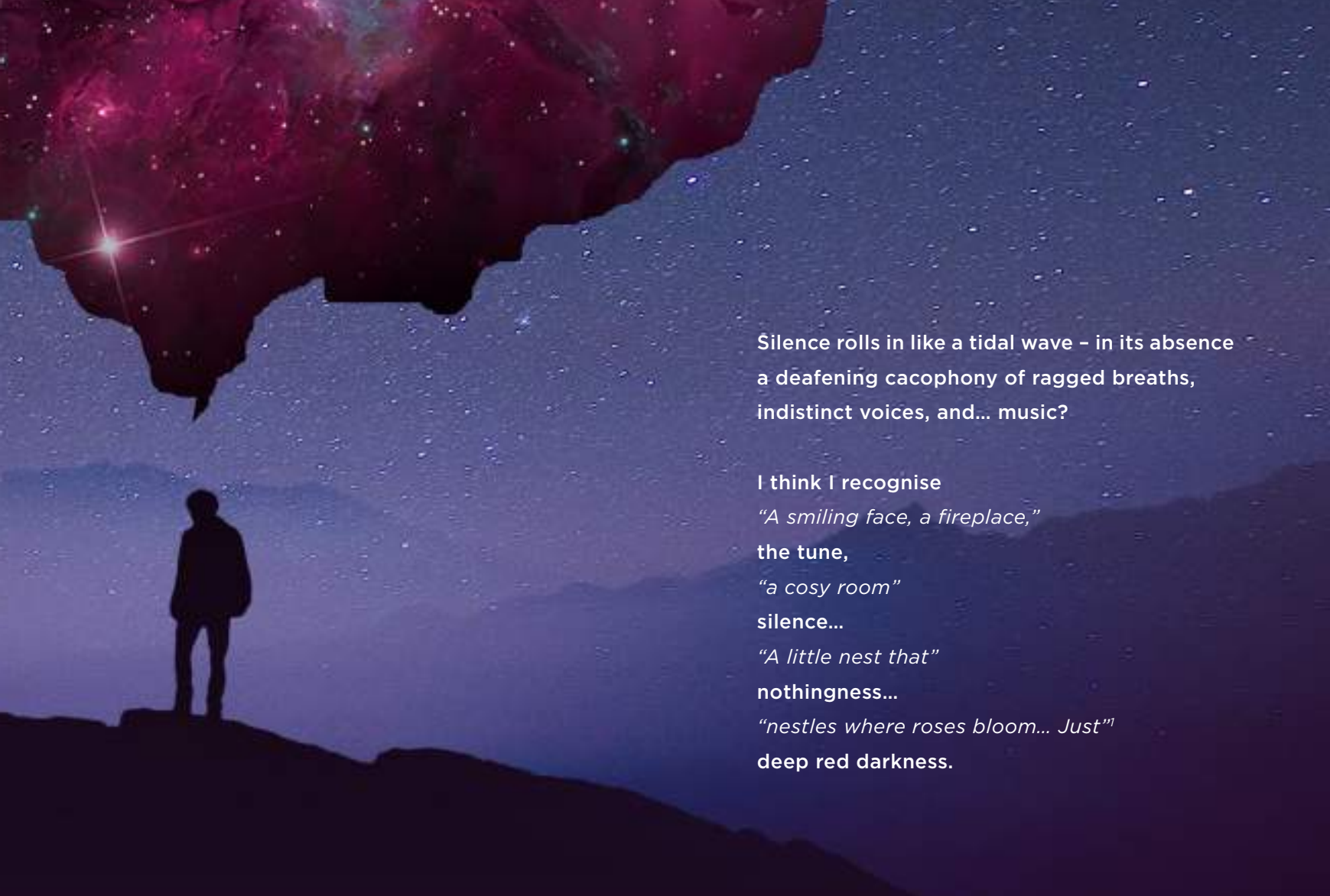


# Future of **IMMERSIVE** Experiences







Silence rolls in like a tidal wave – in its absence  
a deafening cacophony of ragged breaths,  
indistinct voices, and... music?

I think I recognise

*"A smiling face, a fireplace,"*

the tune,

*"a cosy room"*

silence...

*"A little nest that"*


nothingness...

*"nestles where roses bloom... Just"*

deep red darkness.



Dear reader,



Were you  
intrigued by,  
invested in,  
or indifferent  
to the opening?  
What was your level  
of engagement?

For the bibliophile with a propensity for suspense, this could have been a circle hook. For the bibliophobe, well – they are not here.

And with this little tease, we dive headlong – yet again, into another quandary, a rabbit hole not unlike the one Alice<sup>2</sup> finds herself in.

We invite you to join us on a foray into experiences – the immersive kind(s).

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<sup>1</sup> Victor matrix BVE-39179. My blue heaven / Gene Austin. (2023). In Discography of American Historical Recordings. [https://adp.library.ucsb.edu/index.php/matrix/detail/800013441/BVE-39179-My\\_blue\\_heaven](https://adp.library.ucsb.edu/index.php/matrix/detail/800013441/BVE-39179-My_blue_heaven).

<sup>2</sup> Carroll, L. (1927). Alice in Wonderland. S. French.

## **Immersion: a multidimensional construct**

The best practice in any investigation is arguably to begin with definitions.

The establishment of a set of agreed-upon connotations of the terms discussed in a paper aids in a foundational mutual understanding of key variables.

As evidenced in our previous reports, the subjects of our investigations seem to land in the grey area of ambiguity. After trawling through the inter-webs, we can start with a quasi-conclusion/introduction stating – there is still no standard definition of ‘immersion’.

With the advent of the internet and adjacent technological innovations, a lot of research has focused on the concept of immersion. Generally, the term is correlated with the gaming sphere; however, in more recent years, immersion has been popularly used when describing and evaluating technologies in the area of extended reality, i.e., virtual, augmented, and mixed reality.

The general consensus in literature seems to be that immersion is a multidimensional construct.





Several dimensions of immersion have been proposed by researchers: perceptual and psychological immersion;<sup>3</sup> sensory, imaginative and challenge-based immersion;<sup>4</sup> sensory, fictional and systemic immersion;<sup>5</sup> narrative and ludic immersion;<sup>6</sup> narrative and strategic/tactical immersion.<sup>7</sup>

However, there is a certain level of interoperability within the meanings assigned to these dimensions resulting in an overlap. Presence and involvement are other prominent concepts studied in this field.

In his paper, A Conceptual Model of Immersive Experience in Extended Reality, Lee summarises the following,<sup>8</sup>

| IMMERSION TERMS        | AUTHORS                   | DESCRIPTIONS  | CONNOTED CONCEPT                        |
|------------------------|---------------------------|---|---|
| Perceptual             | F Biocca & Delaney, 1995; | “the degree to which a virtual environment submerges the perceptual system of the user”                                       | Presence                                |
|                        | McMahan, 2013             | The sensation of being surrounded by a virtual environment.   |   |
| Sensory                | Ermi & Mäyrä, 2005        | The state of being surrounded by audio-visual stimuli that can “overpower the sensory information coming from the real world” |   |
| Imaginative            | Ermi & Mäyrä, 2005        | The state of being heavily involved (cognitively absorbed) in the story world and by its characters.                          | Involvement in a narrative of a content |
| Fictional              | Arsenault, 2005           |   |   |
| Narrative              | Adams & Rollings, 2007;   |   |   |
| Ludic                  | Ryan, 2003                |   |   |
|                        | Ermi & Mäyrä, 2005        |   |   |
| Challenge-based        | Arsenault, 2005           | The state of being heavily involved in a challenging task or an activity that requires mental and/or motor skills.            | Involvement in a task or an activity    |
| Systemic               | Adams & Rollings, 2007    |   |   |
| Strategic and Tactical |                           |   |   |

3 Lombard, M., & Ditton, T. (1997). At the Heart of It All: The Concept of Presence. *Journal of Computer-Mediated Communication*, 3(2). <https://doi.org/10.1111/j.1083-6101.1997.tb00072.x>

4 Ermi, L., & Mäyrä, F. (2005). Fundamental Components of the Gameplay Experience: Analysing Immersion. *Digital Games Research Conference 2005*, Canada.

