# Most Valuable Lessons Learned Over the Last 10 Years Part 1/3

**Mobile mapping on steroids**

**Groningen, June 2023**

# Introduction

In the field of GIS, the acquisition, processing, and analysis of geospatial data are crucial for informed decision-making. As a GIS expert, you understand the significance of accurate and reliable data in delivering valuable insights.

 In this whitepaper, we will explore the importance of utilizing your own data compared to relying solely on third-party sources. Additionally, we will delve into the unparalleled advantages of imagery data over LiDAR data, highlighting the unique insights it can provide. Furthermore, we will emphasize the necessity of employing tailored and robust mobile mapping hardware and software solutions, rather than settling for action cameras or camera-only mapping systems.

**Groningen, June 19. 2023**

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# 1. Imagery data is key & Automation is king

## 1.1 The Evolution of Imagery-Driven Mobile Mapping Solutions

Over the years, the market for mobile mapping solutions tailored for inspections, inventories, and calculations has witnessed significant growth and maturation. Traditionally, Lidar has been the go-to technology, serving as the industry standard for the past few decades.

A significant paradigm shift has taken place within the mobile mapping industry, as professionals acknowledge that Lidar, despite its historical prominence, may not always be the ideal solution in terms of pricing, accuracy, and data volume for certain mobile mapping use cases. This realization has sparked a renewed focus on alternative approaches, such as the utilization of spherical, thermal, and high-resolution imagery data. Interestingly, even established companies like Trimble and Leica are actively exploring ways to enhance their mobile mapping systems by incorporating higher resolutions and better cameras.

Figure: OEM High Resolution Camera extension Trimble MX50

This pursuit of superior visual quality aims to unlock unparalleled levels of detail, meeting the diverse requirements of a wide array of mobile mapping applications. As industry leaders and innovators seek to refine and improve their offerings, the integration of advanced imaging technologies promises to reshape the landscape of mobile mapping, pushing the boundaries of what is possible in terms of visual data acquisition and analysis.

In the ever-evolving landscape of spherical cameras, the competition is steadily intensifying. Companies like Smart Delta, Insta360, and Mosaic are seeking entry into the mobile mapping market, vying for their share of the industry's attention. However, amidst this growing competition, one thing remains unchanged: the unwavering demand for a professional, reliable, and a seamlessly to integrate camera solution. This demand is where a reliable manufacturer with the ability to scale becomes crucial.

One such market leader that meets these requirements is Teledyne. With their high-end spherical cameras and machine vision expertise, Teledyne offers unparalleled image quality and trusted solutions tailored specifically to the unique needs of the mobile mapping industry.

As an experienced integrator, Horus has successfully incorporated Teledyne products, including their cutting-edge machine vision, thermal, and spherical cameras, into our solutions for many years. This long-standing partnership exemplifies the dependability and compatibility that Teledyne brings to the table, empowering us to consistently deliver exceptional results to our clients in the mobile mapping field.

Figure: Teledyne Ladybug6 – 72MP spherical camera

## 1.2 Streamlining GIS Information Extraction and the Rise of Intelligent Video Analytics

In addition to the continuous evolution of imaging technologies, the mobile mapping industry is confronted with a pressing challenge: the efficient extraction of valuable GIS information from street level imagery. Manual analysis, although thorough, is time-consuming and expensive. Recognizing these limitations, the market demands automated solutions powered by artificial intelligence (AI) to streamline this process. Enter intelligent video analytics, a cutting-edge technology that aims to revolutionize GIS information extraction.

By harnessing the power of AI, advanced systems equipped with intelligent video analytics can expedite the extraction of GIS insights from street level imagery. This automation not only significantly reduces the time required for analysis but also makes it more cost-effective. These AI-powered solutions offer decisive accuracy, ensuring that the extracted information is highly reliable and precise. The industry's shift towards automation reflects its commitment to embracing efficient and cost-effective methods, meeting the growing demand for GIS insights derived from street level imagery.

## 1.3 Pursuing Faster, Cheaper, and Decisive GIS Information

As the mobile mapping industry continues to evolve, there is a resounding goal driving its advancement: to provide faster, cheaper, and decisively accurate GIS information. This overarching objective is fueled by the convergence of various technological advancements, pushing for enhanced efficiency and affordability in the field.

The adoption of spherical, thermal, and high-resolution imagery data has played a pivotal role in achieving this goal. These advanced imaging technologies unlock an unprecedented level of visual detail, catering to a wide range of mobile mapping applications. Professionals can now capture intricate information, previously unattainable, and utilize it to derive valuable insights for their projects.

Furthermore, the integration of AI-powered intelligent video analytics solutions holds immense potential for transforming the extraction of GIS information from street level imagery. By leveraging AI algorithms, the industry can extract data faster, more accurately, and at a reduced cost. This revolutionary approach paves the way for more streamlined workflows and improved decision-making processes.

The rise of automated mapping and surface segmentation, exemplified by tools like Segment Anything from Meta, Mercaido from Horus, and more specific for road maintenance Inspech, are revolutionizing data analysis and providing businesses with advanced capabilities to extract valuable insights from complex visual and spatial information.

Figure: Segment Anything – Beta

### 1.4 Conclusion

The mobile mapping industry is witnessing a paradigm shift, as professionals recognize the potential of spherical, thermal, and high-resolution imagery data over traditional Lidar technology. Companies like Trimble and Leica are embracing advanced imaging technologies to meet the demands for superior visual quality.

Additionally, the industry is focusing on streamlining GIS information extraction from street level imagery through the integration of intelligent video analytics powered by AI. This pursuit of automation aims to provide faster, cheaper, and decisively accurate GIS information, revolutionizing workflows and decision-making processes. The future of mobile mapping holds great promise in delivering efficient and cost-effective solutions for visual data acquisition and analysis.

## 2. Contact details

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