# GEOSPATIAL TECHNOLOGIES

FUSE DATA

ANTONE ANTWACTE





VIEW, MEASURE, ANALYSE, ....

 $\bigcirc$ 

# 

SS71

STREAMING

ANY DATA



SHARE, PUBLISH, COLLABORATE ....

# TRENDWATCHER

Embrace the Orbit GT SaaS platform 3D Mapping Cloud

# SOLUTIONS

Stockholm Transportation Authority

# INDOOR MAPPING

Los Angeles Airport Indoor Mapping



FREE

# **INTEGRATE ANYWHERE**





# EVERYTHING BOMAPPING



# CONTENT

# SOLUTIONS

Indoor Mapping at Los Angeles Airport Page 4

# SPOTLIGHT

Stockholm Transportation Authority
Page 9

### TRENDWATCHER

Embrace the Orbit GT SaaS platform : 3D Mapping Cloud Page 12

# COLOPHON

Publisher:	Orbit GT nv
Authors:	Ed Maghboul John White Sara Hederos Petter Tyrenius Peter Bonne

Editor in chief: Peter Bonne

# **EDITORIAL**



Dear Reader,

It's a well-known fact today that more and more companies are embracing reality capture technologies and are starting to collect large volumes of data. We increasingly see both SME's and large organizations capture these volumes at an accelerating pace, covering larger areas and using various capture hardware systems. This consequently brings the issue of 'how to handle big data' on everyone's table.

Traditional big data is stored as small entities in large databases. In our business however, each single dataset is huge which asks for a dedicated approach. Orbit GT incorporates the expertise to address these challenges and we have anticipated this growth of data volume and sharing needs. We transferred our technology to the cloud resulting in a new product: 3D Mapping Cloud. This SaaS platform is solving big data problems, offering many new business opportunities and tools. Moreover, it's lowering the cost threshold and democratizing the re-use of this valuable big data dramatically. An introduction to 3D Mapping Cloud can be found further in this magazine. It's a must read.

Another major evolution is the bringing together of various reality capture systems that until today were tackled by different teams and specialists. However, the end user needs them all. Users increasingly require to fuse data collected by different sensors such as imagery, laser scanning, and upcoming thermal imagery, GPR and more, as well as the combination of various domains in which these sensors are used such as aerial, terrestrial, indoors, etc. The case stories about the Stockholm Transportation Authority and Los Angeles Airport already proove this path forward.

At Orbit GT, we experienced this evolution in the usage of our solutions at our customer's offices and decided to make a radical change in our desktop offering. We no longer make a difference between the domains we specialize in : Mobile Mapping, UAS Mapping, Indoor Mapping, Aerial Scanning or Oblique Imagery, and even Terrestrial Scanning, are now all addressed by a single portfolio that covers all of these technical domains. This approach is equally met by 3D Mapping Cloud, fusing data from various types and origins together in a single click !

I am convinced that every single one of you as thrilled as I am about the innovation that Orbit GT is bringing your way.

Enjoy !



# **CONTACT US**

ORBIT GeoSpatial Technologies nv Industriepark E17, 2021 Scherpeputstraat 14 9160 Lokeren, Belgium

phone +32 9 340 5757 web www.orbitgt.com



# AIRPORT MANAGEMENT: A COMPLEX SPATIAL STORY

AIRPORTS ARE KEY COMPONENTS OF THE GLOBAL TRANSPORTATION IN-FRASTRUCTURE. THEY ARE COMPLEX, EXPENSIVE INVESTMENTS THAT REQUIRE TIGHT MANAGEMENT. TO ACHIEVE EFFICIENT OPERATIONS AND OPTIMIZED RETURN ON INVESTMENT, IT IS ESSENTIAL TO HAVE ACCU-RATE, UP-TO-DATE INFORMATION ON THE BROAD RANGE OF ASSETS AND FACILITIES. THE SHEER VOLUME AND VARIETY OF ASSETS INTRODUCES CHALLENGES FOR AIRPORT OPERATORS TASKED WITH MANAGING THE COMPLICATED OPERATIONS.



