility, the right to make mistakes, and creative strength. Let's offer them accessible creation tools, let's multiply creation opportunities and let's encourage diversity and complementarity of experiences.



PART 2.

SOME GUARDIANS' MISSIONS

OR HOW TO AVOID DYSTOPIA?



Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

Simon RICHIR, Marie LEBLANC, Pierre-STUART ROSTAIN



Today we are in the midst of a transition period and are just beginning the construction of the social organization of this new territory.

Ethics as a fundamental reflection to “establish norms, limits and duties” seems to us indispensable to the construction of these new social organizations.

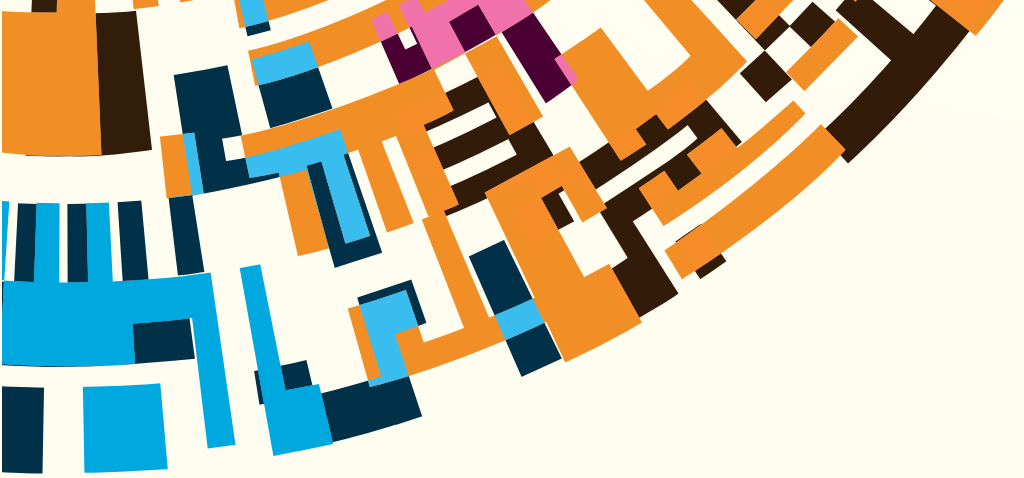
Social organizations, which, in the respect of the Human, will have to avoid a total authority in the hands of a limited number of leaders on citizens who could not exercise their free will anymore.

Each metanaut will have a strong responsibility in the design and life of the metaverse. Among them, who will be the guardians of ethics? What will be their missions? We propose 3 tracks that we think are essential to start with.

“Guardians” comes from

Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

Simon RICHIR, Marie LEBLANC, Pierre-STUART ROSTAIN



GUARDIANS' 3 COMMANDMENTS.



01.

A CROSS-BORDER
MULTICULTURAL
GOVERNANCE BODY

YOU WILL CREATE



02.

SOCIALLY BENEVOLENT &
TRANSPARENT BUSINESS
MODELS

YOU WILL FOSTER



03.

TO THE VALUE
OF DATAS

**YOU WILL RAISE
AWARENESS**

01. A CROSS-BORDER GOVERNANCE BODY **YOU WILL CREATE**

As in any social organization, community life will need regulation with respect for the human being as its main driving force. A governance body could be imagined, supplied by guardians, which thanks to ethics will define common rules of respect for the individual. This body will rely on the XR to put all these rules into practice.

Indeed, before the advent of the Metaverse, in its global concept, we can imagine that subsets will first develop, independent of each other, as different ecosystems (blockchains, brands, states, communities), with as many governances as social organizations.

At first, the virtual worlds of these ecosystems will become traversable, because they will have common governance and regulations. But the social challenge will be to make these ecosystems traversable between them.

Just as there is today a governance of cross-border spaces in our physical reality, it will surely be necessary to set up a governance of virtual cross-border spaces.

Rules that will protect the individual during his or her passage from one virtual world to another will have to be put in place, so that the integrity of each individual is preserved and that human values take precedence over experimentation.

To what extent and under what conditions, will a trans-ecosystem identity and citizenship be possible?

Our common reflection leads us to believe that a governance body that guarantees the integrity of individuals and their basic needs will have to exist in a trans-ecosystem manner.