[https://www.researchgate.net/publication/221217389\\_Fundamental\\_Components\\_of\\_the\\_Gameplay\\_Experience\\_Analysing\\_Immersion](https://www.researchgate.net/publication/221217389_Fundamental_Components_of_the_Gameplay_Experience_Analysing_Immersion)

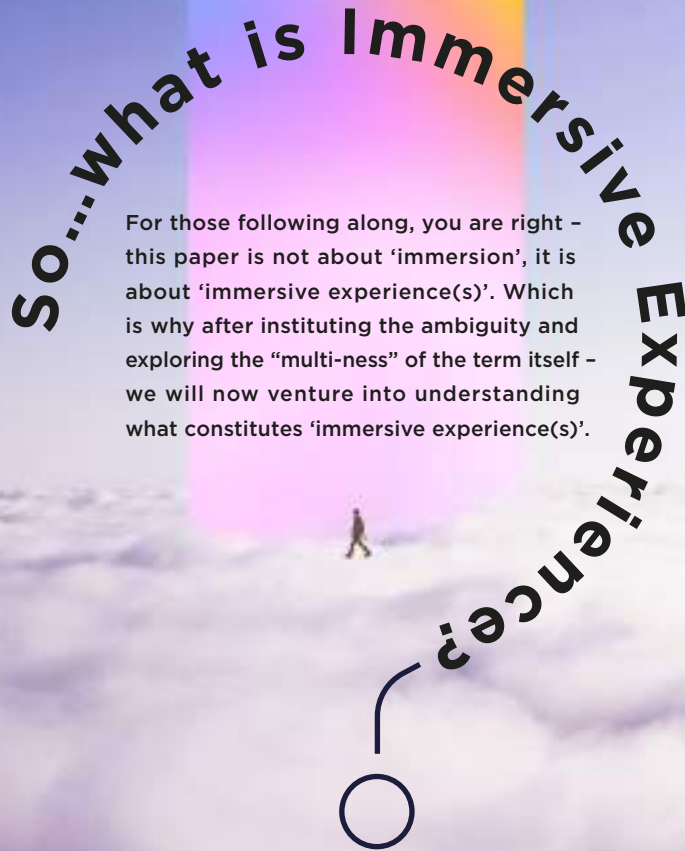
5 Arsenault, D. (2005). Dark waters: Spotlight on immersion. *Université de Montréal*. [https://www.researchgate.net/publication/241678065\\_Dark\\_waters\\_Spotlight\\_on\\_immersion](https://www.researchgate.net/publication/241678065_Dark_waters_Spotlight_on_immersion)

6 Ryan, M.L. (2002). Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media. *South Atlantic Review*, 67(1), 153. <https://doi.org/10.2307/3201597>

7 Adams, E., & Rollings, A. (2007). *Game design and development: Fundamentals of game design*. Pearse Prentice Hall.

8 Lee, H. (2020). (PDF) A Conceptual Model of Immersive Experience in Extended Reality. *ResearchGate*. [https://www.researchgate.net/publication/344545655\\_A\\_Conceptual\\_Model\\_of\\_Immersive\\_Experience\\_in\\_Extended\\_Reality\\_-\\_PsyArXiv\\_preprint](https://www.researchgate.net/publication/344545655_A_Conceptual_Model_of_Immersive_Experience_in_Extended_Reality_-_PsyArXiv_preprint)





# So...What is Immersive Experience?

For those following along, you are right - this paper is not about 'immersion', it is about 'immersive experience(s)'. Which is why after instituting the ambiguity and exploring the "multi-ness" of the term itself - we will now venture into understanding what constitutes 'immersive experience(s)'.

But first...

## A little thought and Foresight talk

Literature and evidences in cognitive psychology posit that humans possess codified knowledge based on processed information, and tacit knowledge based on unprocessed information.<sup>9,10</sup> Codified knowledge has meaning while tacit knowledge has not had any meaning ascribed. Once tacit knowledge is encoded, cognitive biases break down and it becomes easier to understand novel complex issues.

The following sections will be a collective gander into sensemaking and hopefully mapping the possible future scenarios of immersive experiences. As in our previous report, 'What if the metaverse could disprove long-held theories?', we invite you once again to not rely on your knowledge frameworks or heuristics, aka codified knowledge, but to proceed with abandon consigning your tacit knowledge and to arrive at your own informed inferences.

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<sup>9</sup> Brockmann, E. N., & Anthony, W. P. (2002). Tacit Knowledge and Strategic Decision Making. *Group & Organization Management*, 27(4), 436-455. <https://doi.org/10.1177/1059601102238356>

<sup>10</sup> Van der Heijden K. (1997). Scenarios, strategies and the strategy process. *Nijenrode Research Paper Series, Centre for Organisational Learning and Change*, 1997-01. <https://www.semanticscholar.org/paper/Scenarios%2C-Strategy%2C-and-the-Strategy-Process-Heijden/38b15f6d6c4ffe9f9c2549c8868fea5cd7f58794>



On that note,

A cautionary reminder that Foresight scenarios are neither exclusive nor conclusive. They are not predictions about the future; rather, they are simulations of various possible futures. A scenario is a 'story' illustrating visions of possible futures or aspects of possible futures.<sup>11,12</sup>

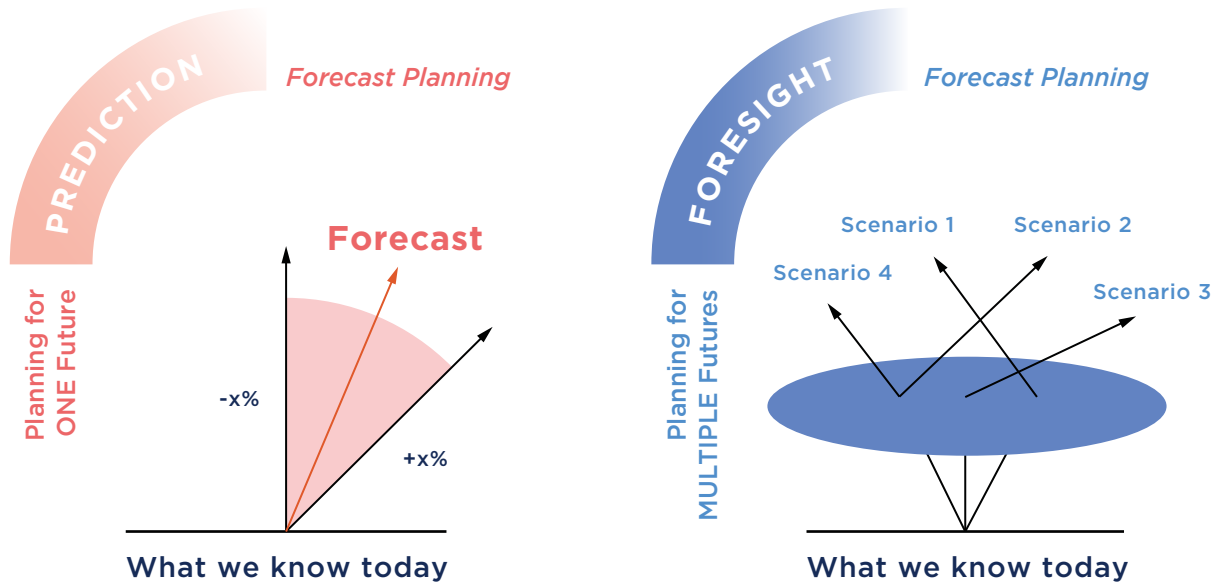


Figure 1. Prediction: Forecast planning vs. Foresight: Scenario planning<sup>13</sup>