Operated by Los Angeles World Airports (LAWA), LAX is the sixth busiest airport in the world

Many airports use geospatial technologies as part of the process to understand and manage their assets. By combining on-site data collection with GIS, CAD and sophisticated data management, specialized solution can deliver providers accurate, high-quality information on airport assets. Today, Integrated solutions for indoor mobile mapping are providing significant savings in time and cost to capture and process detailed geospatial information.

### Multi-purpose spatial data

Collecting and managing spatial data at airports is especially challenging. Just about everything in the airport needs to be tracked.

From pavement management, runway markings and lighting to indoor space usage, equipment's and signage, all of these need to be integrated with various environmental, safety, security, operational or facility and maintenance management tools.

Spatial data provides information in three primary areas. First, it is used to locate and identify physical assets. The data can be used for as-built and asset management including underground utilities, architectural planning, space optimization and security. For many buildings, spatial data may exist only as construction plans that don't include data on years of change and remodeling. The incomplete or inaccurate information can result in expensive surprises when airports need to modify or expand existing facilities.

A second application comes from management of space leased by freight companies, airlines and concessionaires. In addition to providing tools for managing tenant agreements and payments, x-Spatial uses spatial data to define and map leased spaces in rental agreements. In a third application, first responders and emergency managers can use accurate spatial data to plan and execute emergency procedures.

# Indoor Mapping by x-Spatial at LAX

Operated by Los Angeles World Airports (LAWA), LAX is the sixth busiest airport in the world. Its nine terminals and four runways served 80.9 million passengers in 2016.

About 45 000 people work at LAX to ensure an efficient offering of 692 daily nonstop flights to 91 U.S. cities and 1,220 weekly nonstop flights to 78 international destinations in 41 countries on 66 commercial air carriers. LAX handled 697 138 aircraft operations (landings and takeoffs) in 2016.

As part of their management processes, LAWA periodically surveys the terminals at LAX to check for changes and ensure spatial data is up to date. Two terminals, the Tom Bradley International (TBIT) and Terminal 3 have undergone numerous renovations. As a result, these buildings required more in-depth and rigorous surveys.

In 2016, LAWA identified a total of 1.75 million sq. ft. (16.2 ha) of interior space that needed new surveys and challenged x-Spatial to provide a non-intrusive solution; allowing zerotolerance for operational, safety or security hindrance and minimal disturbance for passengers and staff. x-Spatial, LLC, a Los Angeles-based company already provided software solutions for airport infrastructure management. In addition to managing the data collection work, x-Spatial provides tools for management and integration of spatial and enterprise information.

### Finding the right answer

The work at LAX encompassed field surveying and data processing to produce georeferenced GIS data, 2D floor plans and 3D models for all of Terminal 3 and three floors at TBIT.

Terminals are complex, dynamic and functioning environments, with limited Lines of Sight, variable lighting conditions, variable occupancy where space is often busy and cluttered.

What was then the traditional approach of 3D scanning with conventional tripod mounted scanners was too time consuming and could only be performed when activity is light in the terminals.

In 2016, mobile indoor mapping for complex buildings was still in its relative infancy, but together with Trimble and



Mapping and 360° Imagery

their Indoor Mobile Mapping System (TIMMS), the technological issues surrounding indoor scanning where resolved.

Based on the concepts of vehiclemounted mobile mapping (but without the need for GPS), TIMMS integrates a 3D scanner, 360-degree camera and inertial measurement unit (IMU), user display and control electronics; the components are mounted on a small cart. The 360-degree camera providing and additional unexpected bonus for LAWA.

Planning the surveys required coordination with multiple teams to ensure efficient and comprehensive coverage, the scanning was successfully completed in just 32 hours of operation, mostly during normal working hours, the TIMMS cart captured comprehensive 3D scans and spherical imagery on the two terminals.

Although, processing the scanned LiDAR and creating a building model, before making data available to the airport, whilst revolutionary, compared to traditional scanning was an area x-Spatial felt could be improved. Many, other lessons were learnt during

this period, which along with x-Spatial's continual improvement program led to a comprehensive guideline being developed that has proved to be invaluable.