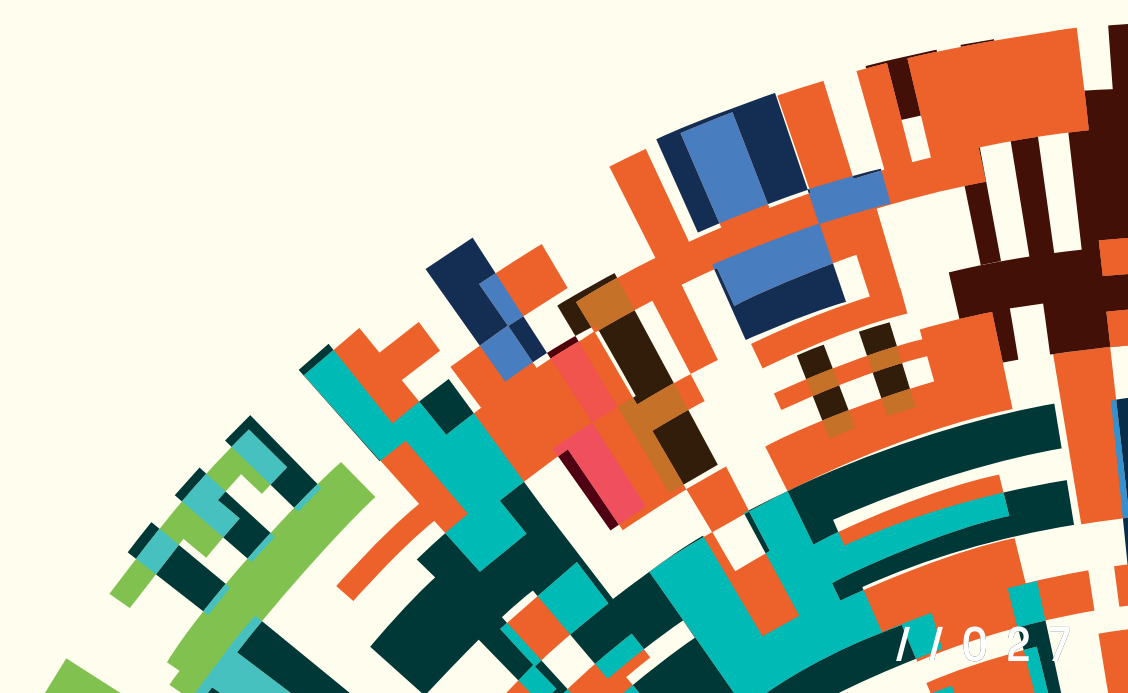
The form it should take is not yet clear, but we believe it should be closely examined and implemented.

We also question the relationship between economies and governments with today's dynamic and agile economies facing governments that are increasingly out of step. The creation of laws is not exponential or agile like the development of technologies and their uses.



THE METAVERSE MUST NOT REPLICATE THE WORLD BUT RE-INVENT IT. THE METAVERSE MUST NOT REPLICATE THE WORLD BUT RE-INVENT IT. THE METAVERSE MUST NOT REPLICATE THE

***“THE METAVERSE MUST NOT
REPLICATE THE WORLD BUT
RE-INVENT IT!”***



02. SOCIALLY BENEVOLENT BUSINESS MODELS **YOU WILL FOSTER**

Building a synthetic reality, man will know how to do it, he is already doing it. We know how to create browser-based virtual worlds, we know how to make Web3 work, we know how to use artificial intelligence, we know how to capture movements, biometric data, we know how to talk to the brain, we know how to make experiences pleasant and create wonder. These are achievable technical and technological challenges.

But hosting communities and making them live together is a challenge we face daily in physical reality, which we try to manage with policies and territories. **The Metaverse becomes a new playground where social innovation becomes possible.**

How do we ensure that the impact of these social experiments is positive and helps people to be better individually and socially?

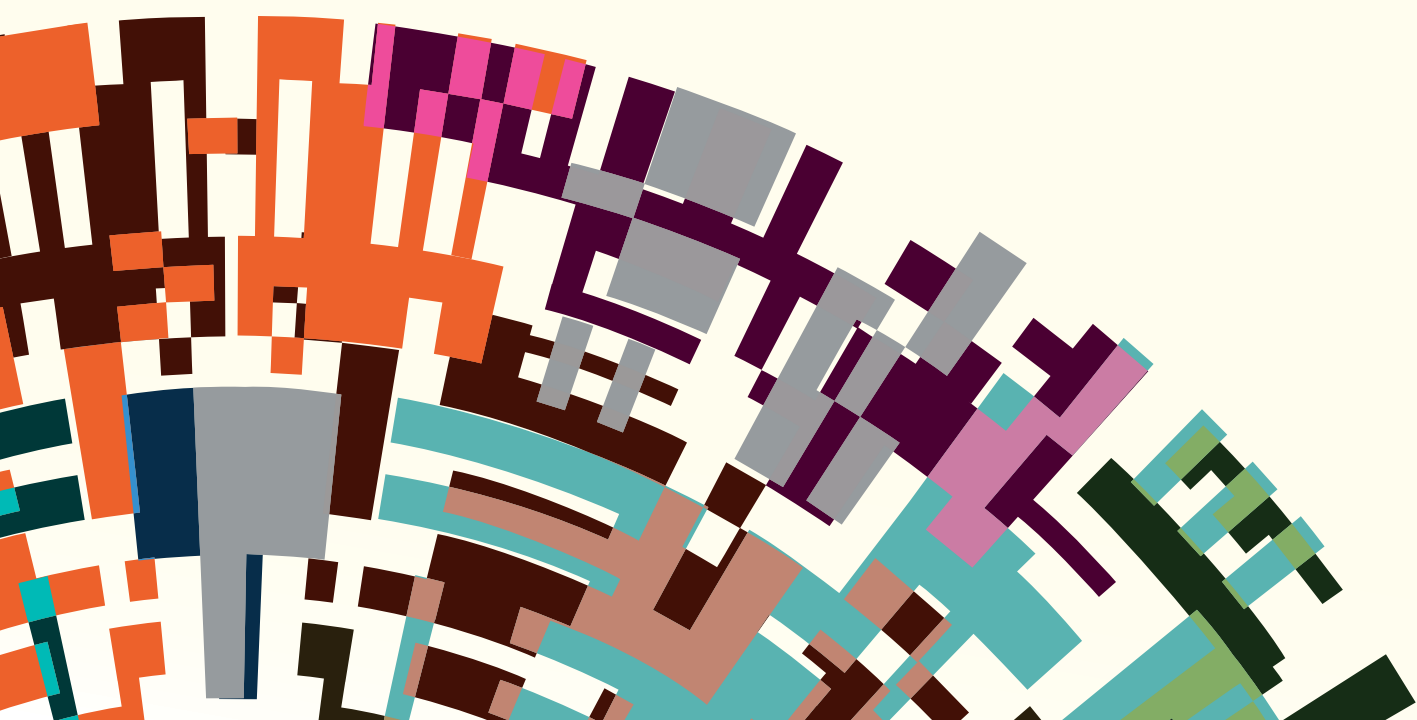
We believe that XR actors can play a role in encouraging a benevolent and transparent use of persistent Metaverse experiments.

