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Metaverse, implemented. A philosophical perspective on agenda-setting ethical tools for the development of immersive technologies

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The specific application of immersive technologies known as metaverse emerges as a potential substitute for current social networks. Given the social and anthropological effects we have been able to observe as a consequence of the mass adoption of social networks, the following work aims to provide the initial sketch of a framework for structuring an approach to the design and deployment of the metaverse that safeguards the values of transparency, justice and fairness, avoiding simplistic but potentially distorting drifts already suggested by major actors. The reflection works on a definition of the metaverse as an object endowed by both the features of a space and the ones of a tool, exploring a shift of perspective that, drawing on the theory of affordances, sees an important role of ethical thinking not just in the design of the metaverse, but in its deployment and implementation too.

KEYWORDS

VR, XR, metaverse, social networks, digital ethics, philosophy of science, epistemology, implementation ethics

1 Introduction and preliminary definitions

The metaverse is not just a technology, but a concept, a theory, even a utopia: a tool for interaction that enables a communication broader and deeper than the previous, because it can carry more elements than just our online profile and words, thus preserving at least in part the corporeality of the expression of ourselves without being restricted to a space defined by the laws of physics and biology, and to a precise and finite time, to 'make memories that are impossible to create in real life'[1].

This requires a definition of the metaverse, from which we will start and evolve, that takes into account the blurring of the distinction between reality and virtuality, as theorised by The Onlife Manifesto (Floridi, 2015).

I will use 'metaverse' following the review by (Ritterbusch and Teichmann, 2023) as a term that includes the concept of immersivity, i.e., the simulation of the human perceptual experience through multisensory and tracking technologies, in particular, VR and XR (extended reality); the use of avatars, which 'stand for' the user as a more or less realistic

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1   (Rosa, 2023)

expression of identity. Together with immersive technologies, this determines the possibility of a presence as described in (Slater, 2003); and interactivity, the capacity for action and reaction to other users and the virtual environment[2].

From this preliminary definition, I'm highlighting two characteristics fundamental for its ethics.

First, we experience the metaverse as users through exploration: spatiality[3] is therefore a fundamental feature as in (Zhao et al., 2023). I'm not referring to spatial computing as an enabling technology but to the phenomenology of the user experience, characterised by a here and there (Husserl, 1992), which have to be 'traversed' and 'reached' and are not constantly present to perception, a phenomenological concept studied also in (Bente et al., 2023). If I enter a virtual room, I see it from my point of view, if I look at a digital twin I only see the side of it in front of me, and to change my point of view I will have to move to some extent. I do not have an 'infinite scroll' of encounters and interactions, but a spatially limited one.

Secondly, being technological objects, metaverse environments are designed with a specific purpose, broad and variable but never absent. In this sense, the metaverse is a specific kind of artifact, a tool. We are looking at a space designed according not only to what designers want the world to look like, but also to what they want to achieve with it.

I'll explore this duality hypothesising that the metaverse as an ethical object can be conceptualised as a space-tool. I prefer to use 'space' and not spatial, because I am not simply referring to a feature of the tool, but fully to the nature of the metaverse.

2 A non-neutral space-tool

I hypothesise that the metaverse, as a technological tool, constitutes an artifact endowed with what, according to the phenomenological and psychological theories such as (Gibson, 1986; Gaver, 1991), is defined as affordance, i.e., that it has the capacity to 'invite' to a specific action, to a specific use: affordances are properties of the tool or environment that can be perceived as relevant for action. In (Verbeek, 2000), the affordance theory is applied to the human-computer interaction. (Zebrowitz, 2002), applies it to immersive technology.

A user does not enter the metaverse to do 'whatever action they want', but with a set of actions more or less directed to carry out. For example, a path designed to expose the user to the vision of visual materials, where the user's range of movement is studied to understand which ones attract the most attention. In short, the metaverse is an artifact that 'projects around itself a script that can take possession of each onlooker and force them to play a role in the story by making only changes' (Gibson, 1986).

