

**Digital
Storytelling**



**TECHNOLOGY
SHEET**



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Passing on information in story form is as old as humanity itself. You only need to think, for example, of hunters returning with their spoils to their tribe in prehistoric times and explaining how they had succeeded in their mission. Sometimes this was even depicted in rock paintings. In this way, other members of the tribe knew what to do when they went hunting themselves.

Stories are an intrinsic part of us, affording insight, creating a bond, giving meaning, providing experience and offering direction. Research shows that information given in story form is remembered 22 times better than a summary of facts.

Stories have many different appearances. They are told, made into drawings or written down, or a combination of these things.

The various revolutionary advances in technology have contributed to the impact and scope of these stories. Especially in recent years, the breakneck speed of technological development has resulted in an unprecedented ability to communicate information, and to do so in countless ways.

Technologies such as augmented reality (AR, https://en.wikipedia.org/wiki/Augmented_reality), virtual reality (VR, https://nl.wikipedia.org/wiki/Virtuele_werkelijkheid), digital twins (https://en.wikipedia.org/wiki/Digital_twin), 3D printing (https://en.wikipedia.org/wiki/3D_printing) and smart devices (https://en.wikipedia.org/wiki/Smart_device) ensure that information in story form can be passed on naturally. This almost forgotten means of information sharing is suddenly moving into environments where it has become unexpected.

Hefty manuals, instructions and process descriptions are making way for instructions and training being issued through smart glasses, overviews using smart displays and potentially myriad other technological applications.

What these have in common is that they communicate information in a natural yet innovative way, namely by means of storytelling through technology.



Digital storytelling and reduction of lead time

A key factor that contributes to reducing the manufacturing critical-path time (MCT) is the organization of teams into 'cells'.

A cell is a multidisciplinary team that is responsible for part of the overall process. Ideally, both the shop floor and the office staff are represented. A cell is autonomously responsible for what happens within it. Team members can perform different activities within the cell. This contrasts with the more traditional way of working where a team member can only carry out one activity.

As well as producing what is expected of it, the cell focuses on reducing the MCT. Storytelling through technology can make a clear and important contribution to achieving this goal for the cell.

The use of technologies such as digital twins and augmented reality involving smart glasses can play a vital role in sharing knowledge and training cell members (cross-training). Whereas staff previously had to take external training courses or go through documents providing instructions, they can now be trained in the workplace.

Cells can reduce the MCT by acquiring an understanding of the process, through IoT sensors that show real-time data on interactive displays in the workplace. A planned adjustment to the process within a cell can be simulated using a digital twin before it is put into practice.

The insights that these technologies afford the cells ensure a smooth and flexible experience for products going through the production process and see to it that cells can respond appropriately to substantial product variations. The combination of these storytelling technologies boosts teamwork and the cell's sense of ownership.



Fields of application

A global player in logistics and transport has investigated the possibilities provided by augmented reality (AR) by deploying this technology in the logistics process. Augmented reality (AR) is an interactive experience of a real-world environment where objects in the real world are enhanced by computer-generated perceptual information. (Source: Wikipedia) This organization was particularly interested in improvements and the added value these could provide.

When developing a Proof of Concept (PoC), the focus was on the process of packaging critical medicines. This is a complex process in which errors can have far-reaching consequences for the medicines and ultimately for their users.

To get a good picture of the value of AR, employees from various departments were involved in the PoC. In this way, trained and untrained employees worked with the AR solution that had been developed.

This consists of a Microsoft HoloLens that projects the various steps of packaging medicines onto the environment. Additional information, such as photographs and 3D models, is shown to support the various steps. The AR solution can be used both for employee training and to support the actual packaging process.

The initial findings from this PoC can be regarded as extremely positive. Just to give a few examples:

- there is a 50% increase in productivity;
- errors are reduced by 70% for untrained employees;
- there is a 30% improvement in job satisfaction.



<https://www.artishock.com/portfolio/enterprise-ar-gefco-lostistics/>

The increasing range of sensors and other measuring equipment that is connected to the internet (Internet of Things) underpins *digital twin* technology.

It provides a digital replica of a real-life object, which can simulate reality very faithfully. The digital replica and the physical object are interconnected so that data can be exchanged.

This makes it possible, for instance, to test out optimizations on a digital twin before applying them in reality. In addition, the digital twin can be used for training purposes.

Organizations such as NASA have successfully applied the digital twin concept, thereby making significant cost savings and, crucially, preventing serious failures.

Philips has developed a concept for a digital twin for humans. By linking people to a digital twin through a data exchange, better diagnoses and treatment plans can be drawn up, improving the health of the actual patient.



https://www.youtube.com/watch?time_continue=119&v=H6JzPCbyVSM&feature=emb_logo

Looking for further inspiration? Then check out the following videos:

- Digital twins: <https://www.youtube.com/watch?v=iVS-AuSjpOQ>
- VR and AR in Industry 4.0: <https://www.youtube.com/watch?v=lisioa91r3E>

Need some help?

The Interreg project [QRM4.0](#) supports production companies in improving their lead times by providing practical advice and granting financial support to companies that want to take steps to implement digital tools on their shop floor. Would you like to know more about digital storytelling? Contact humphrey.ferdinandus@zuyd.nl.