This means that there must be an entity that manages and oversees this process, so that if the use of the Metaverse by its commercial actors does not respect ethical values, there will be a defense mechanism to move away from dehumanization. And XR actors have the power to put that process in place.

Similarly, transparency in the rules and regulations used must allow the user to easily follow developments. Access to this information must be facilitated.

THE BEST WILL COME FROM UNEXPECTED SOURCES. THE BEST WILL COME FROM UNEX-
PECTED SOURCES. THE BEST WILL COME FROM UNEXPECTED SOURCES. THE BEST WILL

***“THE BEST WILL COME FROM
UNEXPECTED SOURCES...”***



03. TO THE VALUE OF DATAS **YOU WILL RAISE AWARENESS**

We don't really know who has access to what, the uses of the exchanged data are not clear.

Today data is rather organized in disconnected data silos, which are not designed for Big Data analysis. Proportionally, little of the data is being used today. But there is a need for companies and individuals to become aware of the data they have and how they want to share and leverage it.

3 ways of using data for individuals can be pointed out:
in exchange for services - Data for service
in exchange of money - Data for a fee
as donations - Data Donations

We need to make sure that people understand the value of their data and what happens to it to avoid cyber-malfeasance and harassment that would deprive the individual of free will.

Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

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CONCLUSION.

Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

Simon RICHIR, Marie LEBLANC, Pierre-STUART ROSTAIN



Reality is now beyond physical boundaries and living in a synthetic reality will influence our values. XR is entering digital literacy for good.

By 2032, metanauts will have complete freedom of mind and creativity to co-create and live in the Metaverse, which will be constantly evolving as our world. One of the first speeches we had was to say that by 2032, we will all be able to create experiences in this synthetic extended dimension. Because we will have the tools, the platforms that will allow us to do so.

We will evolve through connected virtual worlds that will each in their own way answer to some of our basic needs.

We are aware that we will experience social and cultural changes.

How do we engage in the real society of this virtual space?

Some will never go to this new territory, some will live there. These new changes are important. They can be positive or negative. We will have to be aware of them.

The “*Be social*” or *disappear!* will become more and more present.

In search of inclusion, ecology, security, reliability, discovery, novelty, never-before-seen, “less judgmental”, new standards, we tend towards this Metaverse concept that pushes the boundaries of our societal space. Let’s live up to it. Let’s create as responsibly as possible, as empathetically as possible.

The impact of the Metaverse on humanity will be existential.

It will result in the transition from an XR Community to an XR Humanity.

Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

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The image features a dark teal background with a large, faint, light teal circle centered behind the text. In the top-right and bottom-left corners, there are intricate, colorful geometric patterns composed of small squares and rectangles in shades of blue, orange, pink, and grey, resembling a stylized cityscape or a complex data visualization.

GOING FURTHER.

IDENTIFIED TRENDS.

01. CONTENTS / ART & GAMES

- >> Tendancy to persistence of connected XR experiences
- >> Tendancy towards representations of memory or remote exchanges (space-time continuum) with the animation of holograms
- >> Tendancy towards a new wave of XR content through “XR storytelling”
- >> Tendancy to do “because we know how to” to experiment with techs
- >> Need for multi-skilled professionals - train more development engineers / creators / designers: remove the barriers between business lines and positions
- >> How to develop meaningful contents and make them stand out from “rubbish ones”?
- >> Need for R&D around all XR topics
- >> Make developers aware of their power of influence
- >> XR is visual. It makes invisible visible

02. NEW PARADIGM OF TEACHING/LEARNING

- >> Teach with XR (allows learners to rehearse, simulate, self-assess)
- >> Teach in XR (allows to teach from a distance in a natural way)
- >> Teach about XR (share knowledge on how tech work)

03. ME & MY AVATARS

- >> Difference between “my digital self” and avatars
- >> Representation of avatars through body incarnation or accessories (what I am or what I possess)
- >> AR avatar (holograms) - representation of memories / archives
- >> Digital twins

04. INVEST & STARTUPS

- >> XR development needs huge investments
- >> 90% of XR in Europe are SMEs and do not have the means to accelerate their development
- >> How to reduce development costs of XR solutions?

05. UK ISSUES

- >> UX Standardization
- >> XR is visual - no text nor keyboards!

06. TECH NEEDS

- >> Minimize XR experiences production costs without reducing quality
- >> Tools to facilitate creation/production of XR contents
- >> Driving tech towards “green” choices
- >> Standardization of content formats and interfaces
- >> Emergence of volumetric capture
- >> Emergence of geo-located data
- >> 6G/8G? How to minimize latency and promote connectivity?

07. DATAS

- >> Data-related issues are linked to their centralization and use without consent > need to raise awareness
- >> Data Privacy Control for society convenience > are we pushing the boundaries of ethics with the metaverse and the current evolution of digital and social networks?
- >> Use of Data Lake?