In addition to being a tool for creating experimental environments and studying configurations, interactions and social affordances, the metaverse itself falls perfectly into the category of an affordance-endowed artifact, as an object designed from the ground up for general functions such as hosting of movement, fruition of contents and interactions with other users, all of this happening according to a defined user experience, and specific functions, depending on the use that has been designed for it (e.g., a videogame, a marketing campaign, a place for interactive training, relaxation, *etc.*). In other words, the metaverse is an artifact that encompasses intentions[4]: the ones implemented by its designers, the ones acted upon by its users, and the ones set by those who decided on its use and deployment. It is not a place that simply hosts actions but it also serves to *make things happen*, and is designed and modified according to these functions. This is the reason for coining the concept of space-tool.

If the metaverse is a space-tool, then it has certain features that make it ethically non-neutral[5] as a tool endowed with affordances, but also features that are specific to spaces that are inhabited or ready to be inhabited. These two classes of features flow into each other. On the one hand, it is a place that can influence the behaviour of those who inhabit it by presenting them with certain functions, which are chosen regardless of the end user (e.g., for the business reasons). At the same time, though, the metaverse is an infinitely manipulable space, that hosts and records the modifications brought about by those who enter it, those who design it, those who deploy it, thus recreating new conditions. It is a customisable software that is also inhabitable, to the point that it could be configured as a new habitat[6].

Think of the complete customisability of avatars, environments, and modes of movement, the possibility of evading biology, the

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2 The distinction between immersion and presence in (Slater, 2003) could be translated, in terms of phenomenological philosophy, into the difference between a parte objecti and a parte subiecti.

3 It is no coincidence that now that the term metaverse has partially left the sphere of hype of the general public, attention is turning to the term 'spatial computing'. According to Politecnico di Milano's Observatory on Extended Reality and Metaverse, spatial computing is the key technology for the development of the Metaverse. "[. . .] the Observatory's research shows how Extended Reality technologies and virtual worlds are already a rapidly evolving reality, thanks also to the enhancement of related technologies such as Spatial Computing [. . .] The development paths of Spatial Computing and the Metaverse are, therefore, beginning to intertwine." [Rossi and Conti (2024), August 6].

4 I refer here to the dual aspect theory, for example, as described in Artiga, M. (2023).

5 If virtual life were ethically neutral, the phenomenon we have come to know on social networks, in which people feel more 'free' to engage in offensive behaviour and modalities of communication, than they would in the real world (the phenomenon of 'keyboard warriors') should not occur: using the tool of online communication should not alter our behaviour. On the other hand, we know that such incidents do exist, not only on social media (Vogels, 2021) but in the metaverse too, and this suggests that digital media as they are designed have an impact not only, in this case, on our individual identities in a descriptive sense but also on our 'ethical habits', just as the technologies that have become commonly used throughout history do. An accurate reflection on technology and neutrality can be found in (Heyndels, 2023).

6 (Notte, 2002)

integrations with AI that determine almost endless types of interaction, often created extemporaneously, and the collection of behavioural data that can be gathered there, for the most diverse purposes.

The objection that the metaverse is an 'artificial' environment and therefore 'not real life' is not tenable[7]. As a matter of fact[8], digital life, although it has its own characteristics and dynamics, although not 'physical' in the most concrete sense of our entire biological presence, is *real life*, from the creation of relationships and networks to the fruition of information, to its consequences on the political life of countries. I will here take it for granted that even in a virtual environment we may or may not be aligned with personal and social ethical values.[9]

The next point, therefore, is to ask what responsibilities are involved in creating such a tool/designing such a space, and in actively placing it in the world of (everyday) life.

How do we deal with this object?

3 From regulation to design

We are thus faced with the challenge of building an ethical framework that resembles, in a metaphorical sense, an urbanology more than a linear regulation: it requires a structure that must *embody* the values, not just *be subject* to them, and it must do so at the very moment it is built, that is, at the design stage.