11 Ringland, G. (2010). The role of scenarios in strategic foresight. *Technological Forecasting and Social Change*, 77(9), 1493–1498. <https://doi.org/10.1016/j.techfore.2010.06.010>

12 Berkhout, F., & Hertin, J. (2002). Foresight Futures Scenarios: Developing and Applying a Participative Strategic Planning Tool. *Greener Management International*, 37, 37–52. <https://www.jstor.org/stable/greemanainte.37.37>

13 Future Station. (2020). Future preparedness through Foresight. Future Station. <https://futurestation.ro/future-preparedness-through-foresight/>



## Back to experiences... immersive experiences

Various connotations of 'experience' can be found in literature, where the term is associated with a variety of closely related meanings. In phenomenology, the science of structure and study of experience, the ultimate source of all meaning and value is the lived experience of human beings.<sup>14</sup> In metaphysics, experience is involved in the mind-body problem<sup>15</sup> and the hard problem of consciousness,<sup>16</sup> both of which try to explain the relation between matter and experience.<sup>17</sup>

### Experience is often understood as a conscious event identified through perception or sensation.

Let us take a brief look at what other researchers have written and theorised about immersion and experience.

Professor Janet Murray at the Georgia Institute of Technology writes, **"The experience of being transported to an elaborately simulated place is pleasurable in itself, regardless of the fantasy content.**

We refer to this experience as immersion. Immersion is a metaphorical term derived from the physical experience of being submerged in water. We seek the same feeling from a psychologically immersive experience that we do from a plunge in the ocean or swimming pool: the sensation of being surrounded by a completely other reality, as different as water is from air, that takes over all of our attention, our whole perceptual apparatus."<sup>18</sup>

On the other hand, Dr. Mel Slater, Research Professor at the University of Barcelona asserts that immersion is simply **"what the technology delivers"** to provide the technology user with a sensation of being.<sup>19</sup> He equates the level of immersion to the level of the technology, i.e., the more advanced, the more immersive.<sup>20</sup> This concept has been accepted by some researchers, while criticised by others in asserting that immersion is a psychological experience resulting from a technological process.

14 John Hopkins University Press. (2012). The Johns Hopkins Guide to Literary Theory and Criticism. jhu.edu. <https://litguide.press.jhu.edu/>

15 Westphal, J. (2019). Descartes and the Discovery of the Mind-Body Problem. The MIT Press Reader. <https://thereader.mitpress.mit.edu/discovery-mind-body-problem/>

16 Dennett, D. C. (2018). Facing up to the hard question of consciousness. Philosophical Transactions of the Royal Society B: Biological Sciences, 373(1755), 20170342. <https://doi.org/10.1098/rstb.2017.0342>

17 John Hopkins University Press. (2012). The Johns Hopkins Guide to Literary Theory and Criticism. jhu.edu. <https://litguide.press.jhu.edu/>

18 Murray, J. H. (1998). Hamlet on the Holodeck: The Future of Narrative in Cyberspace. MIT: The MIT Press. <https://mitpress.mit.edu/9780262631877/hamlet-on-the-holodeck/>

19 Slater, M. (2019). A Note on Presence Terminology. ucl.ac.uk: University College London. [http://www0.cs.ucl.ac.uk/research/vr/Projects/Presencia/ConsortiumPublications/ucl\\_cs\\_papers/presence-terminology.htm](http://www0.cs.ucl.ac.uk/research/vr/Projects/Presencia/ConsortiumPublications/ucl_cs_papers/presence-terminology.htm)

20 Slater, M. (1999). Measuring Presence: A Response to the Witmer and Singer Presence Questionnaire. Presence: Teleoperators and Virtual Environments, 8(5), 560-565. <https://doi.org/10.1162/105474699566477>

It is perhaps premature to reach a preliminary verdict, but if we may, we would like to propose the following hypothesis as our working definition,



**Immersive experience is a concept that necessitates mental or/and physical involvement in a task or an activity as well as varying levels of sense of presence.**



Here, 'sense of presence' refers to "the sense of being there",<sup>21</sup> or "the user's sense of being inside a simulated environment".<sup>22</sup>

With this in mind, an exploratory research angle is realised – an attempt at understanding the latitude, longitude, and magnitude of immersive experiences.

21 Erickson-Davis, C., Luhmann, T. M., Kurina, L. M., Weisman, K., Cornman, N., Corwin, A., & Bailenson, J. (2021). The sense of presence: lessons from virtual reality. *Religion, Brain & Behavior*, 11(3), 335–351. <https://doi.org/10.1080/2153599x.2021.1953573>

22 Jaalama, K., Fagerholm, N., Julin, A., Virtanen, J.-P., Maksimainen, M., & Hyyppä, H. (2021). Sense of presence and sense of place in perceiving a 3D geovisualization for communication in urban planning – Differences introduced by prior familiarity with the place. *Landscape and Urban Planning*, 207, 103996. <https://doi.org/10.1016/j.landurbplan.2020.103996>

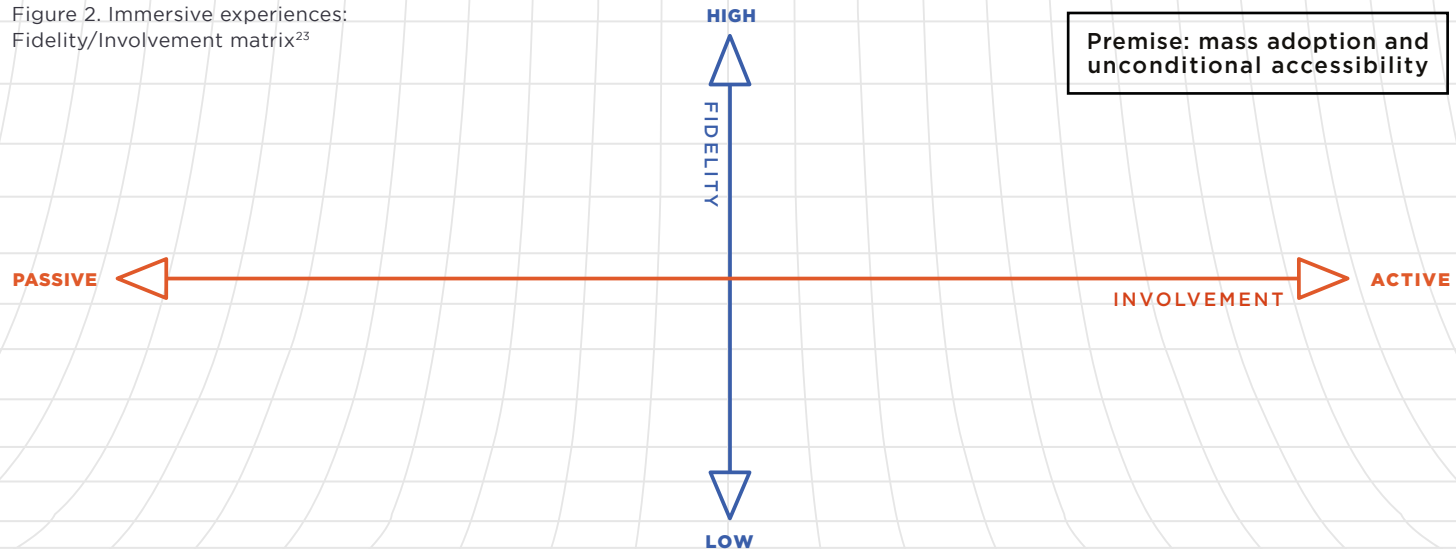


# The two premises

Nota bene, friendly reminder to suspend your beliefs, aka codified knowledge.

