

# The extended patient

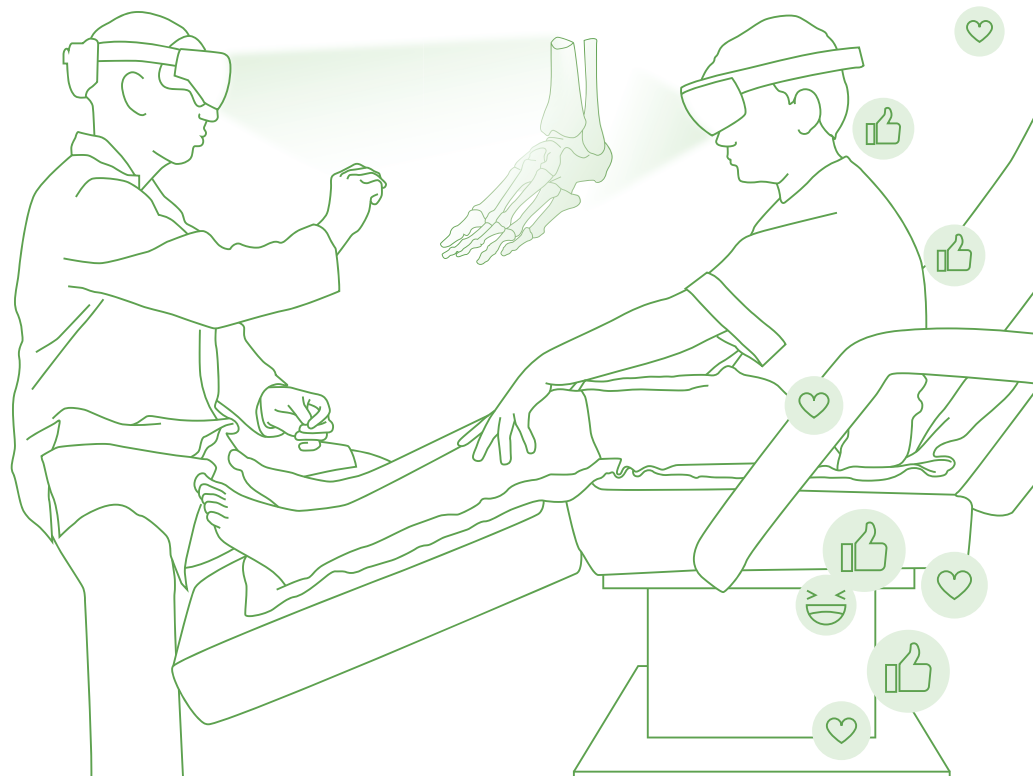
What the vision of the metaverse means for healthcare

Interview with **Jonathan Harth**  
**Marc Holitscher**

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*The metaverse is intended to connect the digital platforms of the present day into a common space. This could benefit healthcare, taking in everything from consultations to complex surgeries. But there's a long way to go until the technology, the political framework and society are ready and on the same page. Marc Holitscher, National Technology Officer (NTO) of Microsoft Switzerland, and sociologist Jonathan Harth discuss what it will take for the next internet generation to promote joint action and solidarity.*

## **Towards the end of 2021, Facebook CEO Mark Zuckerberg heralded the arrival of the metaverse, sparking a great debate. What do we mean when we talk about the metaverse?**

*Harth:* Researchers generally define terms for things that actually exist, so it's hard to give a definition for the metaverse as it hasn't been invented yet. In my opinion, the debate focuses on how the internet should and will develop in the future. The discussion also involves the term "Web 3.0"<sup>1</sup>, which is closely linked to the metaverse. Put simply, you could say that the metaverse promises that we will be able to enter digital applications with our own body in virtual form. For example, banking apps could use a VR headset so that you can talk to a customer advisor as if you were really sitting opposite them. In virtual branches, you would then be able to add certain digital assets, for example a diamond sword from the game Minecraft, to your credit. Then you could go to the virtual Nike store to buy new clothes for your virtual avatar, for instance.

*Holitscher:* In making this statement, Zuckerberg brought increased attention to an existing concept. As with many technological visions, science fiction literature plays a big role when it comes to the metaverse. In 1992, Neal Stephenson's novel *Snow Crash* developed a vision that is to be turned into reality today with the metaverse. For me, however, it's still a conceptual experiment rather than a tangible image that we're working towards. The blurred lines also stem from the fact that different stakeholders with different interests want to shape the debate. I see the metaverse as the sum of all ways in which human experience can be enriched and expanded by digital technologies.