REPLAY.



Laval Virtual Europe 2022 - Visionaries Think Tank

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Simon RICHIR, Marie LEBLANC, Pierre-STUART ROSTAIN



MORE DETAILS.



BOB COONEY.

USA
Speaker, Author, Mentor
Zen One Six Nine, LTD

Always staying on the bleeding edge of technology, and able to predict both tech and business trends, Bob Cooney is widely considered the world's foremost expert on location-based virtual reality. The author of the book *Real Money from Virtual Reality*, he is the go-to-market strategist behind the launch of some of the world's most successful location-based entertainment products. He curates the location-based VR education programs for both Amusement Expo and VR Days and is the tech editor for *Replay Magazine*, the oldest and most widely-read publication dedicated to the family entertainment industry.

Cooney launched the world's first successful laser tag company, *Laser Storm*, in 1990, going public on NASDAQ after appearing in the Inc. 500 in 1996. He has also launched the first commercially successful VR arcade game, *Beachhead 2000*. Cooney has mentored some of the top VR manufacturers and operators, including *Zero Latency*, *Hologate*, *Neurogaming*, *Virtuix*, *VRsenal*, and others..



STEPHANE BOUCHARD.

CANADA
Professeur et titulaire de Chaire
Université du Québec en Outaouais

Stéphane Bouchard holds the Canada Research Chair in Clinical Cyberpsychology and teaches cyberpsychology and psychotherapy at the Université du Québec en Outaouais. As a scientist-practitioner, his research shows a dedicated attention towards conducting both meaningful clinical applications of cyberpsychology and rigorous science to treat anxiety and other mental disorders. Since 1999, his research projects involve developing virtual environments to treat complex anxiety disorders and pathological gambling, leading randomized control trials on the efficacy of "in virtuo" exposure for anxiety disorders, and conducting experimental studies to understand why virtual reality is an effective treatment tool. Another prolific area of expertise is telepsychotherapy, where he conducts randomized control trials and processes studies on the efficacy of delivering cognitive-behavior therapy in videoconference. His research lab holds *Psyche*, the only six-sided total immersion virtual reality system dedicated to mental health research in the world. He has received numerous career awards, including the *Prix Adrien Pinard* in 2014 for his exceptional contribution to the field of psychology.



THIERRY BENOIST.

ITALY
XRLab Manager
European Commission / DG Joint Research Centre

Thierry Benoist is a senior scientist in the field of Information and Communication Technology. He manages projects at the European Commission, in particular overseeing activities in the field of scientific communication leveraging high-end digital technology. Over the last 15 years working for the European Institutions, he has led projects in diverse areas ranging from experimental cybersecurity to dissemination of public information under the EU REACH regulation on chemicals.

He has also contributed in activities supporting EU humanitarian and crisis management mechanisms in collaboration with the UN, and is co-inventor of a patented tsunami alert device. Before working with the European Institutions, he was a subcontractor for NASA and ESA to design man machine interfaces in Augmented and Virtual Reality.



KYLIE SAVAGE.

USA
Huddle
Coach & Facilitator

Kylie Savage is a human-centred design coach and facilitator working at the intersection of innovation, design and transformation.

Kylie works with advocates for change supporting them with the confidence, skills and tools to make a difference. With an "anything is possible" mindset, organizations can make the world a better place. As the director of meaningful business and capability at design pioneer Huddle, Kylie supported organisations like Australian Red Cross and City of Sydney to adopt human-centred ways of working. Before joining Huddle she was the director of strategy and innovation for Brightstar. Kylie also created the Most Innovative Company awards program with Inventium, which is now in partnership with Australian Financial Review. She holds degrees in Robotics & Digital Technology and Electrical Engineering.



DANIEL
DYBOSKI-BRIANT.

UK
Associate Executive Director
Educators in VR

Daniel Dyboski-Bryant specializes in making XR positive and meaningful to communities, educators, learners and families around the globe. He's a passionate advocate for diversity and inclusion and his mission lies in harnessing people, communities, technologies and resources to inspire collaboration, common purpose and creative solutions to global and local challenges. As Assistant Executive Director at Virtual World Society, he leads the mission for a global XR for Good community and ecosystem and heads the HomeSpark project which supports families around the world to embrace XR and the metaverse in positive and rewarding ways. HomeSpark connects families wherever they are and empowers them to meet, learn, create together as well as gain skills for a new economy and contribute to our changing future. As Founder Director of Educators in VR, he empowers a global community of educators, trainers and learners who meet, share and collaborate in and with VR by developing and providing XR training, virtual events, resources and global immersive conferences. He's working hard to democratize the next paradigm of learning and education.



SILKE
SCHMIDT.

GERMANY
Head of XR HUB Bavaria
Medien.Bayern GmbH - XR HUB Bavaria

Silke Schmidt heads the XR HUB Bavaria at Medien.Bayern GmbH in Munich, which connects the players of the XR community in Bavaria and beyond regional and national borders. The XR HUB drives the development and dissemination of XR applications, links competences and promotes the transfer of knowledge and exchange of experience between research & development, industry and the cultural and creative industries. In this function, Silke Schmidt brings together her previous experience. She came into contact with extended reality technologies in 2014 during her time at the Bavarian Ministry of Economic Affairs in the foreign trade department, where she was in charge of Bavarian companies' relations with business partners in the USA (coordination of trips to SXSW in Austin, Texas) and in Québec/Canada (Montreal as a city of the creative industries). Since then, she has worked in the field of audiovisual media (film, games and XR) in the Ministry of Economic Affairs, the State Chancellery and last but not least the Bavarian Ministry for digital affairs which was established three years ago. The latter supports the XR HUB Bavaria, which she has now led for 2 years.



