GEMBA
SYSTEMS

Smart Glasses on the Shop Floor

Survey Analysis – Revision 2

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Summary

Is 2019 the new 2008? When Steve Jobs presented the Apple App Store in 2008, a lot of people in large corporations thought that apps were for gaming and individual consumer purposes, so they didn't have to care about them. Consequently, they failed to investigate and learn what this new technology could do for their businesses. Several years later, these enterprises realized they were wrong — but by then mobility wasn't only a competitive advantage, it was a matter of survival.

Today, many people view Virtual Reality (VR) and Augmented Reality (AR) technologies the same way, pushing it off as just for gaming and not a concern for enterprise purposes. But the signs are telling us we are at the same stage with AR and VR today that we were ten years ago with mobility.

For the last ten months , Gemba Systems invited customers to take part in a survey about smart glasses on the shop floor. We asked four simple questions:

- What is the status of the following technologies in your company?
- In your opinion, how important are the following obstacles for deploying smart glasses?
- In your opinion, to what extent are smart glasses a good fit for the below use cases?
- In your opinion, to what extent could smart glasses be helpful to achieve the below benefits?

It might not surprise you that only 6% of the surveyed enterprises are actively implementing VR or AR solutions today, and 59% have no activity with AR or VR yet whatsoever. On the other hand, while 55% indicate having no activity yet, 29% are apparently investigating or planning the use of smart glasses.

The most important obstacle preventing the wider adoption of smart glasses technology seems to be a lack of awareness: 52% of the respondents identify the lack of awareness or knowledge of/about the technology as the main obstacle for deploying smart glasses. This is a real improvement versus our previous revision of our survey, where 89% of the respondents were citing this major obstacle.
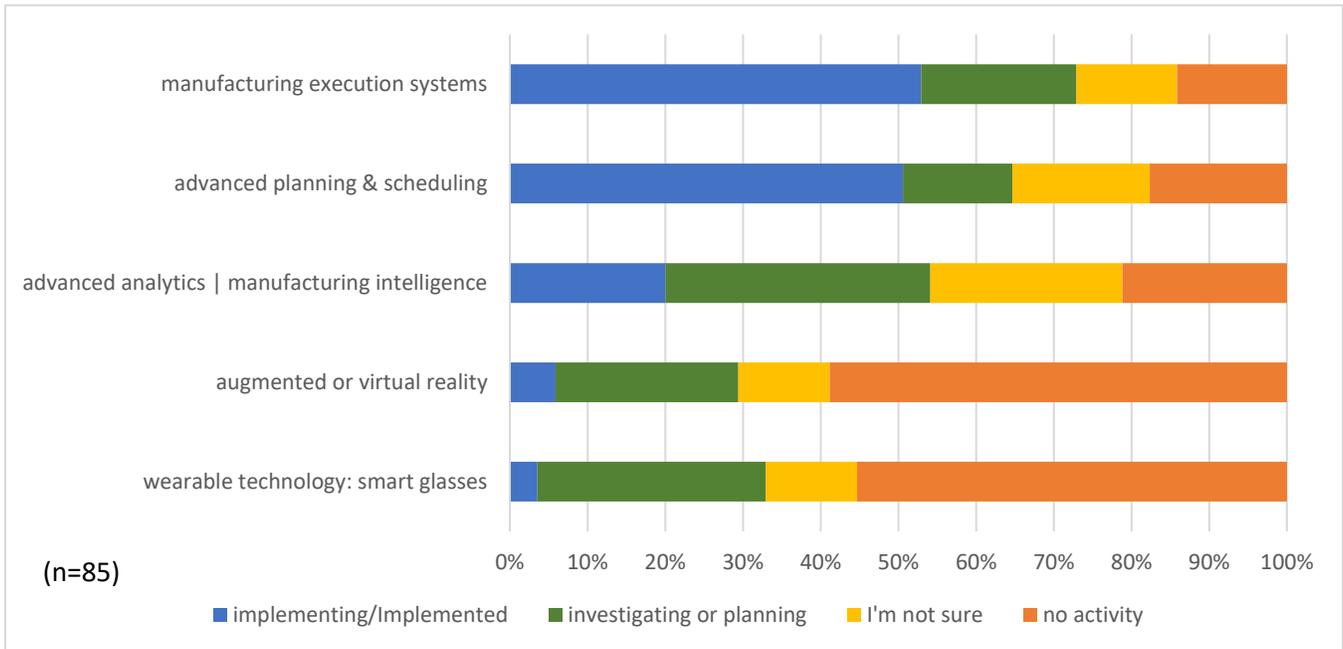
Nevertheless, more than 50% of the survey participants pointed out that smart glasses are a **very good** fit for about 11 different uses cases. Inspections of quality and processes are listed first, followed by training, , and then setups / changeovers and assembly work instructions.