## **There are already online applications that give themselves the label "metaverse". What are these platforms?**

*Harth:* For at least 15 years, it has been clear that computer games are the defining medium of the 21st century. As the novel was to the 19th century and films to the 20th century, our age is defined by computer games. Many very new virtual spaces are being built for this today. This also creates social spaces for interaction. The crucial point at the moment is that these spaces are not connected to one another. The metaverse promises to link this multitude of spaces in a compatible way.

*Holitscher:* The virtual universes, some of which already exist today, must become interoperable to enable an end-to-end experience. Other important variants and modules of the metaverse include "digital twins", which are virtual models designed to reflect a physical object such as a house or another ecosystem as accurately as possible. Here, you can perform simulations in the digital space that can subsequently be applied to the analogue world. The same applies to the human body for medical treatment.

1: Web 3.0 describes concepts for the further development of the world wide web through decentralised structures. It is seen as a response to the fact that much of the data and content in today's Web 2.0 is centralised within a few large companies

**If the metaverse unites isolated virtual spaces into a single world of experience, what impact would that have on the formation of communities, and what role would commercial interests play here?**

*Harth:* The question will then be whether this multiplicity of new social spaces will continue to fuel social fragmentation or segmentation, or whether the media world of the metaverse will help people to come together more effectively. I'm pretty sceptical in this regard, because any kind of media usage always involves both separation and connection. It can have big advantages for individual niches and communities, because it is easier for them to get together. However, the ties between communities could become (even) looser. Commercially, of course, this would be easy to exploit by directly targeting and serving highly specialised communities.

*Holitscher:* It's all about network effects. Generally speaking, the added value of a network increases with every additional node. In other words, if I'm the only person who has a telephone, it isn't of much value. But if four of my friends also have phones, then the added value for me is exponentially greater. An end-to-end metaverse supports the creation of these fundamental effects, from which commercial interests also benefit, because customers will only join a network – or a community – when they see how they will benefit. In this respect, the interests of consumers and providers could be the same, albeit for different reasons. The key question then is who has sovereignty over the identity of the network participants. Is it the users themselves, the company, the community or a government agency?

**What role does the metaverse play in the development of healthcare?**

*Harth:* Much is already possible today, even though we are talking more about VR applications than the metaverse. One primary area of application is phobias, where they are employed in behavioural therapy approaches. Telemedicine is also used for medical consultations. And, of course, mixed-reality applications are also up and running to support surgeons. Healthcare plays a major role in society's acceptance of the metaverse. Upcoming innovations would be more widely accepted by society as a whole if they were focused more on health topics rather than coming from the world of gaming.

*Holitscher:* In cooperation with Microsoft, Balgrist University Hospital has successfully completed the first holographically navigated spine surgery<sup>2</sup>. Until now, applications like these have purely been based on mixed reality and they have gone no further than that. Now they could be seen as a partial aspect of a possible metaverse. What else is needed? A huge amount of work across all levels. Certainly the entire technological level. If you're an optimist when it comes to technology, we can assume that these developments will happen. In my opinion, the bigger challenge for the healthcare system is the data. A wide variety of data spaces and data sets have to be combined and merged in different ways to access and visualise an overall picture of a patient. These are not technical issues – they are key social and political questions. They demand a certain level of technical understanding but they won't fail due to a lack of technology. Data protection, for example, will be a central issue.

2: <https://news.microsoft.com/de-ch/2020/12/11/hololens-im-operationssaal/>

**But if we're talking about establishing an all-round experience, then some technology is still missing, isn't it? I can see and hear with a virtual reality headset. But we have many more senses that need to be activated.**

*Harth:* Let me turn that question round: do we really need to be able to smell the doctor's practice during a virtual consultation? Do we need all our senses to create a real experience? The visual aspect is very strong and if it is combined with a physical avatar in the virtual space, i.e. when I can see my arms and hands and they react appropriately, then this has a very big impact. Even without being able to feel a virtual wind blowing in my hair.

*Holitscher:* If we decide that an all-round experience involving all of our senses is the key criterion for the creation of the metaverse, then we're nowhere near reaching our goal. But is that a bad thing? Haven't we already achieved great things today? If we're able to give the impression in virtual meetings that we're actually all sitting together in a meeting room, then that's an important component of the metaverse. And in terms of our expectations, think back to the initial stages of the internet in the 1990s when we got very excited about just a few pixels. My subjective experience then wasn't much different than when I move around in a photorealistic virtual space today.

**Can we get an idea today of how VR or AR applications can be used for healthcare in the metaverse of the future, assuming that we have access to all the relevant data?**

*Harth:* The big question is how body-related data and images that are important for healthcare can be transferred and integrated into a metaverse using XR technologies. Of course, it's easy if you only want to talk to a doctor. But a complete medical history with palpation is not yet an option as things stand today. Therefore, it's very hard to say what the future holds. I believe that developments like these depend primarily on acceptance by society and the health sector as a whole. In Europe, where we have a more sceptical approach to technology, that could prove difficult. In other parts of the world, such as South Korea, China or Japan, technological advances in this area may be implemented faster and with less controversy.