MARIIA
TINTUL.

UKRAINE
Head of Business Development / Managing Director
Wise Guys XR

Having 8 years of experience in IT Business Development I have had a chance to work in various industries: IT outsourcing, Product Development, Social and Cultural Heritage projects (I've created the official Chernobyl app with AR), Service business in creating business XR applications of any sort and now finally creating an XR Accelerator and being in investment and startup growth. I can combine startup thinking and corporate experience in order to try validate relevance and impact of new ideas and concepts emerging on the market. My Sales, PR and Partnerships background allows me to always see the roadmap, even when we only just discuss the ideas.

FACILITATORS.



MARIE
LEBLANC.

France

Head of “XR Strategies & Uses” Consulting
Laval Virtual

Marie Leblanc is a designer, facilitator and expert in XR uses. She helps companies move forward with technology. She co-designs XR strategies and new XR uses in the most ethical and sustainable way possible. Every day, she puts her knowledge at the disposal of companies to help them in their approach and give them the means to reach their objectives in the most relevant way possible.



SIMON
RICHIR.

France

Professor at Arts et Métiers
Laval Virtual scientific chair

Simon Richir, Eng, Ph.D., is Professor at Arts et Metiers Institute of Technology, LAMPA, HESAM Université, France ; co-founder and scientific chair of Laval Virtual International Conference ; co-editor in chief of IJVR.eu. His research and teaching activities concentrate on technological innovation, engineering design process, ideation, innovative projects, management, and innovative uses of new advanced technologies such as Virtual Reality or Augmented Reality.



PIERRE-STUART
ROSTAIN.

Netherlands

Partnership Manager
VR Days Europe

Pierre-Stuart Rostain is in charge of partnerships for VRDays Europe in the Netherlands. Pierre-Stuart wrote his Master thesis about the implementation of virtual reality in art exhibitions in 2018 and has since then been involved in projects with various institutions in the field of new media and immersive technologies (IDFA DocLab, European Commission D.G. JRC, VRDays, Laval Virtual).

INTRODUCING BOB'S VISION.

“The metaverse will change how its inhabitants view and experience reality. Research already shows Gen Z feels more like themselves in the metaverse than they do in real life. As digital natives give way to metaverse natives, the blurring of what is “real” with digital will reach a point where we stop discerning the difference. It will all be reality.

This new way of living offers opportunities to do things better this time around. Web 2.0 gave birth to the pay per click advertising model. Social media monetizes our attention with weaponized algorithms that fractured our societies. New business and commercial models are needed for the Metaverse to right the ship. Investors and governments must incentivize innovation that is more human-centered.

We must not let the technologists design the metaverse based solely on their needs and desires, or their projections on what is good for “all of us.” Unconscious biases and belief systems become embedded in the rules of a system. If we desire a metaverse for everyone, then everyone must have a voice in its creation. For example, blockchain and crypto enthusiasts are pushing for decentralization of everything. That fails to consider the benefits of centralization. Let's embrace the paradox, and not throw the baby out with the bathwater.

The metaverse is a system. We need systemic design instead of myopic, linear, cause and effect thinking to avoid a repeat of the societal and psychological damage of Web 2.0. Who will be the Guardians of the Metaverse to make sure this happens? Who will create the guardrails that consider mitigating the downsides of the wonderful technologies being invented and implemented? Will a decentralized system provide this function? Or lead to chaos and anarchy.

The metaverse needs a governing body to create human-centered values-based rules. It needs enforcement mechanisms to ensure data privacy, respect, and inclusion. Most in the ecosystem seem to expect everyone to “do the right thing.” Technology providers are building data collection tools without any concern for how they'll be misused. The ability to track our movements, emotions, and cognitive states in VR creates a platform for bad players to crank up the manipulation at the heart of digital media today. Have we learned nothing from our recent experience?

We also need new legal and governing structures that can keep up with technological innovation. Lawmakers move at a snail's pace compared to the exponential evolution of new tech. The EU's new Digital Markets Act (DMA) and Digital Services Act (DSA) legislation is a good start. But it's at least 10 years too late. We must not wait until people are harmed by living in the Metaverse to create legislation hoping to put the genie back in the bottle. Let's learn from our history and prevent the damage we can predict. Let's put a call out for the Guardians of the Metaverse to help us build the future of humanity.”

INTRODUCING STEPHANE'S VISION.

"I have seen the field of virtual reality (VR), augmented reality (AR) and extended reality (XR) grow since 1999, when I began doing research on applications for mental disorders and rehabilitation. I foresee that AR/VR will have a significant impact on society by 2030. For example, it will contribute to improving mental health of people across the globe by providing better and easier access to psychological treatments of mental disorders that can benefit from circumscribed interventions.

In the mid 1990's, self-help books became an interesting method to disseminate empirically validated psychological treatments. Immersive technologies and artificial intelligent (AI) virtual psychotherapists can now replace these books, and hopefully expand the effectiveness of these treatment for people who don't have access expert therapists or require motivational support. XR enables psychotherapists to conduct therapeutic experiential exercises that are impossible to do otherwise, hence leading to more effective treatments for some disorders (e.g., anxiety or addictions).