### Raising the bar with Orbit GT

x-Spatial's unparalleled knowledge of spatial data at airports, combined with the latest technologies from Orbit GT and Trimble have raised the bar to a new level, it is now possible to start using your data within hours of completing the scanning process.

Combining the indoor mapping with existing geospatial data provides a wealth of vital information, when published can be viewed with the ease of street view.

Presentation of data through 360-degree photography with underling Lidar when scans integrated with GIS proves a winner for all stakeholders within the airport. Environmental, Operations, Security, Safety, Commercial, Engineering, Facility management, HRM and external organizations such as Police, Fire department and Federal agency all profit from detailed information that is easy to understand.

x-Spatial is currently reviewing how



Tag and maintain features

passengers can take a virtual journey around the terminal before arriving and better plan their time, whilst removing any unnecessary stress that is often associated with passing through an airport.

Orbit GT's software and built in workflows have raised the bar of indoor mapping at airports; the speed of making information available, the ease of updating data when changes occur, combined with the advantages of visualizing and better understand the underlying data layers benefits all stakeholders.

leaders in airport information management
SPATIAL
www.x-spatial.com

# **ABOUT THE AUTHOR**

Together Ed Maghboul, president of x-Spatial; and co-author John White, have over 60 years' of experience in managing large complex building infrastructure and software development projects from design and build through to manage.

This unique combined experience, is highly respected within the airport community, providing an exceptional insight into the business benefits of timely, relevant and trustworthy geospatial data when incorporated into numerous applications across the enterprise.

# **ABOUT X-SPATIAL**

x-Spatial is staffed by engineers and IT professionals with over 30 years of experience covering not just airport facilities operations but also architecture, engineering and construction (AEC) along with software development, implementation and integration.

# STOCKHOLM PUBLIC TRANSPORT ADMINISTRATION RAIL ASSET MANAGEMENT

EVERY DAY THE STOCKHOLM RAILWAY SYSTEM TRANSFERS 1 350 000 PAS-SENGERS. THIS RAILWAY NETWORK INCLUDES 7 METRO LINES AND 10 LIGHT RAIL LINES COVERING A 228 KM LONG RAIL NETWORK. THE NET-WORK IS STRETCHING THROUGH 169 STATIONS, OF WHICH 47 ARE UNDER-GROUND. THE UNDERGROUND METRO SYSTEM HAS A HISTORY OF MORE THAN HALF A CENTURY AND HAS BEEN UPDATED AND EXTENDED OVER THE YEARS. DAILY MAINTENANCE AND PLANNED UPGRADES IN THE COM-PLEX RAILWAY NETWORK HAVE INCREASED THE NEED FOR AN ASSET MANAGEMENT SYSTEM THAT PROVIDES WITH THE NECESSARY CONTROL AND MONITORING.



Railview is an intuitive and user-friendly map-based viewer that is capable of visualizing big data.

Today, all employees of Stockholm Public transport administration and their contractors can use a single source to find relevant railway information about Stockholm metro and light rail lines. This solution is realized by the development of a rail asset management system that has an integrated visualization application of the whole network together with all railway-related objects visible in a 360-degree image viewer and online maps. The image and map application contributes to an intuitive and userfriendly environment through smart functions such as viewing, measuring and adding new objects directly in the system.

Around five years ago, Stockholm Public transport administration started

to implement a new railway asset management system using Maximo solution produced by IBM. At the same time, WSP saw an opportunity to develop a documentation and visualization technique for complex environments. As a result, a new concept of management system was created, all railway assets were provided with their geographical position together with map visualization and 360-degree images. Existing technologies were merged with innovative solutions to offer a product that gathers all necessary information about railway assets.

A WSP's project team consisting of specialists in geomatics, system development and railway, have together developed a method and process for accurate documentation of the track environment and, successively, built up an asset database where every object is classified, documented and georeferenced. An essential part of the method involves the mapping technique using both laser point cloud and 360-degree images.