Two assumptions are made for this investigation: the projected futures will constitute of two “norms”, technological mass adoption and unconditional accessibility.

Figure 2. Immersive experiences:  
Fidelity/Involvement matrix<sup>23</sup>



1. Mass adoption: Different nation states and their governments have created an enabling environment for said technology to flourish or adopted the technology in their own practices at a global scale.<sup>24,25</sup>
2. Unconditional accessibility: There are no barriers to entry and participation, no terms or conditions placed on access.<sup>26,27</sup>

<sup>23</sup> Gurung, A. K. (2022). Immersive experiences: Fidelity/Involvement matrix. FutureTales LAB.

<sup>24</sup> Van Slyke, C. (2007). Perceived critical mass and the adoption of a communication technology. European Journal of Information Systems.16(3):270-283. <https://doi.org/10.1057/palgrave.ejis.3000680>

<sup>25</sup> Team Luno. (2019). What Does It Take To Achieve Mass Adoption? Medium. <https://medium.com/swlh/what-does-it-take-to-achieve-mass-adoption-3076d57549b1>

<sup>26</sup> Cambridge Dictionary. (n.d.). UNCONDITIONAL | meaning in the Cambridge English Dictionary. dictionary.cambridge.org; Cambridge University Press. <https://dictionary.cambridge.org/dictionary/english/unconditional>

<sup>27</sup> Cambridge Dictionary. (n.d.). ACCESSIBLE | meaning in the Cambridge English Dictionary. dictionary.cambridge.org; Cambridge University Press. <https://dictionary.cambridge.org/dictionary/english/accessible>

The background for our scenarios development in this investigation will be rooted in the assumption that in 2035 mass adoption of advanced technologies is a way of life coupled with no barriers to entry and participation. This preludes what the futures of immersive living, working, learning, playing, moving, and sustainability could be like.

## The two axes

### Fidelity:

---

A measure of the degree to which a simulation system represents a real-world system.<sup>28,29</sup>

- **High:** Indicates a computer-generated 360° virtuality that can be perceived as being spatially realistic.<sup>30</sup>
- **Low:** Indicates a computer-generated three-dimensional virtuality experienced through standard audio-visual equipment, such as a desktop computer with a two-dimensional monitor.<sup>31</sup>  
 \*\*Virtuality is the quality of having the attributes of something without sharing its (real or imagined) physical form.<sup>32</sup>

### Involvement:

---

In the context of experience and media consumption, the term 'involvement' indicates the fact or condition of being involved with or participating in something.<sup>33</sup>

- **Passive:** Indicates little to no action required from the consumer/user.<sup>34</sup>
- **Active:** Indicates a deliberate act of seeking out and decision-making from the consumer/user.<sup>35</sup>

28 Al-Jundi, H. A., & Tanbour, E. Y. (2022). A framework for fidelity evaluation of immersive virtual reality systems. *Virtual Reality*, 26, 1103–1122. <https://doi.org/10.1007/s10055-021-00618-y>

29 Shapley, K. S., Sheehan, D., Maloney, C., & Caranikas-Walker, F. (2010). Evaluating the Implementation Fidelity of Technology Immersion and its Relationship with Student Achievement. *The Journal of Technology, Learning and Assessment*, 9(4). <https://ejournals.bc.edu/index.php/jtla/article/view/1609>

30-31 Kaplan-Rakowski, R., & Gruber, A. (2019). Low-Immersion versus High-Immersion Virtual Reality: Definitions, Classification, and Examples with a Foreign Language Focus. *Proceedings of the Innovation in Language Learning International Conference 2019: Florence*. Pixel. [https://www.academia.edu/40581899/Low-Immersion\\_versus\\_High-Immersion\\_Virtual\\_Reality\\_Definitions\\_Classification\\_and\\_Examples\\_with\\_a\\_Foreign\\_Language\\_Focus](https://www.academia.edu/40581899/Low-Immersion_versus_High-Immersion_Virtual_Reality_Definitions_Classification_and_Examples_with_a_Foreign_Language_Focus)

32 IGI. (n.d.). What is Virtuality. IGI Global. <https://www.igi-global.com/dictionary/privacy-contingency-identity-group/31849>

33 Cambridge Dictionary. (n.d.). INVOLVEMENT | meaning in the Cambridge English Dictionary. [dictionary.cambridge.org](https://dictionary.cambridge.org/dictionary/english/involvement); Cambridge University Press. <https://dictionary.cambridge.org/dictionary/english/involvement>

34-35 Joel, M. (2013). Two Terms Marketers Need for Today's Media Landscape. *Harvard Business Review*; Harvard Business Publishing. <https://hbr.org/2013/05/two-terms-marketers-need-for-tf#:~:text=Passive%20media%20is%20any%20form>



# The STEEPV framework<sup>36</sup>

The researchers at FutureTales LAB by MQDC have spent a considerable amount of time immersed in the examination of immersive experiences and how social, technological, economic, environmental, political, and value trends might present themselves.

Trends are an amalgamation of a multitude of signals that converge into a recognisable and comprehensive pattern. The analysis of these signals allows researchers and foresight practitioners to then develop distinct variables or trends that may impact the trajectories and pathways of development.

**Table 2. 2035: Signals in STEEPV**

<sup>36</sup> ESC. (n.d.). Environmental Scan (STEEPV). [ethicalsmartcity.georgebrown.ca](https://ethicalsmartcity.georgebrown.ca/resources/tools/environmental-scan-steepv/). Retrieved September 15, 2022, from <https://ethicalsmartcity.georgebrown.ca/resources/tools/environmental-scan-steepv/>

| DIMENSIONS           | PERSISTENT  |
|----------------------|---|
| <b>SOCIAL</b>        | <ul style="list-style-type: none"><li>• Collective distrust in traditional institutions to provide support during hardship</li><li>• Blurred boundaries between work and home</li><li>• Blurred boundaries between physical and virtual world</li><li>• Constant reskilling and upskilling</li><li>• Low fertility rate</li><li>• Increase in longevity</li></ul>                                       |
| <b>TECHNOLOGICAL</b> | <ul style="list-style-type: none"><li>• Intense emphasis on mega cyber security projects</li><li>• Genetically modified crops and synthetic meat</li><li>• Automation replacing repetitive jobs</li><li>• Immersive technology for work</li><li>• AI for creativity</li><li>• Algorithmic bias</li><li>• Semiconductor manufacturing decentralisation</li><li>• Renewable energy</li></ul>              |
| <b>ECONOMICAL</b>    | <ul style="list-style-type: none"><li>• Knock on effects of global debt crisis from 2030</li><li>• Effects of semiconductor decentralisation</li><li>• “Open-source Prosumers” transform manufacturing of physical things toward greater digitization and democratization</li><li>• Alternative economies</li><li>• Saudi Vision 2030 regional and global impacts</li><li>• Frugal innovation</li></ul> |
| <b>ENVIRONMENTAL</b> | <ul style="list-style-type: none"><li>• “Intense Green Revolution” driven by public demand</li><li>• New socio-environmental standard</li><li>• Global temperature rises above 1.5°C</li><li>• Melting of Arctic ice</li><li>• Global shortage in usable water</li><li>• Water taxation</li><li>• Hyper-pollution</li></ul>   |
| <b>POLITICAL</b>     | <ul style="list-style-type: none"><li>• Global fragmentation</li><li>• Reshuffling of alliances</li><li>• Political economic blocs</li><li>• Security blocs: regional and trade-based</li><li>• Cyber barricades</li><li>• National security emphasis on “non-traditional” threats</li><li>• Pluralism vs. Totalitarianism</li><li>• Crowdsourcing approaches in drafting policies</li></ul>            |
| <b>VALUES</b>        | <ul style="list-style-type: none"><li>• Prosumerism</li><li>• Plant-based diet – alternative nutrition</li><li>• Sense of belonging (wanting to belong)</li><li>• Self-monitoring health prevention</li><li>• ‘As-a-service’ mindset</li><li>• Cost of opportunities concerns</li><li>• Frugality</li></ul>   |