At the same time, it is urgent to develop international guidelines to inform professionals and the public about what really works for whom and under which circumstances. XR is attractive, for people and corporations, and it is therefore essential that claims be nuanced and based on empirical published data.

The double-edge sword is that immersive experiences could also become addictive or contribute to social isolation in vulnerable users. XR can also blur the line between what is real and what isn't, what is true or not, and which memories are based on empirical versus on virtual facts.

I am confident that in the near future, professionals will become augmented psychotherapists. They won't be completely replaced by AI; they will integrate real time biometric data displayed in AR to provide more effective treatments. They will use relevant data collected by wearables to nuance their interventions and extend their social presence outside the office. Such depth of knowledge about patients' personal information and experiences will raise ethical questions about data privacy, but also about how to handle sensitive information that patients are sharing without being aware of it (e.g., when patients' physiology shows they are not sincere).

I also expect better cultural adaptations, and inclusiveness of individual differences, in the development of VR environments. XR offers a great potential to build resilience, and it will be beneficial for society, if technological innovations are developed to answer actual needs in the population instead of answering corporations' needs or "because it is cool to do it in XR".



INTRODUCING THIERRY'S VISION.

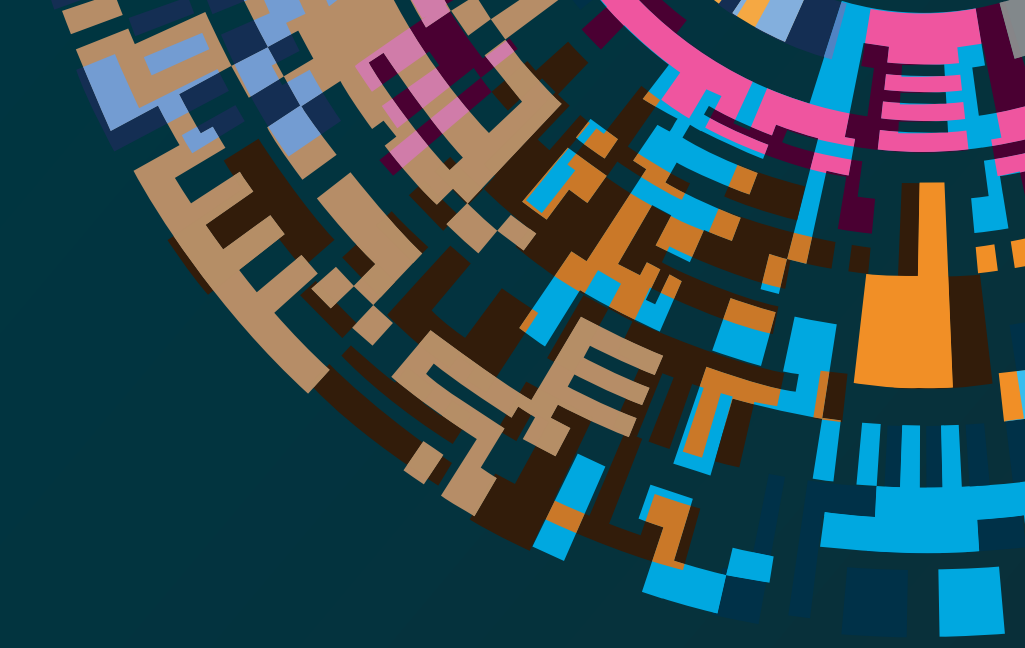
“In the coming years, XR technologies will usher in the era of the metaverse(s). These artificial places will be human-made constructs where humans beings will interact in any number of ways. This brings forth a host of challenges and opportunities.

One can firstly consider these issues from a content creator perspective. With competitive efforts to reach the “metaverse graal” happening left and right, it has become apparent that there is precious little standards and interoperability among the various flavours of metaverse-branded experiences.

In the last decades, a number of paradigm shifts changed the shape of our everyday life. The use of the web is now prevalent for a vast number of activities, from shopping to reading news or watch videos. This is a relatively new development, and its success was the result of an immense effort aiming at standardization and interoperability. It is obvious for everybody today, that any browser on any device can technically access any website anywhere. The same kind of effort needs to be done for the metaverse if it is to live up to its expectations of a digital game-changer.

One can secondly consider the metaverse from the end-user standpoint. XR technologies are still expensive, unavailable or out of reach for many citizens. Looking at the past once again, this is not without throwing us back to the early days of personal computing or smartphones. Thus, mass adoption of XR, and thus the metaverse, will pass by a significant decrease of the cost of ownership of XR devices. The hardware itself will need to be improved to be more compact, comfortable, and offer a richer user experience. Decreasing device costs will require shifting the compute heaving lifting into the cloud, which means edge computing services and low latency wireless networks like 5/6g will need to be ubiquitous.

Last and certainly not least are the human values we want to take with us on the metaverse endeavour. Indeed, the metaverse should be a safe, lawful, inclusive, non-discriminatory space, upholding fundamental human rights, i.e. a benevolent environment in which to thrive. This will require regulation, monitoring, and enforcement, in a shape and form yet to be determined.”



INTRODUCING DANIEL'S VISION.

"I sometimes think about the moment when the first person had the very first 'virtual' experience looking into the very first 'headset', just like the first of our ancestors who picked up a burning stick and made fire. Then I track the milestones of the evolution of virtual space and experiences: the first time two people/avatars connected in a virtual space and had a shared virtual experience; the first true virtual multiuser platforms; the first virtual communities; the first persistent virtual 'world'; and finally I imagine a completely interoperable, freely traversable open continuum of persistent virtual worlds (which is maybe called 'metaverse'). Looking back over the evolution and growth of virtual contents and experiences, and extrapolating from that arc into the near future, I am fascinated by the inevitable tsunami of impact coming straight at us. Are we prepared? Can we be?"