Therefore, the first of ethical innovator's concerns is how the metaverse is designed. At the moment, the metaverse is in the process[10] of being populated, in the way an ecosystem is populated: dynamically and in continuous change, due to the influence of those who inhabit/use it. Compared to what we have learnt from social media, there is a feeling that we are still in time to draw some of the rules of the game before the metaverse fully enters the world and society, influencing the lives of individuals and countries.

As argued by (Suleyman and Bhaskar, 2023), we need technical measures to maintain control, transparency and containment of the technologies while we test their consequences on everyday life. This is why we need ethics to accompany every part of the technological evolution, not only regulations and policies *a posteriori* and external to the tool itself.

As Schiaffonati argued[11], ethics is all too often only taken into account at the end of an innovation process, when the technology has proven to work as a product to be sold, when it has tested to have

no technical flaws, when it has ensured that it can be adopted, used, exploited and thus that it can bring economic benefits. We do not need an ethics of 'running for cover', but an approach intrinsic to the development of the technology itself. The framework I'm referring to is that of *ethics by design*, the process of embedding values and principles in the design and development of a tool. The space-tool must contain, just like the design of a city made for its inhabitants, streets, services and facilities in which values are 'affordable'; where it is not necessary to make additional efforts to 'live well'.

For instance: where we identify a connection between the lack of corporeality of social media presence and the rise of 'keyboard warrior' attitudes, that is precisely the place where a design that enhances an individual presence as richly as possible could go in the direction of stimulating behaviour more akin to what we would have in person, and not behind the veil of pseudo-anonymity and detachment caused by a 2 days approach, based on the isolated nature of words and almost entirely devoid of non-verbal languages.

Or an application engineered to gather and distribute personal data of its users autonomously, devoid of informed consent, breaches privacy in itself. Suppose we incorporate privacy as a design feature, for example, through explicit consent collection. In that case, we are ensuring that, at least as far as the tool is designed, it does not 'invite' the breach of privacy during its use.

4 Sketching the agenda for an ethics of implementation

While ethics by design framework is important to ensure that what we are putting into the world works according to our values[12], it is also clear that it is not enough, since many challenges can come from *how the tool is used*, and its consequences in terms of influences on everyday life. In short, there are uses and use contexts where values are not manifested or attained, not because of the tool itself but because of the circumstances of its deployment into the environment, workplace, training, healthcare and virtually any other application field[13].

(Peña-Acuña and Rubio-Alcalá, 2024) talk about 'integrating advanced immersive technologies' in the specific context of education. I use 'implement' in a similar meaning to 'integrate' in their sense. Moreover, where they speak of a holistic approach to 'legal frameworks, ethical codes, and educational programmes centred on core values' I would like to return to the concept of affordance to disentangle some access points of an ethical approach.

For instance, legal frameworks are part of 'a posteriori' policies, and if not *a posteriori* undoubtedly external, as they are enforced by a regulatory authority. On the other hand, attempts such as the code of

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7   (Chalmers, 2017).

8   Judging from what we have seen to be the effects of the use of social media in the recent history, but aso from many studies on embodiment, presence and their psychological and social effects. For example, (Slater and Sanchez-Vives, 2022, Kilteni et al., 2012).

9   Even if artificial, the metaverse as the possible next mass medium is entering the life of everyday, and this itself creates risks that need to be taken into account.

10   Although the hype is subsiding, companies and investors still look at the metaverse as a tool with great potentialities, as in (Kadio-Morokro and Holmes, 2024).

11   (Bellini and Della Mura, 2023)

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12   As already mentioned I will not discuss here what these values are or should be. For some examples, also from the perspective of the companies most involved in technological development, see, e.g., (Flahaux et al., 2023).

13   In the specific case of metaverse, we find ourselves in an advantaged position, since we are working exactly when first use cases and applications are appearing, but larger adoption is still in the future See Richardson et al. (2024).

ethics proposed by Markkula Center for Applied Ethics (Heider, 2022) refer to user actions within the metaverse, thus already *a posteriori* of a deployment process of the tool.