When asked to what extent smart glasses could be helpful for different targeted benefits, 76% of the survey respondents agree that it will improve the adherence to standardized work, and 68% agree that it will reduce training time and/or improve training quality. Finally, 66% say that it will improve the productivity of quality inspectors and 62% will be a more attractive employer to the millennial workforce.

The following paragraphs will review in more details the results that we have collected from about 50 participants in the survey.

Question One:

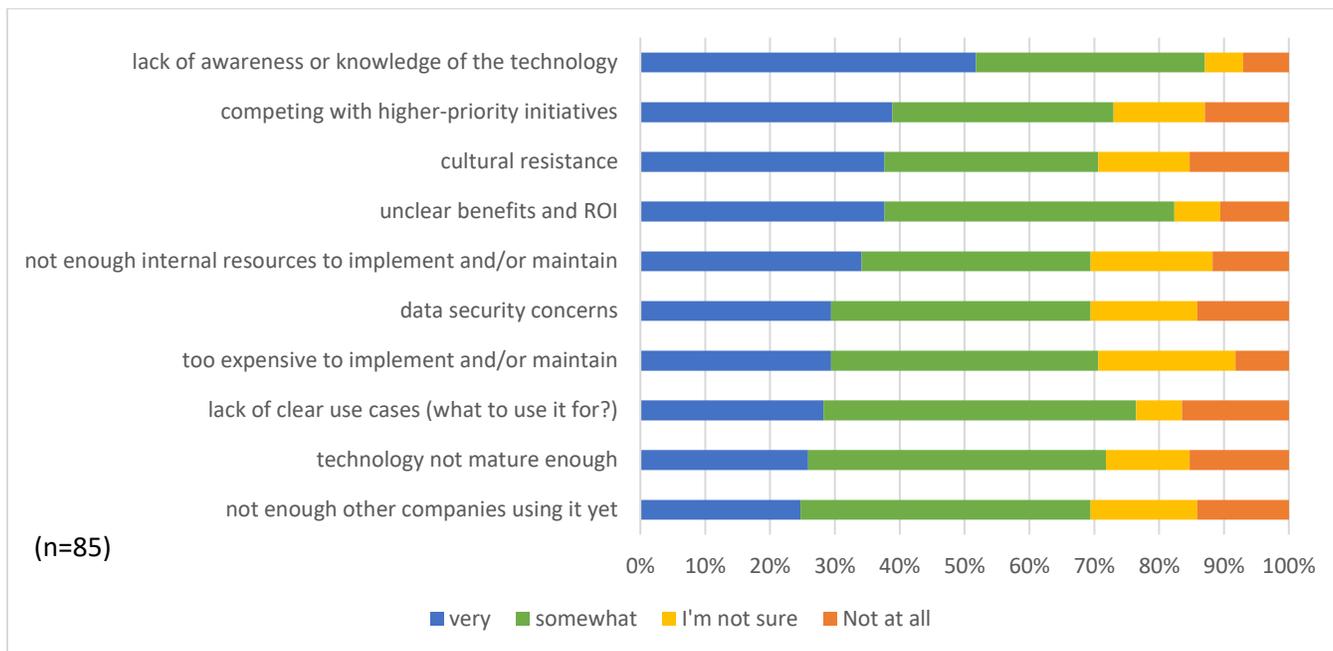## What is the status of the following technologies in your company?

