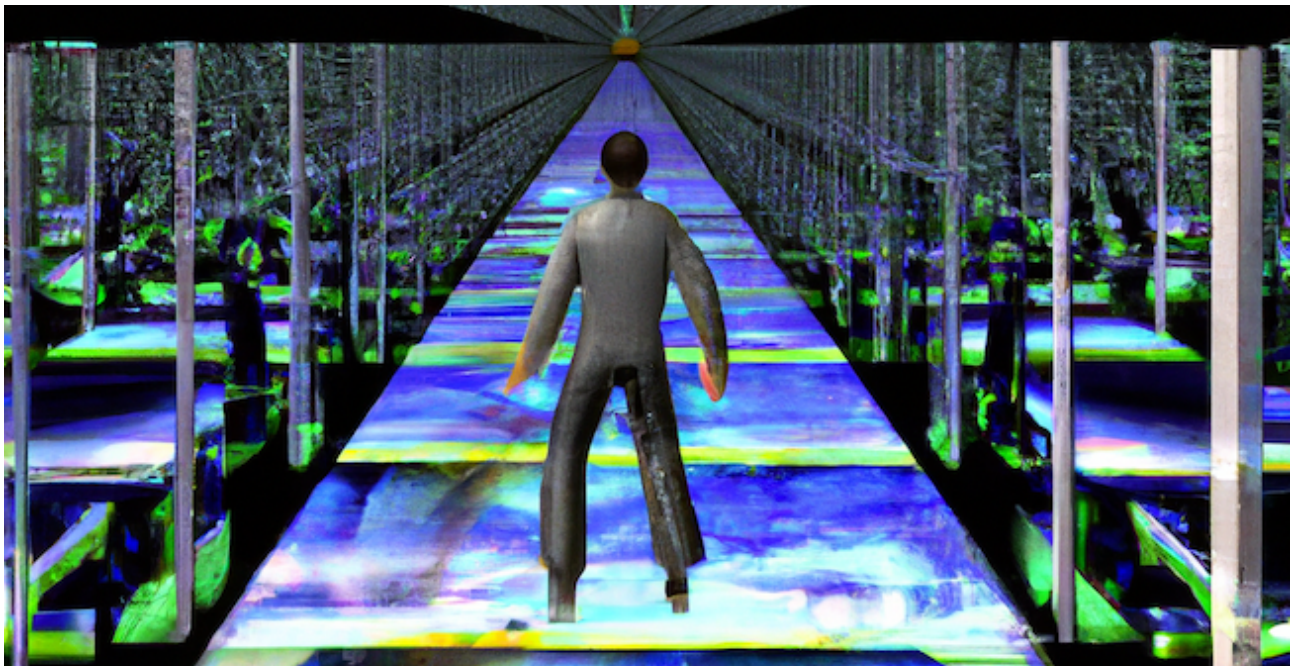
THE METAVERSE

What is the Metaverse? Where is the metaverse? Does the Metaverse already exist? And what can the Metaverse be used for?



More and more often we hear about the Metaverse, and many of us might associate it with teenagers having fun in a strange online parallel world, or with Facebook and Mark Zuckerberg's ambitions for a future digital platform. But the Metaverse is not a single company or a single person's vision, and it is not just about playing games in virtual reality. The Metaverse is more than that: It is the next generation of the internet. We will no longer be *on* the internet but *in* the internet. The internet is going to be spatial.

Copenhagen Institute for Futures Studies uses the following definition of the Metaverse:

"The metaverse overall is the seamless convergence of our physical and digital lives. A core aspect of this convergence will be a set of inter-operable virtual spaces where we can work, play, learn, relax, socialise, communicate, interact, transact, and own digital assets. These spaces will create a sense of belonging – bringing people, spaces, and things together in virtual or augmented digital worlds".

In short terms: The Metaverse will blur the lines between the physical and the virtual world and there will be virtual spaces that bring people together to do many different activities.

