

Indoor Mobile Mapping Goes Mainstream



Mobile mapping is well past the tipping point and is about to go mainstream. Read this column by Felix Reinshagen to find out why.

In his [previous column](#) about the future of indoor mobile mapping, Felix Reinshagen made the case for why this technology was on the brink of widespread adoption. That was just over a year ago, and a lot has changed since then: brisk expansion

of the products and services on offer, together with a widening field of applications. So, after another incredible year, Reinshagen has written a new column outlining why he believes that mobile mapping is well past the tipping point and is about to go mainstream. The emphasis now is on assessing data quality and establishing universal standards in this rapidly growing industry.

The most concrete proof that the technology is entering the mainstream is in the number of devices – even among the biggest names in the industry – that are flooding the market. Many of the established vendors who traditionally manufacture total stations and terrestrial laser scanners seem convinced that today's market is mature enough to add to their

product offering a mobile scanner that can tackle indoor environments. For users, it's no longer a matter of if they should add a mobile device to their toolkit, but instead of what kind they need.

Congratulations to the Early Adopters

For early adopters in the surveying and engineering industry, this represents a clear vindication of their commercial instincts. They recognized great potential when this new technology first emerged, and they worked hard to win the trust of their customers and deploy it successfully. Since then, they have seen indoor mobile mapping grow in terms of both value savings and broader acceptance, and they're now poised to reap the benefits.

For those who came on board a bit later – or are still thinking of doing so – they can feel much more confident about the future... not only because of the selection of proven tools now available to them, but also because of the best practices, performance benchmarks and lines of support that are increasingly being established within the indoor mobile mapping industry.

Standardized Benchmarks Benefit Everyone

A discussion about best practices is especially relevant here. While the quality and accuracy of the point clouds generated by mobile mapping solutions continue to improve in leaps and bounds, every user will benefit from having a common understanding that enables them to make the best choice between devices. After all, not all indoor mobile mapping devices are the same – and not just in terms of their hardware platforms (handheld, wearable or pushcart). When it comes to data quality, it's the software that will make all the difference in mobile devices. Much depends on the sophistication of the simultaneous localization and mapping (SLAM) algorithms, and how well the machine learning pipeline turns the data captured from multiple perspectives and angles into one consistent and accurate dataset during post-processing. I strongly believe that the growing number of devices coming to the market will shift the focus to the data quality, and very soon we'll have industry-recognized metrics that can be applied here too.



Mobile scanning is increasingly being used to capture indoor environments, thanks to SLAM-based systems that improve data quality.

Usability will Broaden the Market

The core activity of scanning buildings and factories with indoor mobile devices continues to flourish and, in so doing, establishes the foundations for a digital twin – or virtual replica – of the entire built environment. A 2019 survey by Gartner Research provides ample evidence that [digital twins for enterprises have entered mainstream use](#). With regards to applications, the use cases for indoor mobile mapping have even exceeded my own expectations this past year. We've seen the mapping of power stations in Germany, metro stations in France and a university campus in Sweden, and even the creation of a [digital twin of an expeditionary research ship](#) to advance our

understanding of the Arctic. It's thrilling to see end uses for the technology which hadn't been initially envisaged, but which in hindsight make perfect sense.

Looking ahead to the coming year, I predict that another key trend will be an emphasis on usability. With vast quantities of data being generated, the continuing success of indoor mobile mapping has as much to do with speed and accuracy as it does with ease of use. Online services will be able to handle everything from post-processing to publishing in an efficient yet dependable workflow. When it comes to accuracy, the point cloud needs to be of a sufficiently high quality that it can be used for traditional use cases, such as BIM modelling. At the same time, keeping the end user in mind – such as by providing intuitive deliverables that every building stakeholder can access with confidence or making remote collaboration as effortless as though everyone were in the same room – is a surefire recipe for success.



Based on point clouds, NavVis IndoorViewer software generates fully immersive digital twins of indoor environments such as factories.

<https://www.gim-international.com/content/article/indoor-mobile-mapping-goes-mainstream>