(n=85)

"Industry 4.0" and "Smart Manufacturing" are the terms frequently used for next generation production systems. Advancements in digital and information technologies have paved the way for evolution of production systems. Manufacturers need to take advantage of these technological advancements in order to remain competitive and serve customers in new ways which were not imagined before.

Manufacturing execution systems, advanced planning and scheduling, and advanced analytics (or "manufacturing intelligence") are three of the foundational technologies in use or being implemented at manufacturing companies today. The survey feedback shows that a majority of respondents are currently in the process of implementing or already have implemented Manufacturing execution systems and/or advanced planning and scheduling. Another 30%, though, is at least investigating or planning to implement one or more of these enabling technologies.

Wearables technologies such as smart glasses have not yet penetrated the shop floor very widely. Only 29% of respondents are currently investigating or planning their use. As factories get smarter and more information-rich, there is a very real need to get critical information to people participating in work processes, in a format that is more readily accessible and safe. So, the expectation is that smart glasses, and other wearable technologies, will start catching on quickly in industry.

Question Two:

In your opinion, how important are the following obstacles for deploying smart glasses?
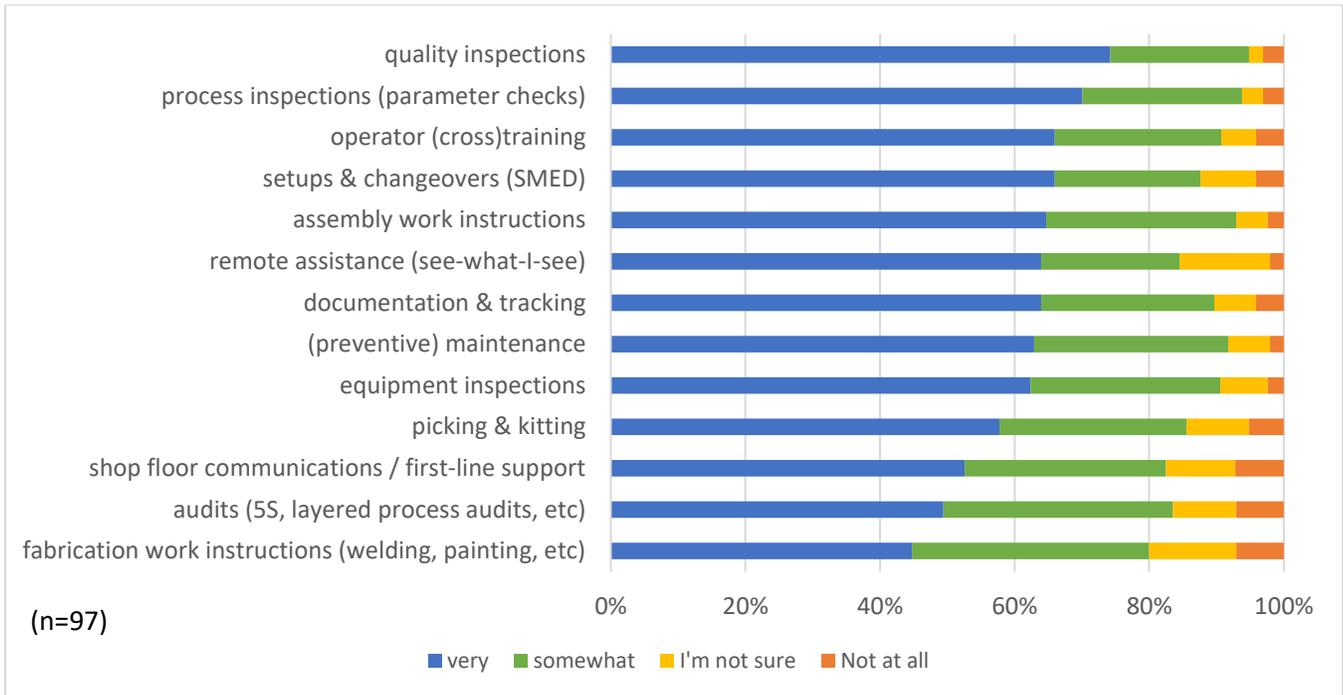