*Holitscher:* I foresee great opportunities for all scenarios in which overcoming distance plays an important role, such as bringing experts in a specific field together or creating the most immersive experience possible for doctors and their patients. As the example of Balgrist hospital shows, this can even include surgery. Or for therapies and consultations where the subjective feeling of closeness is important. Education and training is also heading in a similar direction. We will think nothing of teaching sessions with a group of people spread over several countries all working on the hologram of a human organ, for example. Lists like these always seem somewhat arbitrary and run the risk of watering down the real potential of new technologies. It is clear that VR, AR and mixed reality are basis technologies. Depending on how they are combined and further developed, they will enable applications that we can't even dream of today. That's what innovation is all about – and it's always been difficult to predict where it will take us.

**What can we learn from advancements in the internet over the last 15 years for the next phase of development? What do we have to do better?**

*Harth:* There are certainly two sides to the situation. On the one hand, there is the shared promise of harmony, the prospect that we will all return to sitting round the same camp fire again. The return of popular TV shows from the past like Big Brother is an example of this. We share the same reality and therefore know what this reality is like for others. So we won't experience the same highly fragmented media realities as we do today. This then poses the

question: who is behind the platform that makes this shared reality possible? What technical and cultural measures can be put in place to ensure that the next phase is not controlled by a single person or organisation? For example, a hospital would have to ask: can we still operate if we – for whatever reasons – are no longer in the metaverse?

*Holitscher:* The biggest threat to the metaverse vision is that specific commercial interests will prevent it from being interoperable. This would break the promise of us all sitting around the camp fire again. We're familiar with the opportunities and risks of today's platform economy. That's why I think it's important that the "Web 3.0" movement drives decentralisation. I'm slightly worried about the enormous level of complexity here. We have to ensure that the general population can use the tools on their own. "Competence" is the key word in this regard. We all need knowledge of key technologies so that we can make good use of them.

**When we talk about technologies and the future – take artificial technology or Blockchain, for example – we often do so by imagining them in extreme scenarios, such as utopias or dystopias. How can these extreme debates help us?**

*Holitscher:* For a tech company like Microsoft, one of the results of these debates is that we don't just focus on how the products and value are created and how they can be used responsibly. This applies to both artificial intelligence and the metaverse. What are the intended and unintended effects of technology in a specific context? There's no getting around this responsibility for tech companies – even if it's just for commercial reasons. This is the only way to win the trust of customers. In this respect, I think it's an important debate that needs to be held on a broader scale. If we assume that technological advances will bring about worlds of experience like these in the future, all stakeholders need to be involved in high-level discussions today as to how we can help to shape these developments.

*Harth:* In my opinion, by far the most important question for the global community is: what kind of world do we want to inhabit in the future? Of course there's no getting away from electronic media and devices. But who is stepping up with visions for mankind in the future? At the moment there are perhaps two people doing that: Elon Musk and Mark Zuckerberg. White men acting as the mouthpiece of humanity. Is that what we want? On the one hand, it's great that someone is taking the bull by the horns and saying: I want to turn this vision into reality. In a world that is becoming more and more prosperous all the time, we have to ask ourselves what we actually want to do with all these innovations. Big questions like these aren't being asked enough at the moment. We need to establish forums where people and stakeholders with no voice are given a platform for discussion ahead of the loud voices that we always hear. If the debate about the metaverse gets us talking constructively about the big questions again, then Marc Zuckerberg's announcement will already have paid off.



**Jonathan Harth** studied sociology, philosophy and psychology at Freie Universität Berlin and the University of Vienna and works as a researcher in sociology at the University of Witten/Herdecke. His research interests include the sociology of digitalisation (especially virtual reality and sociality under conditions of machine intelligence) and the sociology of religion (western Buddhism).

Since 2020 Harth has been working on the “Ai.vatar – the virtual intelligent assistant” (IKT.NRW) research project, focusing on the basic design and research of artificially intelligent avatar systems for use in virtual and augmented environments.

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**Marc Holitscher** holds a PhD in International Relations from the University of Zurich. He has worked at Microsoft Switzerland since 2005. Until 2015, he led the cross-segment organisation of solution specialists, while from 2009 to 2013 he was responsible for the Server & Tools division. Prior to that, he supported customers and partners with long-term investment decisions as Platform Strategy Manager.

Today he is National Technology Officer at Microsoft Switzerland. In this role, he helps to promote digital transformation and local innovation capabilities.

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