Most experts would say, that the Metaverse is already here, but in an immature form. We will have to wait for at least 5 to 10 years before we have a mature Metaverse. As the Metaverse is not mature yet but will develop in the future, it is difficult to give an exact definition of what the Metaverse is and what it will be like in its mature form. Will it, for instance, be dominated by a few tech giants, or will it be more decentralized? And will it be used by the mainstream users, or only by the nerds?

This document will give an overview of the most important building blocks and technologies of the Metaverse, and examples of how they are used.

First and foremost, there are the users, who will often be represented by an **avatar**. Avatars can, for instance, be in form of imaginary creatures, cartoon-like persons or photorealistic avatars generated from 3D scanning.

Extended reality technologies like Virtual Reality, Augmented Reality and Mixed reality will be much more common, and the internet will not only be something we approach on a computer or a smartphone. The internet will be around us and digital items will interact with us and the physical world.

Many companies already use virtual reality for different purposes. Not least for onboarding and training. In VR you can train work situations in a safe environment that simulates the real world. Together with Synergy XR, Grundfos has developed virtual reality training. This lets the employees go into a virtual copy of a waterworks plant to see how their pumps operate in action, without having to be there in person. The employees think they learn more this way, VR also delivered faster training time since it only took an hour versus several hours before, and according to Synergy XR's website it has saved the company much money in time and travel-related costs.

Virtual worlds are part of the Metaverse. For instance, Roblox, Minecraft, Decentraland and Meta's Horizon Worlds are existing virtual worlds that are considered parts of the Metaverse.

The Danish National Railways, DSB, has built a copy of the central station in Copenhagen in Minecraft. The purpose of this digital world is to teach children and youth about safety at railway stations and platforms. DSB has teamed up with some popular Minecraft YouTubers who have made videos where they promote this virtual world and encourage children to ask their teachers to let them work in this universe in school. In the game, children can learn about everything from the train's braking distances to the psychological effects that train accidents have on the driver.

Digital twins are also one of the building blocks. Digital twins are digital copies of the real world. Makeen Energy, for example, has made a model of its production plant in VR. The company uses it at expos to show potential customers how the product line works.

Artificial Intelligence and **Machine Learning** are also important technologies. During the last year we have seen many examples of generative AI creating, for instance, images, videos and codes, and many of us have tried the chatbot, ChatGPT. AI is expected to generate big parts of the Metaverse. The image in the top of this document is made by the AI programme Dall-E, when it was asked to create a computer drawing of the Metaverse.

Another building block is the **Internet of things,** where all objects have smartness. They are online, they have censors, and the items are connected with each other.

Web 3 is also one of the building blocks. It is an open, decentralized internet that uses blockchains as infrastructure.

Finally, tokens are important building blocks. **NFTs**, Non-fungible tokens, are digital objects that have been made unique and cannot be copied.

The Danish company, Bang & Olufsen, has created Hi-Fi products for nearly 100 years and is known for its exclusive design. Now they have developed the DNA collection which is a collection of 1925 unique NFTs. These NFTs are digital versions of four Bang & Olufsen products, and they are combined with an art piece and music that has been created for this DNA Collection. You can buy one of these NFTs for around 300 Euro and use it as a collectible that you can show off in the metaverse. Bang & Olufsen both sees the combination of physical and digital products as a way of learning through experimenting and as a unique opportunity for future innovation and for reaching a younger audience.

If you want to work with the Metaverse, you should start with small-scale projects that aim at solving a real problem. At the Business Academy SouthWest, Esbjerg, we have worked with VR in the Erasmus+ project WISE Offshore. We wanted to find out how we could make our Offshore Wind Energy MBA more flexible for the students using blended learning, but we soon realised that the social aspects of the MBA, the networking and knowledge-sharing possibilities were equally important to the students as the academic content. This has led us to consider how we can combine the flexibility of online meetings and the sense of closeness and presence that we can experience in physical meetings. Can Virtual Reality be part of the answer? We don't have an answer yet, but during the last year, we have held more VR workshops, and one thing we *have* learned is that Virtual reality is not only useful for the entertainment of young men. It can also be used for business and educational purposes.

Reference list:

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