

Obstacles for the Use of AR/VR in the Manufacturing Industry

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As you have read [in the first post of this series](#), companies in the Swiss manufacturing industry see a variety of possibilities to use augmented (AR), virtual (VR) and mixed reality (MR) technologies in their business. [The second post highlighted](#) what benefits they hope to gain from using these technologies. However, this is just one side of the story. I interviewed several representatives of different companies in the Swiss manufacturing industry to find out obstacles they face on the way to adopt the promising technologies AR, VR or MR.

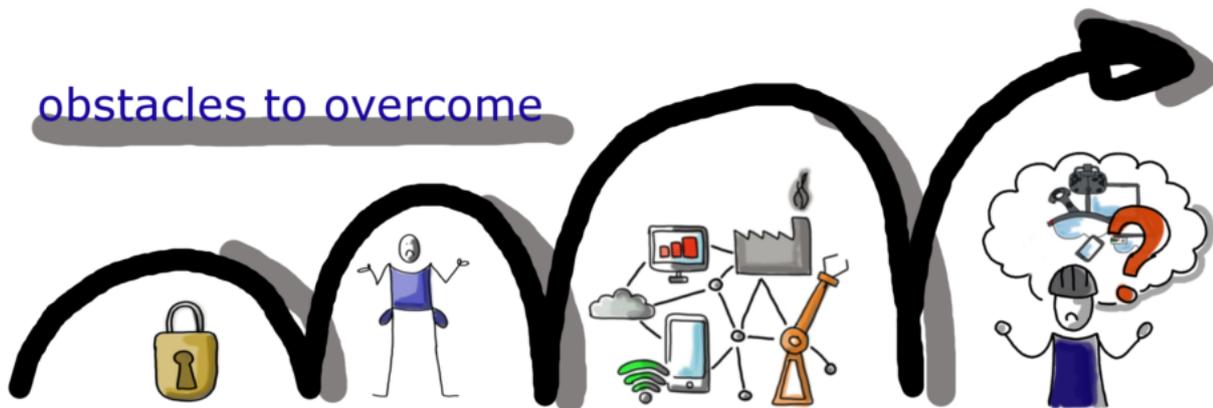
Lack of expertise

First, the **missing resources** are seen as a principal restraining force for all the interviewed companies. Not surprisingly, almost all of them listed the limited financial resources but also the lack of people with the right expertise to develop AR/VR applications as a problem. Some also mentioned that people are absorbed by their daily business and that they will not be able to handle the additional effort that comes with the introduction of an AR/VR application.

Second, all but one interview partner somehow stated that the **lack of knowledge about AR/VR** makes usage more difficult. Some are **missing experiences and empirical values** from AR/VR. It is thus difficult for them to assess the effort required to build AR/VR applications. Moreover, some company representatives struggle with imagining what these new technologies can do. Therefore, it is also difficult to predict a reasonable return on investments but this would be necessary to receive the funding by the top-management.

Sufficient data is missing

Another major challenge is the **low level of digitalization** in the companies. With several companies I talked about obstacles related to data, namely its collection, preparation and maintenance. Four company representatives also said that the required network to connect machines and devices but also the need for a large bandwidth are hurdles that need to be overcome. Therefore, it can be said that today, sufficient data in adequate quality is missing and cannot be collected due to insufficient networks. In addition, connecting new machines might work well but there are many plants and machines out there that are 20 or 30 years old.



obstacles to overcome

What obstacles does the manufacturing industry have to overcome? (Zühlke / Lea Allemann)

Less obvious but still important, some companies also perceive **organizational requirements** as problematic. It is still unknown to many organizations who would be responsible to maintain data so that it is always up to date. As an example, maintaining AR work instructions might require more effort than maintaining the same content on paper. Also, while creating paper instructions is comparably easy, creating AR work instructions requires certain skills that not all workers have. Besides organizational requirements, also **industrial requirements** are seen as a complicating factor. In some industries, the lot sizes and the sheer amount of product variations make it impossible to create augmented assembly instructions. Other companies also fear **security issues** with AR/VR applications for various reasons. Some fear that hacker attacks could tie up their whole production once everything is connected. A representative from another company pointed out that their customers normally do not allow for a connection into their site – a necessity for certain applications.

Low comfort is worrisome

A finding which was surprising for me is that the **devices** to create an augmented, virtual or mixed reality were classified as problematic by just one company representative. Cables or the fact that safety glasses and helmets already claim the position for AR/VR glasses do not seem to be too much of a concern. Companies worry more about the low comfort of these devices.

The last category of restraining forces is linked to the **employees** itself. Some interviewees believe that their workers do not understand AR/VR, fear new technologies, or do not see any value in AR/VR and will thus not support it. One interview partner added that people in

production are mainly conservative thinkers who do not like new tech gadgets and would therefore resist to wear AR glasses for example.

Personally, I agree widely with my interview partners. Yet, I do not think that employees will refuse the new technology. Why would they? If it is used in a smart way, it can enhance their capabilities and improve working conditions. Moreover, it is the first time that an increase in efficiency and productivity will not lead to a reduction of the workforce. On the contrary, AR/VR allows for people to learn new tasks quickly and it even has the possibility to create new jobs through new business models. Having said that I want to add that the devices, especially the AR or MR glasses are not quite there where we need them to be. It will take some product iterations until they reveal their true business value and will be used by a majority. Until then we should use glasses only in selected cases where it really makes sense. Until then, I am convinced that great business value can be achieved with tablets or smartphones in combination with new frameworks such as Tango from Google or ARkit from Apple.