TWO DECADES OF CHANGE

The good, the bad and the ugly of the surveying profession

In the early days of surveying, surveyors were pioneers in charting the unknown. Today, with the Earth having been completely mapped to some degree, surveying has become a much more specialized field with different types of surveyors and sophisticated equipment. This article looks back on how the surveying profession has changed over the past two decades.

It has been more than 20 years since I graduated from university. Back then, we were trained on both analogue and digital surveying equipment. Finding coordinates in new areas used to take us days or even weeks. Now, it can be done in minutes or even seconds with GPS or GNSS positioning. Analogue devices helped me understand measurement principles better. But more than that, for me they led to a greater appreciation of modern surveying equipment.

The survey industry is in a period of change, and it's changing fast as technologies and needs evolve. Here are what I regard as some of the challenges currently shaping the industry, as well as the key priorities surveyors must bear in mind to thrive.

The good

The challenge: The demand for cost-effective services is increasing

The global digital twin market is projected to grow exponentially during the next years as industries accelerate their digital transformation. Geospatial data is fundamental to unlocking efficiency gains in many industries. Surveyors are best positioned to support this exponential demand for geospatial data. However, surveyors need to find innovative ways to ensure their clients understand the value of their services. Surveyors who can provide services that add value for their clients will stand out from the crowd.

The priority: Pair new technology with user-friendly workflow services

When it comes to technology, surveyors are increasingly using newer technologies to improve their productivity and accuracy and to expand their service offerings. According to research by Hexagon's Geosystems division, 95% of surveyors agreed that new technologies have made them more efficient at work, while 40% responded that they are already working with uncrewed aerial vehicle (UAV) systems. More surveyors will likely adopt UAV systems in the coming years, which will spawn new use cases for aerial reality capture. Solutions like autonomous laser scanning modules for robots are also enabling scanning with minimal human intervention. As an increasing number of surveyors appreciate the accuracy and ease of data collection that laser scanners offer, their use will continue to rise.

Surveyors must also pair this technology with the adoption of user-friendly workflow services that enable faster data transfer between the field and the office, helping professionals create valuable deliverables from collected data as efficiently as possible.

> New technologies help surveyors become more efficient and accurate in how they collect, process and share information. Innovative positioning, measurement and reality capture technology can dramatically improve the way survey data is collected, processed, visualized and shared.

The bad

The challenge: Surveyors are facing increased competition from non-surveyors

Technological advances have made it easier for people without a surveying background to complete many tasks involved in data collection. Although non-surveyors can now easily collect 3D data, they often lack the knowledge to represent the data in the required reference frame correctly. In addition, they often miss the technical skills to perform field procedures to ensure checks are correctly conducted to deliver the best data quality.

The priority: Become a data manager

The professional surveyor can embrace this additional workforce and become the data manager who coordinates data collection and uses the most appropriate equipment to get the job done, using the personnel available.

The ugly

The Challenge: The lack of skilled staff

With construction continuing to boom, the worldwide demand for surveyors has never been higher. With fewer people choosing careers in surveying, finding talented individuals has become increasingly difficult. To make matters worse, many surveyors are nearing retirement age and leaving the industry, creating a significant skills gap.

The priority: Keep up with innovations

To bridge this gap, surveyors need to keep up with innovations in technology so they can do more with less. New technologies and equipment allow professionals to do many more things in a shorter amount of time. Many construction projects rely on surveying instruments that are becoming more advanced.

Today's surveying equipment allows you to be faster and more efficient during construction by keeping building information modelling (BIM) data accessible in the field for more accurate layout and as-built verification. A total station can be used to compare the as-built situation with the design on site by checking the flatness of concrete floors or wall verticality, while 3D laser scanners help surveyors to quickly conduct on-site quality checks for completeness and perform as-built documentation. Similarly, total station solutions that automate process steps, including tilt compensation or target locking, avoid errors on site and mean quantum leaps in terms of productivity.

Surveyors optimize workflows and improve collaboration between field and office for enhanced project execution while ensuring the best quality.

The biggest challenge: protecting the planet

Extreme, climate-related physical events will become more intense and frequent. According to the Carbon Disclosure Project (CDP), four in five major cities are facing 'significant' climate risks. This year, 46% of the cities experienced extreme summer heat, 35% declared drought and 33% experienced urban flooding.

In a world that needs more renewable energy parks, modernized power grids and well-managed green spaces, surveyors help harness data that powers a sustainable future. Geospatial professionals capture, create and manage the datasets to build a smart digital reality for resilient infrastructure.

Surveyors are key players in offering cost-effective solutions that make data available to enable the shift to more sustainable practices, such as in building construction. Surveyors can bring together data creating a unified smart digital reality of a building to identify conditions and help understand what maintenance needs to be done during the building's lifetime to maximize its lifespan. With their knowledge of state-of-the-art geospatial equipment and workflows, surveyors have the skills to efficiently document entire buildings before embarking on repairs, renovations or fit-outs.

The changing world

Surveyors are part of a changing world. Surveyors nowadays need to provide more value for their customers while reducing costs and waste at the same time. This means that they need to choose their tools carefully while continuously adapting their business models to thrive in this new environment and evolve alongside the industry they serve.

Investing in new technology has allowed surveying companies to grow their business by offering multiple reality capture services and entering new markets such as structural monitoring. Many of them have found new ways to diversify into different types of projects and services by investing in technology such as laser scanning, mobile mapping, utility mapping and detection, and by becoming more efficient so they can do more with less.

The survey industry is undergoing a period of transition as it adapts to the challenges posed by new technologies and new regulations. Surveyors are being asked to do more with less, but they also have more opportunities than ever before to develop their businesses through innovation and collaboration.

Innovations such as the Leica AP20 AutoPole can help surveyors stay ahead of the curve by increasing productivity and allowing them to measure points that were impractical or unsafe to measure before.