| STRENGTHENING  | WEAKENING   | EMERGING  |
|--|---|---|
| <ul style="list-style-type: none"> <li>Youth boom in Africa → global population growth surpasses 8.5 billion</li> <li>Elevated status and value for soft skills</li> <li>Digital workforce / cloud workforce</li> <li>Extending retirement age</li> <li>Collaborative society</li> <li>Strong and vibrant local communities</li> </ul>   | <ul style="list-style-type: none"> <li>Segregated expertise education approach</li> <li>In-person workplace culture</li> <li>Brick and mortar workplaces</li> <li>Debate about abortions and non-hetero relationships</li> <li>“Organic” babies</li> </ul>                                  | <ul style="list-style-type: none"> <li>High standard specialized workforce</li> <li>Localized centers as the home of business</li> <li>Urgency for digital literacy</li> <li>Emphasis on intellectual honesty</li> <li>Regulations regarding human/virtual relationships and human engineering</li> </ul>       |
| <ul style="list-style-type: none"> <li>6G connections allow for self-sustaining AI</li> <li>Machine replacing mental labor tasks</li> <li>Biotechnology (conservation, rejuvenation, alternative resources)</li> <li>Seamless physical and virtual experience</li> <li>Autonomous vehicles</li> <li>Space tech</li> </ul>  | <ul style="list-style-type: none"> <li>Over reliance on and trust in AI</li> <li>Sense of privacy</li> <li>Sense of agency</li> <li>Sense of location/orientation</li> <li>Monotonous and labour-intensive jobs</li> </ul>  | <ul style="list-style-type: none"> <li>Surgical robots with advanced AI able to perform surgeries independently</li> <li>Gene-editing tech</li> <li>Rise of “Internet of senses”</li> <li>Hypersonic airlines become mainstream</li> <li>Web 4.0</li> </ul>   |
| <ul style="list-style-type: none"> <li>Increase in old-age-dependency ratio (workers to pensioners)</li> <li>India's economic growth</li> <li>Repurposing economy</li> <li>Socio-economic inequities</li> <li>Regulations and taxation models for alternative economies ecosystem</li> <li>Non-western consumer market size</li> </ul>   | <ul style="list-style-type: none"> <li>Value of, and reliance on Fiat currency</li> <li>Need for humans as line workers</li> <li>Traditional banking</li> <li>Reliance on logistics and supply chain</li> </ul>   | <ul style="list-style-type: none"> <li>Advanced additive manufacturing used to produce any objects</li> <li>Digital-based economy</li> <li>Transitioning to Industry 5.0</li> <li>Personal data economy</li> <li>The Muslim consumer market</li> <li>Orbital space junk removal business</li> </ul>             |
| <ul style="list-style-type: none"> <li>Famine and food insecurity in various parts of the world</li> <li>AI-controlled vertical agriculture</li> <li>Insects as high protein food source</li> <li>Mushroom and fungi as raw material sources</li> <li>Algae as raw material</li> <li>Desalination process for water treatment</li> <li>Diversity loss in both flora and fauna</li> </ul> | <ul style="list-style-type: none"> <li>Habitat</li> <li>Source of food for wild animals</li> <li>Quantity of arable land</li> <li>Fresh water sources</li> <li>Local and indigenous food sources</li> <li>Global nutrition levels</li> <li>Availability of organic raw materials</li> </ul> | <ul style="list-style-type: none"> <li>Monitoring/preventive approach to environment</li> <li>Artificial habitats</li> <li>Hyper-genetic modifications for crop yields</li> <li>Exponential rise in sea levels</li> <li>New zoonotic diseases</li> </ul>  |
| <ul style="list-style-type: none"> <li>Global digital leadership race</li> <li>Regional digital competition</li> <li>Need for digital governance and standardisation</li> <li>Cyber-terrorism</li> <li>Cyber-wars</li> <li>Autonomous wars (remote and robot wars)</li> <li>Surveillance</li> <li>Geo-political relations based on technological infrastructure</li> </ul>               | <ul style="list-style-type: none"> <li>Collectivism</li> <li>“Western norms” i.e., self-enhancement/actualisation, independence, free enterprise, etc.</li> <li>Trust in governments</li> <li>Trust in international relations and diplomacy</li> </ul>                                     | <ul style="list-style-type: none"> <li>New viral diseases</li> <li>Global race for space exploration</li> <li>Emphasis on terraformation of the moon and other planets</li> <li>Defence/offence systems for space</li> <li>Space mining rights</li> <li>“Ownership” conflicts over space territories</li> </ul> |
| <ul style="list-style-type: none"> <li>Freedom of choice</li> <li>Higher value assigned to curiosity, creativity and resilience</li> <li>Green value for consumption</li> <li>Global citizenship mindset</li> <li>Data-predicted future health problems</li> <li>Generation discrimination</li> <li>Reality dissonance</li> </ul>  | <ul style="list-style-type: none"> <li>Constraint of social norms</li> <li>Traditional relationships</li> <li>9 to 5 jobs</li> <li>Job for life</li> <li>‘The grind’ mentality</li> <li>Brands as social status indicators</li> </ul>   | <ul style="list-style-type: none"> <li>The standard of “No standards” (living life on own terms – no timeline for societal milestones)</li> <li>Fluidity in identity (race/gender etc.)</li> <li>Blended identity (virtual and physical)</li> <li>Hānai i.e., ‘family of choice’</li> </ul>                     |





**Guided by the STEEPV framework,  
the following trends were identified:**



### **Social (S)**

**Discontent dissonance** – evolution of relationship with digitisation amid generational disparities and new lifestyle norms



### **Environment (E)**

**Green screen** – a heightened consciousness of carbon footprint(s) and an increasingly hotter world



### **Policy (P)**

**Chaos monkey** – those in power seem to be experimenting more and more with intelligence of the artificial kind – frigid governance



### **Technology (T)**

**FOMO rules** – industry leaders are driving (or being driven) toward each and every “new innovation” to become leaders – not followers, but at what cost?



### **Economics (E)**

**Redefined money matters** – a burgeoning of alternative economies coupled with the proliferation of “everything-as-a-service”