The relevant information for the asset database is extracted from the gathered data. The newly measured data has two great advantages: the laser point cloud enables a precise measurement of position, and the easy to use 360-degree image viewer helps quickly recognize and identify the objects. 360-degree images and laser data are published for specific user groups. The users are able to go through the whole railway network and



The relevant information for the asset database is extracted from the gathered data.

see information visually in snapshots using IBM Maximo and the integrated Orbit Mobile Mapping Publisher. The system is especially useful and essential for many projects that involve reconstruction or completely new construction of facilities and allows to obtain information about any part of railway infrastructure directly in the web browser.

Within the project, an online map application called Railview has been developed. Railview is a browsing and viewing tool for a wider user group in Stockholm Public Transport administration. It allows to search asset information, visualize it on the map, 360-degree images or in the table. Simplified filtering options are included to ease the search within railway line, technique type, geographic position or even free text, all depending on the users' requests. In fact, Railview is an intuitive and user-friendly map-based viewer that is capable of visualizing big data.

The described asset collection and management system has many advantages over traditional data systems. Firstly, the data collection is time efficient and replaces on-site surveying that would require many weeks in high risk environments. Moreover, the images allow for visual inspection and help verify attributes such as model or material, and the integrated laser measuring can detect the height, length and precise position of the asset. The implementation of this project completely changes the way of collecting data and opens new opportunities for data inspection in dangerous or hardly accessible environments, like tunnels and highways. WSP provided the technical services to collect the real world 3D data, extract the assets from the 3D data and build up the database, and integrate the Orbit Mobile Mapping viewer into IBM Maximo.

In conclusion, the benefits of 360-degree images for any user of the asset management system are immense. The visualization of assets with stored relevant metadata, for instance, maintenance history, remarks or performed inspections, gives Stockholm Public Transport Administration full control of their infrastructure.

# **ABOUT THE AUTHORS**

Sara Hederos is a civil engineer within Geomatics and is the department manager in Stockholm. Sara has worked several years within the geomatics field, especially within infrastructure. She has experience from a number of projects, and each project has entailed an extensive responsibility, ranging from technical consultancy and assessments to overall project management in largescale projects.

Petter Tyrenius is Project Manager and Method Developer inAssetManagementforInfrastructure.Petteriscurrently focusing on IT support, business processes, asset data and inventory methods. In recent years, Petter has worked mainly for the Stockholm Public Transport Administration (SL) in projects to implement the IAM system.

# ABOUT WSP GROUP

WSP is one of the world's leading engineering professional services consulting firms. We are dedicated to our local communities and propelled by international brainpower. We are technical experts and strategic advisors including engineers, technicians, scientists, architects, planners, surveyors and environmental specialists, as well as other design, program and construction management professionals. We design lasting solutions in the Property & Buildings, Transportation & Infrastructure, Environment, Industry, Resources (including Mining and Oil & Gas) and Power & Energy sectors as well as project delivery and strategic consulting services. With 36,500 talented people in more than 500 offices across 40 countries, we engineer projects that will help societies grow for lifetimes to come. WSP Sweden is a nationwide consultancy, around 3,700 staff. www.wsp.com

# AN INTRODUCTION TO 3D MAPPING CLOUD: SOLVING THE BIG DATA CHALLENGE

3D MAPPING CLOUD IS A SAAS-BASED 3D MAPPING PLATFORM FOR ALL IMAGERY AND POINT CLOUD DATA, TO VIEW, FUSE, SHARE, PUBLISH, IN-TEGRATE AND RESELL ALL 3D MAPPING DATA. THIS SELF-SERVICE PLAT-FORM ALLOWS THE USER TO MANAGE DATA, USERS AND APPLICATIONS ON THE FLY, PROVIDING SUPERB HTML5 STREAMING, POWERFUL VIEW-ING, ANALYSIS, AND INTEGRATION CAPABILITIES USING THE FREE SDK. IN THE PAST, PEOPLE USED TO SURVEY PLACES BY PHYSICALLY GOING THERE. TODAY, MOST PROFESSIONALS WANT TO MEASURE, MONITOR, AS-SESS, AND ANALYSE PLACES FROM THEIR DESKTOP OR MOBILE PHONES. THE FUTURE IS ABOUT ORBIT GT'S 3D MAPPING CLOUD, BRINGING VERSA-TILE SOLUTIONS TO A SINGLE PLATFORM.