Using smart glasses with simple but powerful augmented reality solutions to support, for example, digital work instructions and inspections, companies have managed to very significantly improve their availability, performance, and quality rates.

However, according to the survey, 52% of respondents mentioned the lack of awareness and knowledge of the technology as very important obstacles for deploying smart glasses, while 39% indicated that this technology is competing with higher-priority initiatives. In fact, there is a good bit of confusion about virtual reality or augmented reality. In one of our previous blog, _Informed Reality reaches growth stage in manufacturing_, we explain how a simple heads-up display for the deskless worker can deliver critical information without impacting the user's field of view, offering a wide range of benefits -both hard and soft- that accrue over time.

To understand the potential return on investment, our white paper, _Smart Glasses on the Shop Floor: ROI Assessment based on OEE Improvement_, illustrates, with a simple example, how smart glasses can improve availability, quality, and performance – leading to significantly higher productivity, as reflected by the OEE metric.

Question Three:

In your opinion, to what extent are smart glasses a good fit for the below use cases?
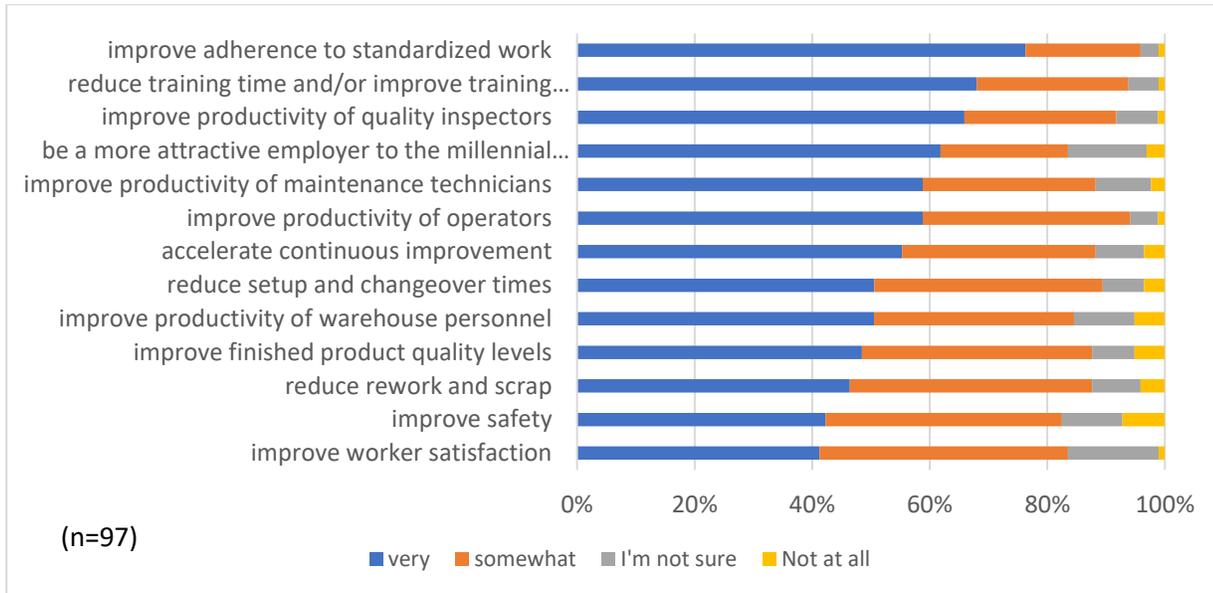