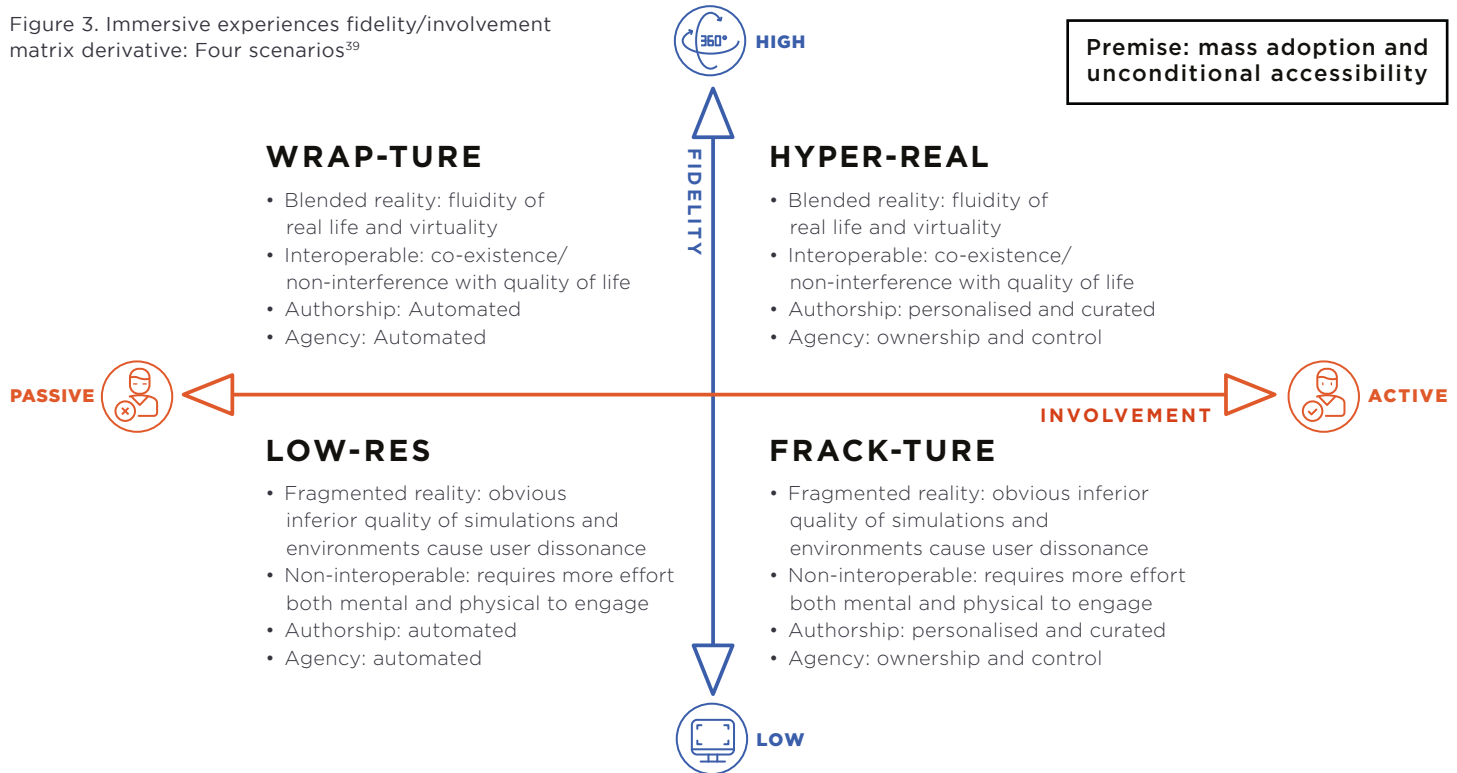
### **Values (V)**

**Egalitarianism on steroids** – equality, access, and individualisation are baseline expectations

# The four scenarios

Scenarios provide a vision of how the future could unfold taking into account various factors.<sup>37</sup> The purpose of an explorative scenario is not to predict the future, but to show how these forces or trends could influence it. Scenarios need not be mutually exclusive; different scenarios might play out simultaneously in different geographies, industries, age cohorts or socio-economic groups.<sup>38</sup>

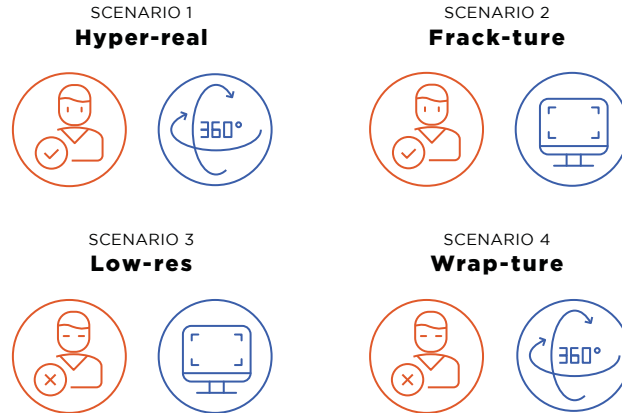
Figure 3. Immersive experiences fidelity/involvement matrix derivative: Four scenarios<sup>39</sup>



<sup>37</sup> FTL Researchers. (2022). Metaverse Building Blocks: The Four Scenarios. [www.futuretaleslab.com](http://www.futuretaleslab.com); FutureTales LAB. <https://www.futuretaleslab.com/research/metaversebuildingblock>  
<sup>38</sup> The Futures School. (2021). Scenarios: Going Beyond Data To Map Complex Futures. <https://thefutureschool.com/2021/07/scenarios-going-beyond-data-to-map-complex-futures/>  
<sup>39</sup> Gurung, A. K. (2022). Immersive experiences fidelity/involvement matrix derivative: Four scenarios. FutureTales LAB.



# Scenarios



## Why scenarios?

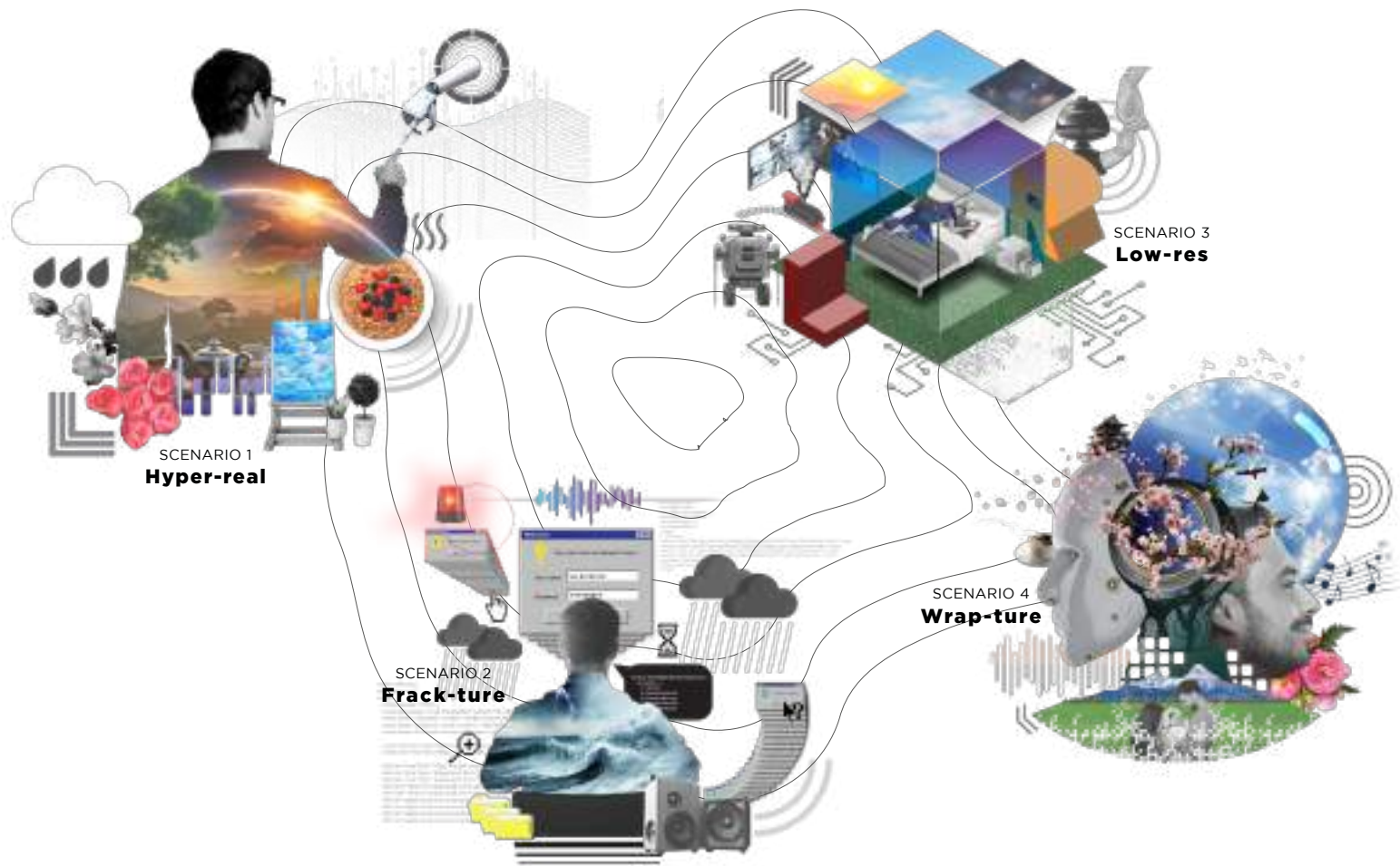
Scenarios are useful tools when the future does not seem to be a linear projection of the past, with many large-scale forces or trends making it difficult to forecast with certainty what the future will look like.<sup>40</sup> They are intended to be neither utopic nor dystopic, but to set out an objective vision of potential versions of the future.<sup>41</sup>