Real Time Fusion of Mobile Mapping and Aerial LiDAR and Oblique Mapping content (© Vexcel Imaging). Orbit GT's research has come up with the methodology to blend yet diversify the various sources of multi-sensor Reality Capture.



Powerful Measurements and Extraction tools

For over 20 years, Orbit GT has performed R&D on the domains of data reduction, indexing, compression and optimization for large datasets with the core focus on performance rather than saving disk space. We have applied this to imagery, point clouds and vector data alike since many years through the invention of dedicated storage formats and drivers. All of our products include these formats and drivers, and offer unique performance advantages : the larger your data is, the more performance you gain. **It matters, and it shows.** 

On a secondary level, data needs to be organized, especially when your dataset includes various sensors. This means that data of each sensor has to be aligned with the other to act "as one'. So we defined a 'run' containing all data of each sensor plus additional metadata. List it up in a database and an inventory of your resources show up nicely in the Catalog, ready to search, open and view, analyse, process. Managing big data resources has become insightful and easy.

Eventually, this is what you share though 3D Mapping Cloud. Any 3D Mapping resource can be put online, as well as most GIS resources. 3D Mapping Cloud instantly becomes your corporate catalog and inventory, whilst keeping all data lively available at your fingertips for viewing, sharing or other usage. 3DMC's back office (the Console) provides administrative tools to organize, tag, manage and share all resources yourself. As a surplus, you get rid of any vendor lock-in.

# Fusing Big Data Sensors and Sources

Orbit GT managed to standardize the above approach to multi-sensor data in all 3D Mapping domains : streetlevel Mobile Mapping, drone based UAS Mapping, aerial LiDAR and Oblique Mapping, Indoor or Terrestrial Scanning, etc. This unification has led to the next level : fusion of data. This is a quite evident thing in GIS, but not at all commonly available in our Big Data domain.

**Now it is**. Orbit GT's research has come up with the methodology to blend yet diversify the various sources of multisensor reality capture. The outcome is applied throughout our portfolio, desktop and online, while honouring the credo of "Simplicity is the Ultimate Sophistication" (by Leonardo da Vinci), systematically applied to all of our product's user interfaces. So go online to 3D Mapping Cloud, and pick any resource you like. 3DMC knows exactly how to handle each type of resource, and will provide the appropriate tools matching your resources fully automatically. **How cool is that ?** 

# View, Measure, Extract, Analyse

Key component is of course the 3D Mapping Cloud viewer. Using the latest HTML5 and WebGL technologies, the viewer lists the resources for which a user has access permission in a personal Catalog. Any of the resources can be combined in a single view, setting your screen layout, and easily switching between full 3D view, image view, and other data presentation techniques such as stereo, isometric or a good old 2D map view. The multitude of measurement tools can all be used on any of these views : you can start a measurement on an image, and complete it on the point cloud 3D view or on the next image. How's that about flexibility ! Results are displayed and can be downloaded instantly. Many more tools\* will be added over time. not in the least the automated feature extraction tools that are already available on our desktop products.

SHARE

# **SHARE**, PUBLISH, COLLABORATE...

Allow customers and contractors to directly access your data by permissions. Setup Publications for ready-made portals including 2D and 3D data.

### Share and Collaborate

A primary focus of 3D Mapping Cloud is the ultimate sharing and collaboration capability. First of all, Users can be grouped in Teams. Then permissions can be set to individuals, Teams or a full Company (all users). **So sharing a resource becomes very easy.** 

But 3DMC goes way futher. The same sharing flexibility can be applied to users and teams from another company ; your contractor, your customer, your prospect, your business partner. Moveover, this applies not only to single resources, but also to bundles of resources as defined in a Publication (see further). And the nice thing is, you all manage it yourself, in seconds.