As we stand right on the verge of graduating from social VR to societal VR, I can't help but wonder... What will historians make of this period of humanity when we embarked on the adventure of exploring the frontier of virtual space not just as individuals, but as a human race. How will it impact our understanding of reality? How will our next generations thrive in a world with this new realm? And eventually, how will it impact our human experience and humanity as a whole?

These ponderings fill me with a deep sense of wonder, awe, excitement and concern. The potential for good and harm is exponentially more profound than the internet and social media, because we will essentially be spending increasing amounts of time inside our computers and platforms, having increasingly convincing experiences and connections. Looking back at humanity's adoption of successive technologies, it seems inevitable to me that as we develop and engage with the metaverse it will have a profound impact on us - for better or worse. This inevitability leaves me with one urgent quest - to tip the balance in favor of 'better'. We can predict it will impact the human race deeply, but humanity also has the opportunity, and I would argue the duty, to shape and guide that impact.

How do we end up with a mostly benevolent metaverse?"

INTRODUCING SILKE'S VISION.

"In ten years the metaverse and web 3.0/blockchain technologies will have changed our lives. Everyone will have a virtual identity (or several?!?), and social interaction will be a blend of physical and digital interaction - we will be present in virtual spaces with people from all over the world or talk to holograms in our living rooms. Virtual goods can be transferred from one platform or experience to another. Goods and content will be purchasable on multiple platforms and payable by cryptocurrencies. AR content will be available everywhere. We will easily switch between VR, AR and the physical world.

We will need to carefully watch and analyse the sociological and psychological impact on peoples' personalities through the increase of time spent in virtual worlds, through the aesthetics of the virtual worlds and the avatars therein and the merging of the physical and the virtual.

Virtual spaces as parts of the metaverse technically enable access to people from all over the world, avatars in virtual spaces easily cross state borders and enable international communication and cooperation. To which state does a virtual space belong? Which legal system will regulate virtual spaces, the metaverse? This is a question of "conflict of laws" that can be solved in different ways in different countries: what will prevail: the legal system of the creator of the virtual spaces as product or service? Or the legal system of the people using it? Which data will be collected by whom and what for? Will access to virtual spaces be limited for legal reasons? What impact would that have with regard to innovation? Will there be public virtual spaces? Will we be able to agree on a global legal and ethical framework or will there be closed systems in different parts of the world?

We must not forget that virtual worlds are man made. Thus, it is up to us to create world(s) and experiences to facilitate and enrich our lives while protecting our data, our freedom and the democratic structures of the states we live in. We must not transfer the power of the state onto giant international companies – for convenience or other reasons. Hopefully we will have analysed our legal framework, adapted it and developed new rules – where necessary - for the metaverse, web 3.0, for digital/virtual identities, their rights and responsibilities, for the international trade of virtual goods, the protection of data and intellectual property and for spatial planning in a virtual world etc..

In 2032, XR will be applied at work in all sectors where useful at our desks, for communication, training, and all along the supply chain and in private life due to achievable, good looking and comfortable consumer devices. XR applications to improve therapies, health and wellbeing that are research projects today will be in use by practitioners."

INTRODUCING MARIIA'S VISION.

"It is given that we will improve how we work on technology and design of our experiences.

What we need to look into is the "why" of it all. The morals behind inserting such an immersive and powerful tool in our daily lives is more important than the race to its perfection. The only real challenge is creating our virtual worlds FOR the people, for their creativity, for their freedom in an unlimited and open world of digital possibilities.

Many front-running startups are already coming up with the solutions to improve the usability, engagement and length of user sessions. Many work on increasing the productivity of XR apps and 3D processing. The technology and our capacity in it will increase dramatically over the next couple of years, there is no doubt. But here is the trouble: none of us will want to be in this perky & techy world with all the UX possibilities in it, unless it is a nice place to be as a human and personality. Simple as that.

We do want freedom of movement and expression. We believe the future metaverse is also granting an endless space for self-expression.

But, if it is not socially welcoming, if it is a space to bully, intimidate and socially press - why would any of us want to go out of the comfort of silently creating things in our own spaces or digital backyards? And why should anyone even try to go out in (digital) public? Cybercrime is now being regulated only when it comes to the heaviest of its cases - stealing money, hacking the official portals. But the social part of our metaverse is heavily penetrated by "smaller" crimes - cyberbullying, identity theft, digital stalking and many more behaviors that for now may not even have the names yet.

In the worst scenarios that I can imagine, there will only be a place in meta for the opportunists, people that have fun running against the rules and checking the limitations of a system.

Why? They can be unpunished. Nobody will ever find them. They finally don't have to be accountable for their actions

If you think about it, metaverse is a very good playground for sociologists to learn about human behavior and simulate different societal scenarios on some directive rules implications. Or the social mind of the group and its self-controlling flow and dynamics according to different simulated situations or structures.