Right of access, transparency and fairness of use depend not only on the nature of the technology, its design and its goals, but also on the ways and circumstances in which it is 'translated' into human life and goals, and on how humans, the users, are enabled to enter, to make use of this space-tool. Faced with emerging technologies, (Benanti and Maffettone, 2024) goes so far as to say that it could be necessary to invent a theoretical tool different from ethics that could assess the consequences of the digitisation of the world in a new way.

I believe that it is not necessarily ethics that needs to be renewed, but that an additional point of view should be considered. In addition to studies such as (Spence 2008) that start from principles in order to reconstruct an ethics of the metaverse systematically, I think it may also be useful to start from a specific context, the entry point to the everyday life of technology, albeit less systematically.

This is why I'm introducing an additional concept collateral to that of ethics by design: ethics in *implementation*. Implementation is 'the process of taking on a new software application and incorporating it into existing business workflows'[14].

Having an ethical approach to implementation allows us to address, for example, what in (Munn and Weijers, 2023) are 'the risks involved in their development as commercial enterprises, locking users into particular infrastructures and placing power [...] in the hands of a corporate entity that has goals and motivations independent of those of the users'. But above all, it enables us to look at technology not only as an ethical object on its own, but as a dynamic component in relation with the world: with the end user, but also the developer, the designer, the content creator, with the 'business' (the company that produces it and the company that adopts it). Which are the basis of regulatory roadmap proposals such as (Rosenberg, 2022).

If we have an artifact that 'invites' a certain use and behaviour, and the subject who will make use of it, *the very relationship between the two is determined by the implementation of the technology* itself. That is, the implementation, occurring when we put it in the hands of the users, *activates* the latent relationship between subject and object (tool)[15]. In turn, however, the implementation of the metaverse is a technological act itself, which responds to the procedures and characteristics of the technology: there is a specific affordance that invites the implementer to act in a certain way. Moreover, in implementing a new tool inside a pre-existent structure, it is possible that we need the structure to change, to accommodate the implementation itself, and while the technology could request this modification, how this modification occurs depends on the implementation strategy.

For example, accessibility is a value we want to preserve. Adopting a metaverse meeting solution in a company's project management routine can affect the routine itself and the performance of the users. Are we designing the implementation process to preserve the value of equal access, to accommodate diverse predispositions of the users, such as various impairments or simply lack of experience in moving through a virtual environment? Are we ensuring that everyone can contribute equally during the meeting or are we accepting an epistemic injustice because not everyone has been enabled to experience the virtual meeting at its full? An ethical approach to implementation will incorporate this issue in the process of deployment, not leaving the accessibility of the tool and its advantages only to the tool's design itself or to the single user's initiative[16].

Going back to the affordance of the metaverse as a space-tool, we can observe multiple 'invitations': one that guides us to use the tool, one that guides us in exploring the possibilities offered, one that dictates how it interacts, for example, with the physical circumstances needed by the user to enjoy the experience[17]. It can also mean incorporating the possibilities of the immersive reality into the existent reality while entering a space we've never been to, using a tool we never used before, that nevertheless preserves some resemblances (thus affordances) with other tools and spaces: the physical world and social media. Not just the possibilities: the consequences. What happens when we add a new layer of reality through the implementation of the metaverse? To make this process an ethical one, it is necessary to design it so that it responds *not just to the characteristics of the technology itself, but also to the characteristics of the user, the circumstances of use and the values we wish to preserve*.