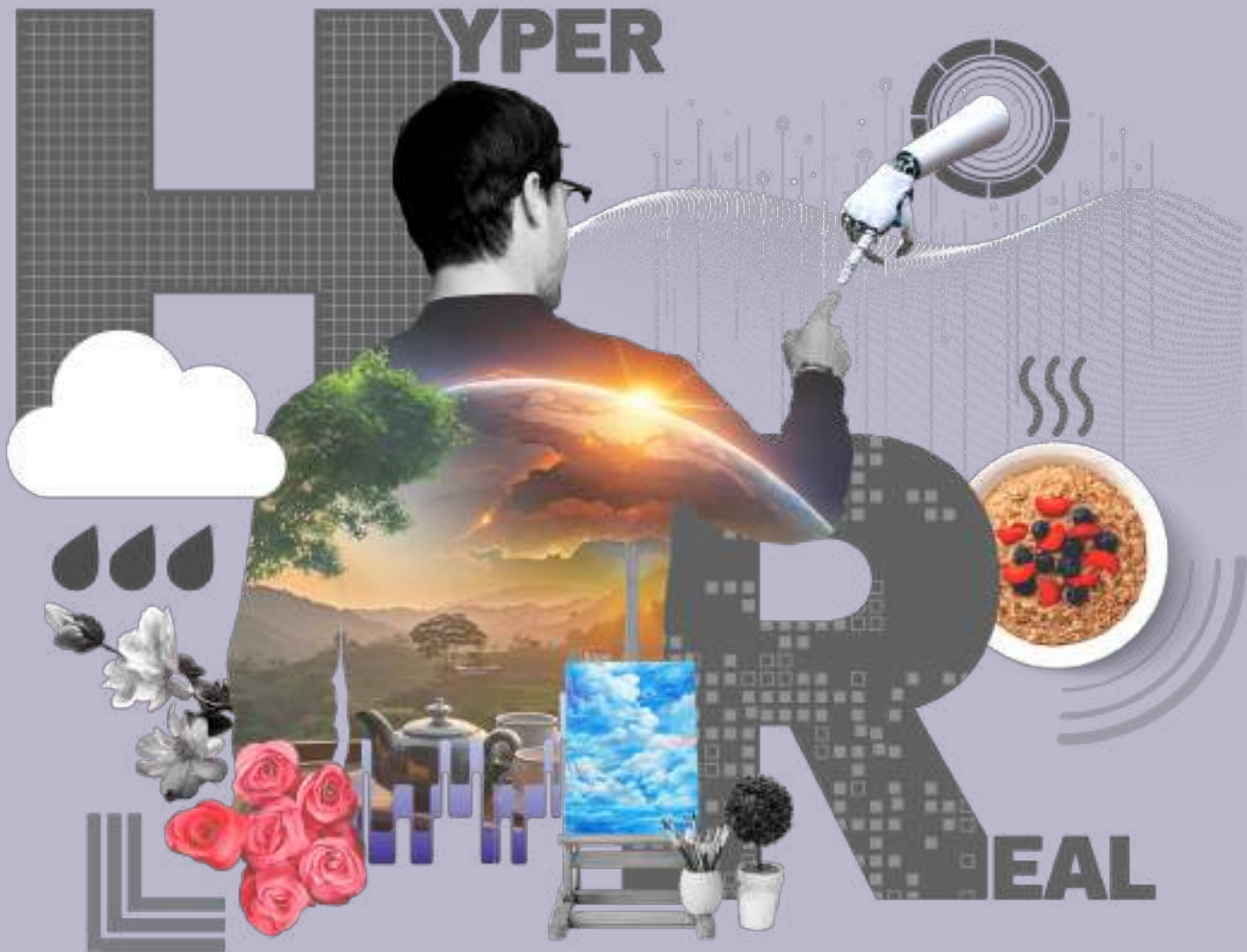
The reader is encouraged to explore each scenario, keeping in mind that codified knowledge will most likely inhibit the development and evolution of tacit knowledge, and forming your own informed inferences.

- Are these narratives unexpected?
- What are some instances within the scenarios that piqued your interest?
- Do these scenarios impact your approach to and understanding of immersive experiences?

<sup>40</sup> Kosow, H., & Gaßner, R. (2008). Methods of Future and Scenario Analysis. Overview, Assessment, and Selection Criteria. ResearchGate; German Development Institute. [https://www.researchgate.net/publication/258510126\\_Methods\\_of\\_Future\\_and\\_Scenario\\_Analysis\\_Overview\\_Assessment\\_and\\_Selection\\_Criteria](https://www.researchgate.net/publication/258510126_Methods_of_Future_and_Scenario_Analysis_Overview_Assessment_and_Selection_Criteria)

<sup>41</sup> Saffo, P. (2014). Six Rules for Effective Forecasting. Harvard Business Review. <https://hbr.org/2007/07/six-rules-for-effective-forecasting>





# 1 Hyper-real



Involvement:  
Active



Fidelity:  
High

Silence rolls in like a tidal wave – in its absence a deafening cacophony of ragged breaths, indistinct voices, and... music?

I think I recognise

*“A smiling face, a fireplace,”*

the tune,

*“a cosy room”*

silence...

*“A little nest that”*

nothingness...

*“nestles where roses bloom... Just”<sup>42</sup>*

deep red darkness.

**The gentle nudge on my hand is reassuring. I wake up to Leon’s concerned eyes observing me – their nose bumping my hand that thrashed out during that... dream.**

Today feels like a rainy day. “Hey Le, Darjeeling rain, petrichor 5ml diffused for 2 hours, and no calls unless it’s an emergency – or mom.”

The matte ash-grey walls transition into rolling tea terraces, the sound of rain cascading against the window-panes soothes my lingering anxiety. That cool warmth slowly calms my shivering, and that fragrance – of wet earth and musky spiced leaves... I can taste my childhood.

Leon’s musical voice reaches through the fog. “Good morning, Art. What about breakfast?”

I no longer forget my meals. “One of your famous overnight oats please.” My health has not been this good since after the accident – 35 years to date.

“Would you like to talk about your sleep cycle?”

“Anything I should be worried about?”

“Last night, your deep sleep was 35 minutes; you have been averaging 41 for the past 6 months. I just wanted to point out this anomaly. Of course, there is no need to worry – I have run the diagnostics. If it persists on a downward trend, we may consider adjusting your magnesium and melatonin intake.”

“Sounds like a plan Le. I’m thinking that for today, we work on the water painting from last year, ‘My Blue Heaven’ – I think it is time we finish it.”

“Yes, Art – this should be therapeutic and hopefully we find closure today.”

42 Victor matrix BVE-39179. My blue heaven / Gene Austin. (2023). In Discography of American Historical Recordings. [https://adp.library.ucsb.edu/index.php/matrix/detail/800013441/BVE-39179-My\\_blue\\_heaven](https://adp.library.ucsb.edu/index.php/matrix/detail/800013441/BVE-39179-My_blue_heaven).