(n=97)

A clear majority of respondents see at least half of the proposed use cases as a very good fit for smart glasses. Collecting the highest score, the three first use cases could be grouped in a "smart inspection" category, covering quality inspections (74% of the respondents find this use case a good fit for smart glasses), process inspections (70%). Our respondents' feedback matches real-world experience, indeed, as implementations at early adopter companies prove that smart glasses can improve the productivity of inspectors by 30% and more. Following this smart inspection category, setups & changeovers (66%) highlight opportunities to improve machine setup times and maintenance activities. The technology will increase equipment availability and improve productivity of maintenance technicians by 20 to 30% -and in some cases more-, according to proven results by early adopter companies.

Immediately after is operator training with 66%. Often times, training is not very consistent, as it is performed by different people with different understanding and opinions. The effectiveness of on-the-job training is hard to assess, and often considered too expensive as it takes too long and requires experienced operators to train the new people. Smart glasses facilitate the self-training of new employees instead of needing experienced people to provide training on-the-job. Early adopter companies have demonstrated that the adoption of smart glasses can improve training time up to 70%, while increasing operator skill levels and performance.

Our solution brief "**Addressing Training Challenges in Manufacturing**" will help you to understand the use case and ROI of using Informed Reality (IR) on smart glasses for effective operator training.

Question Four:

In your opinion, to what extent could smart glasses be helpful to achieve the below benefits?

(n=97)

Lack of compliance with standardized work leads to losses in productivity, reduced quality, and increased safety risk. This may be the reason why 76% of respondents pointed out improvement of adherence to standardized work as the number one benefit of smart glasses.

Ranking second, with 68%, is the reduction of the training time and/or the improvement training quality - in line with the use cases ranking covered earlier.

Very interesting is that 62% of respondents believe that smart glasses will be very helpful to be a more attractive employer to the millennial workforce. Figuring out how to adapt your workplace to satisfy the expectations of the millennial generation is not a task that can be pushed out to tomorrow – it is a task for today. Failure to recognize the importance of this shift in the labor market can have significant consequences for manufacturing businesses. As digital natives, millennials e.g. expect to communicate and see their work supported by cutting-edge digital technologies, such as modern mobile and wearable devices.

Finally, a large majority of survey participants (59%) expect that maintenance technician and operator productivity will be very improved by using smart glasses technology.

Conclusion

It has been well proven now that well-designed mobile applications are often key to boosting a company's visibility and customer loyalty while building up its brand and attracting attention. As far as smart glasses are concerned, you probably do not want to make the same mistake that some businesses made in 2008 when (under)estimating the enterprise value of mobile technologies. Instead, you should consider a low-cost, low-risk proof-of-concept project to assess the relevant use cases and improvement potential in your own manufacturing operations.

As is often the case with emerging technologies, many smart glasses projects are still in proof of concept stage. However, some have already transitioned to a production environment and resulted in very significant performance improvements and bottom-line results.

For example, a year has passed since AGCO's first public announcement revealing its Jackson, MN plant has incorporated Proceedix and Google Glasses into its operations. As a result of the successful introduction of Google Glass in Jackson, MN, and to benefit from the same bottom-line results worldwide, AGCO is in the process of rolling out the technology across its plants globally now. Please take a look @ Gemba Systems for more information on AGCO's expansion of the use of Google Glasses and Proceedix digital work instructions.

Based on the positive results achieved with customers so far, we are convinced that the business case for smart glasses is a no-brainer for many manufacturing environments and use cases. Gemba Systems Inc can support you in assessing the best use cases and expected benefits of smart glasses technology in your operations, help you realize the full value of your smart glasses solution, from planning and (ROI) assessment through testing, deployment, operation, and continuous improvement.

For more information, please contact us at alain@gemba.systems