That means that we are called to compare the affordances of this space-tool with the ones coming from other tools and spaces: is the metaverse inviting the same use or action? Or slightly or widely

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14 *What is software implementation in business?* [Walkme (2023), October 17]. https://www.walkme.com/glossary/software-implementation/Let me note that 'innovation' itself comes from the latin in-nova, a world that contains a strog reference to the fact that we are literally putting something new into the world: there's no way we can act like innovation processes are happening in an isolated lab. Think about the design process: there is always a testing phase, and when we put something new in the world we are testing on humanity - that's because technological innovation can inhabitate the core of our everyday life, it is not something that stays on the superficial layers of the world's skin.

15 An exploration of this interaction-based philosophy of technology can be found in Latour, B. (1999b): artifacts, too, can be an active part of the relationship.

16 Another example could be implementation of VR medical training: a great tool that allows anyone in any part of the world to access the training, in theory. In practice, however, it is not enough that the tool allows it: the conditions in which the metaverse can be correctly used for this purpose must be created and protected. For example, the implementation will need to secure a broadband network of sufficient power for the real-time experience and rendering. A further question to reflect on is how and in which cases to define the "correct use" of a tool, a question that straddles the design of the object itself and the resulting affordance, and the construction of the implementation process.

17 For instance, think about cybersickness.

different ones? Do we want that difference, what consequences will it have and how can we manage them? The first step of every implementation is going back to pre-existing processes, translating them in a way that can bridge the previous and the new technologies.

So, while ethics of design looks at how the metaverse works, and the policy looks at the external rules needed to preserve an acceptable[18] level of safety, the ethical implementation will ask us: which language are you using to 'write the instructions'? What effort are you making provide the common ground of terminology and competence to the users? Are you aware of the circumstances in which the metaverse is being developed?

For example, the onboarding of a tool is an implementation problem: the difficult access to the metaverse has already been recognised as a counterargument to the metaverse itself. No matter how well (and ethically) the immersive environment is designed, if implemented in a process where users are not trained to use VR headsets, or move their avatars, it can generate inequality of fruition not only of the tool itself but also of the content of the immersive experience. Imagine a VR meeting where some participants lose sight of the area of the meeting, hence losing part of the information shared, because of spatial audio or other sharing settings.

Another implementation issue concerns the lack of affordability and accessibility of VR headsets and other accessories[19] that can affect user participation and experience generating inequality whenever what is conveyed in the immersive experience has value beyond the experience itself (e.g., training). Even when a metaverse is perfectly designed, it ought to be carefully decided under which conditions to activate its functions and in which specific contexts it is appropriate to use this tool or not, thus designing and rolling out the implementation process in an ethical and just way. The same must be said of the choice of processes where metaverse could be implemented.

Furthermore, an implementation should *improve* a previous process: the ethical innovator will need to focus on the pre-existing needs and activities that can be improved thanks to the metaverse and start out implementation from there. It is necessary to a*bandon the progress for progress' sake mindset* and thus free the process from itself, making it fully a part of our (virtual, digital, physical, hybrid) world: it may become evident that not all processes need to be replaced, and that implementation should therefore be avoided at some points.

I suggest that the ethics of the metaverse requires an analysis that can take implementation into account, and thus consider its ethical threshold in terms of its acceptability or preferability, to the extreme of transparently considering the option of not implementing the metaverse at all in those contexts in which not the use *per se* but the insertion of the space tool in a specific context does not meet the minimum thresholds of respect for reference values.

Only if we have the courage to ask ourselves *how much metaverse we really need*, and to answer the question even negatively, will we be able to make good use of it.

5 Conclusion

Only by taking into account both concepts, ethics in the design process and ethics in the implementation process, can we avoid a counterproductive 'watchdog ethics' that risks arriving late, not grasping and thus not acting on critical issues as they arise, if not anticipating them. The risk here is also that an 'outsider ethics' can ultimately act as an antagonist to the process of the technological innovation itself, which must instead be accompanied and guided not only by the curiosity of the explorer and the business logic of the trader but also by the values of the human being who inhabits, shapes and allows himself to evolve from the new world they have created.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

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Publisher's note

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18 The threshold of "acceptable" depends of course by the values taken into consideration.

19 (Pośpiech, 2023)

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