# 2 Frack-ture



Involvement:  
Active



Fidelity:  
Low

Silence rolls in like a tidal wave – in its absence a deafening cacophony of ragged breaths, indistinct voices, and... music?

I think I recognise

*“A smiling face, a fireplace,”*

the tune,

*“a cosy room”<sup>43</sup>*

silence... sirens?

“Dad! No! Dad!!!” The scream that never escapes – dries in my throat as I break free from the purgatory that is my recurring nightmare – devotion I never wanted, but here we are.

**The cursor on my screen blinks periodically. I need to work on that code for rain simulation today. But first,**

“Magnus, turn on.”

“Good morning, Art.”

“Magnus, run diagnostics on my sleep cycle from last night. Turn on music: album white noise.”

“Username: Art 83756135. Sleep log. July 13<sup>th</sup>, 2035. Total sleep time: 6 hours 23 minutes. Total sleep cycles: 4.

Cycle 1, stage 1: 5 minutes 27 seconds, stage 2: 12 minutes 17 seconds, stage 3: 29 minutes 47 seconds, REM: 4 minutes 24 seconds.

Cycle 2, stage 1: 3 minutes 57 seconds, stage\_”

“Magnus, what was my REM in cycle 4?”

“Username: Art 83756135. Sleep log. July 13<sup>th</sup>, 2035. Cycle 4, REM: 4 hours 35 minutes 35 seconds.”

4 hours?! How is that even possible? That tense headache begins to snake from the back of my head through my shoulders. I wish I were in mom’s kitchen.

“Magnus, what is the normal amount of REM sleep for an adult aged 42, height 181 cms, weight 140 pounds.”

“For healthy adults, spending 20-25% of your time asleep in the REM stage is a good goal. If you get 7-8 hours of sleep, around 90 minutes of that should be REM.”

“Magnus, I’m scared.”

“It is normal to feel scared in certain situations. It is important to remember that you are not alone and that there are people who can help you. Talk to a trusted friend, family member, or mental health professional about your feelings.”

<sup>43</sup> Victor matrix BVE-39179. My blue heaven / Gene Austin. (2023). In Discography of American Historical Recordings. [https://adp.library.ucsb.edu/index.php/matrix/detail/800013441/BVE-39179-My\\_blue\\_heaven](https://adp.library.ucsb.edu/index.php/matrix/detail/800013441/BVE-39179-My_blue_heaven).



# 3 Low-res



Involvement:  
Passive



Fidelity:  
Low

Silence rolls in like a tidal wave – in its absence a deafening cacophony of ragged breaths, indistinct voices, and... music?

I think I recognise

*“A smiling face, a fireplace,”*

the tune,

*“a cosy room”*

silence...

*“A little nest that”*

nothingness...

*“nestles where roses bloom... Just”<sup>44</sup>*

deep red darkness.

“Art, honey, Art – wake up.”

My eyes fly wide open, my shirt sticks to me drenched in sweat, clammy. I gasp for breath – reaching out and finding her.

She holds me tight as I cry.

Without fail, every year – July 13<sup>th</sup>, this nightmare reappears.

And like clockwork, I will go through my ritual – of coming to terms, of letting go, of closure.

**Good thing about being an aging millennial is that memories were immortalised in bits and bytes – so even when the mind fails, the chips don’t.**

I guess it’s also a bonus that my parents were obsessed with cataloguing and backing up our lives onto the clouds.

She sits next to me, watching the screen load while holding my hand. That gentle pressure keeps me tethered to here.

“Yesterday, on the train home – the ads banner showed me an AI-augmented pet droid.” My voice croaks. “I thought about how that would have been something 7-year-old me would have wanted.”

“Are you sure – the ‘you’, right now does not want it?” she says gently rather than asks.

“I would have had Leon for longer – my little egghead boy,” I whisper. She squeezes my hand.

The screen has finally loaded. Seventh birthday,” we say in one breath. A wall of photos and videos opens, and I brace myself for the overwhelming torrent of memories and emotions, sitting on my bed – staring at a trillion pixels.

44 Victor matrix BVE-39179. My blue heaven / Gene Austin. (2023). In Discography of American Historical Recordings. [https://adp.library.ucsb.edu/index.php/matrix/detail/800013441/BVE-39179-My\\_blue\\_heaven](https://adp.library.ucsb.edu/index.php/matrix/detail/800013441/BVE-39179-My_blue_heaven).



# 4 Wrap-ture



Involvement:  
Passive



Fidelity:  
High

Silence rolls in like a tidal wave – in its absence a deafening cacophony of ragged breaths, indistinct voices, and... music?

I think I recognise

*“A smiling face, a fireplace,”*

the tune,

*“a cosy room”*

silence...

*“A little nest that”*

nothingness...

*“nestles where roses bloom... Just”*

deep red darkness.

*“Molly and me  
And baby makes three  
We’re happy in my blue heaven.”*

The music continues to play as dad sings along. He looks back at me.

*“Fly, birdie, back home.”<sup>45</sup>*

Pink petals – I recognise you. Sakura blossoms in Aomori, that December before the first pandemic hit.

*“Brilliant it blossoms  
Peer through the mist and we’ll be  
Shattered, but alive”<sup>46</sup>*

The way that flute lilts and echoes through the hills and valleys.

*“The hills are alive with the sound of music...”<sup>47</sup>*

I love that movie; Julie is the queen.

I also love that my nightmares are no longer incapacitating. This new dream sequencer has really helped with the quality of my sleep.

*“Good morning, Art – it is time to awaken.”*

*“Good morning, Flo. What pleasant dreams you curated for me. Thank you.”*

**As Art wakes up – a cup of freshly brewed coffee awaits him. Two spoons of brown sugar. Just the way he likes it. The bath water starts to fill – \*ding\* – “Your breakfast of scrambled eggs will be delivered in 40 minutes.”**

45 Victor matrix BVE-39179. My blue heaven / Gene Austin. (2023). In Discography of American Historical Recordings. [https://adp.library.ucsb.edu/index.php/matrix/detail/800013441/BVE-39179-My\\_blue\\_heaven](https://adp.library.ucsb.edu/index.php/matrix/detail/800013441/BVE-39179-My_blue_heaven).

46 (2020). Ghost of Tsushima (v.1) [Play Station]. Sony Interactive Entertainment.

47 Rodgers. R. (1959). The sound of music [Song recorded by Julie Andrews]. On The Sound of Music. 20th Century Fox.



# Cautionary cave tale

And with that, our brief journey comes to an end. We hope that this investigation has intrigued and enticed you to map scenarios of immersive experiences with your own informed understanding and on your own derived terms.

However, like the legendary Frank Herbert wrote, “Hope clouds observation.”<sup>48</sup> So, we would like to leave you with a cautionary cave tale from yore.

Plato’s allegory of the cave is a tale that illustrates the idea that the reality we perceive is not the true reality.

It describes a group of people who have been imprisoned in a cave since birth, chained so that they can only look straight ahead at the wall in front of them. Behind them is a fire, and between the fire and the prisoners is a raised walkway where people carry objects that cast shadows on the wall in front of the prisoners. The prisoners take these shadows to be reality, but they are only a pale reflection of the true reality that exists outside of the cave.

The allegory suggests that true understanding comes from breaking free of our preconceptions and prejudices and looking at the world with a clear and open mind.<sup>49</sup>



<sup>48</sup> Herbert, F. (1965). *Dune*. Chilton Books.

<sup>49</sup> Biffle, C., & Plato. (2001). *A guided tour of five works by Plato: with complete translations of Euthyphro, Apology, Crito, Phaedo (death scene), and "Allegory of the Cave."* Mayfield Pub. Co



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