For us to innovate on our social skills and structures it will simply take a better analysis of the metaverse behavior, where you can either assume everything and anything is possible. Thus, have fewer personal limitations on the freedom of expression or denial to whatever is stipulated by a given metaverse

While our physical world is archaic and hierarchical, much of the metaverses, I believe, will be created by its people and digital habitants. Much like the healthy market always manages the products and services on its own, metaverses may be (or even should be) surviving by their ability to serve the digital metaversians. Where each will chose which values and rules of the game fit their lifestyle the most

My main dream is that we keep the human in the center of those simulated worlds and create real opportunities for intellectual and mental development, rather than a place of civil rights absence, or a tool for escapism.

And we as an industry need to learn how not to make technology the center of it all. Because the human is."

PREVIOUS VISIONS.

2016.

BLURRING THE LINES BETWEEN DIGITAL & PHYSICAL WORLDS!
Dr. Carolina CRUZ NEIRA, EAC - USA | Dr. Skip RIZZO, USC Institute Creative Technologies - USA | Dr. Olivier BIMBER, Linz Institute of Computer Graphics - AUSTRIA
Dr. Dirk REINER, EAC - USA | Christine PEREY, AR for Enterprise Alliance - SWITZERLAND | Georges KARVELIS, SINTAX Transports | Alexandre GODIN, AIRBUS
Dr. Simon RICHIR, Arts et Métiers ParisTech | Dr. Marc PALLOT, Arts et Métiers ParisTech
2017.

VIRTUALITY ENHANCES HUMANITY WHILE TRANSFORMING OUR REAL WORLD!
Dr. Pattie MAES, MIT Media Lab - USA | Dr. Masahiko INAMI, University of Tokyo - JAPAN | Dr. Marc BILLINGHURST, University of South Australia - AUSTRALIA
Dr. Alvaro CASSINELLI, SINERGIA TECH - URUGUAY | Dr. Zhongke WU, College of Information - CHINA | Jon PEDDIE, JPR - USA | Kathleen MAHER, JPR - USA
David DEFIANAS, PSA Group | Olivier DECALF, THALES | Alexandre GODIN, AIRBUS | Philippe DAVID, SNCF | Olivier BOULANGER, RENAULT
Dr. Simon RICHIR, Arts et Métiers ParisTech | Dr. Marc PALLOT, Arts et Métiers ParisTech
2018.

EVERYBODY IMMERSSED IN A TWIN WORLD!
Dr. Christian SANDOR, NARA Institute of Science & Tech - JAPAN | Dr. Mel SLATER, University of Barcelona ICREA - SPAIN | Dr. Peter ANTONIAC, Augmenta - FINLAND | Dr. Paul DEBEVEC, Google VR - USA | Naomi ROTH, Virtuality for Reality | Fabien DUMON, AIRBUS DEFENCE & SPACE | Mark MINE, WALT DISNEY Imagineering | Grégory ROY, Human Design Group | Dr. Simon RICHIR, Arts et Métiers ParisTech | Dr. Marc PALLOT, Arts et Métiers ParisTech
2019.

FUTURE DREAMING: DESIGNING FOR NEW REALITIES
Dr. Skip RIZZO, USC Institute Creative Technologies - USA | Dr. Lara ASHMORE, Brain Performance Institute - USA | Victor LUO, NASA - USA | Savannah NILES, Magic Leap - USA | Kent BYE, Voices of VR - USA | Alexandre BOUCHET, CLARTÉ - FRANCE | Dr. Simon RICHIR, Arts et Métiers ParisTech | Dr. Marc PALLOT, Arts et Métiers ParisTech | Marie LEBLANC, Laval Virtual
2021.

TOWARDS HUMANE TECH FOR INCLUSIVE XR
Dr. Miriam REINER, TECHNION, Institute of Technology - ISRAËL | Dr. Edouard AUVINET, Brussels ECAM Engineering school - BELGIUM | Dr. Indira THOUVENIN, Sorbonne Universités, Université de technologie de Compiègne Génie Informatique - FRANCE | Judith OKONKWO, IMISI 3D - NIGERIA | Andrey LUNEV, Startup Wise Guys - SWITZERLAND | Pierre CALVES, MBDA | Barbara CZMIL RUELLO, MBDA | Fabien NORMAND, ALSTOM | David GAZEAU, THALES
Dr. Simon RICHIR, Arts et Métiers ParisTech | Marie LEBLANC, Laval Virtual | Pierre-Stuart ROSTAIN, VR Days

AGNOWLEDGMENTS.

To all participants,

Thank you for coming. Thank you for your energy and contribution.
Thank you for your trust. Thank you so much for sharing your vision on the future.

Each previous vision enriches the ones that follow and evolve as they meet. We hope you are still reflecting upon our insightful discussions. Your visions help shine a light on our global XR community for a better future.
Thanks, each of you, for helping build a part of this new world in the more human possible way.

Bob COONEY, Mariia TINTUL, Stéphane BOUCHARD, Silke SCHMIDT, Thierry BENOIST, Kylie SAVAGE, Daniel DYBOSKI-BRYANT

Simon RICHIR, Marie LEBLANC, Pierre-STUART ROSTAIN

VISIONARIES THINK TANK 2022.

A 2 DAYS PROSPECTIVE WORKSHOP

With the facilitation of:

Marie LEBLANC, Simon RICHIR, Pierre-Stuart ROSTAIN

With the participation of:

Bob COONEY, Stéphane BOUCHARD, Thierry BENOIST, Daniel DYBOSKI-BRYANT, Mariia TINTUL, Silke SCHMIDT, Kylie SAVAGE

INTERESTED IN CONTRIBUTING
TO SHAPE THE VISION NEXT YEAR?

Stay tuned.