Collaboration tools\* such as tagging and redlining allow users to simultaneously use and view data and share comments and feedback. **A great boost in productivity !** 

### Workflow and Integration

Now all this is pretty cool, and we're already surpassing any competition with only the above. But at Orbit GT we realize that the real value of 3D Mapping Cloud is to be found within your workflow. Just as GIS generates value by integration, so does 3DMC for all these complex and sized 3D mapping resources.

Workflow integration is realized using the free SDK\*, enabling to use all of the viewer's power from within your host application or website. Access to complex datasets can be organized using "Publications", a kind of bundle of resources preset for which resource to use in which context – wow !

Publications also open the use of complex data to the public : it's a way to prep a website with exactly that data required for the job. For example : provide access to all the Mobile Mapping and UAS Mapping data from one city to the complete city administration. No training required. The SDK is 100% HTML5 and JS, allowing anyone to build integrations, websites and mobile apps for each platform directly linked to the cloud. The Hybrid\* solution allows to simultaneously connect to cloud stored resources and on-premises stored resources, from the viewer, website and in any SDK-based application. Really, there are no limits !

### Marketplace

Organisations the perform reality capture often do so as part of a single project. At Orbit GT, we believe that this data is too valuable to be put on a shelf, and it should be reused. With 3DMC, reuse is simpley a matter of sharing, so technically that's done in a few clicks. But with whom will you share your valuable data ?

That's why we build the Marketplace\*. As users become acquainted with 3D Mapping resources thanks to the ease of use of 3DMC, they will very likely wish to use more of it in future projects. Now what will happen if they can look for available data in relation to the location of their future task ? Correct : they are likely to call up the data owner, and reuse the available resources rather than pay a lot more for a new data collection.

This is exactly what the Marketplace is made for. On the one side, the data owner lists up what is available, and on the other side the data user searches for a match. It's then up to both parties to close a deal. Orbit GT offers this instrument to **monetize your data for free.**  ANYONE ANYWHERE

# INTEGRATE ANYWHERE

JUR WORKFL

Use the free SDK to embed the full functionality of the 3D Mapping Cloud into your application or website, on any device. Empower your teams and customers with unlimited resources.

Sharing, Collaboration, Integration

# WHY WOULD YOU USE 3D MAPPING CLOUD ?

FREE

### Strong Industry Support

**INTEGRATE** 

Since day one, Orbit GT's philosophy has been about being hardware agnostic, simplification, performance, and state-of-the-art solutions. We are indeed very proud of the Industry support we have won over the years. All major and minor manufacturers of reality capture equipment partner with Orbit GT, and many of them are reselling our software solutions as a package with their hardware.

Key message to you is that, which ever technique you wish or need to use, Orbit GT's software can manage. There's no need to change software when you wish to upgrade your hardware unit, or when you switch contractor. Orbit is hardware-agnostic. Orbit can manage. Even better, Orbit GT supports hardware setups that company technicians have tweaked or put together themselves to meet very specific job requirements. Again, Orbit can manage.

This engagement guarantees support for historic, but more important for

future data delivery. One software to match all, and you're safe. That's how it's supposed to be, and that's what we do.

# **Operational Advantages**

From operational and technical perspective, professionals are challenged by data management and data sharing, fusion of Mobile 3D Scanning with UAS data and its matching imagery, maybe using Aerial LiDAR, Oblique Imagery, Indoor and Terrestrial Scanning... and combine that with your GIS/CAD data.

Then you require processing, feature extraction, measurements, analysis ? Maybe access from portable devices? And you want al of that nicely within an easy-to-use workflow, integrated in your webpage or other host software, website and so on. Ouch.

Well, search no more. This is exactly what 3D Mapping Cloud is doing for you. **All of it.** 

### **Business Advantages**

Today's surveying business is loaded with big data, and it doesn't matter if you're the one collecting it, or if you're the end user of the project results : big data it is. So how are you going to manage that ? Are you going to spend fortunes on IT, duplicate terabytes of data for different departments, trying to keep track of what you have available and what not, what sits on a disconnected disk on some shelf or on a server, try to manage permissions, it's metadata and specifications, the usage, disc and CPU upgrades, and what not ....

It's about time to get rid of such a headache. And our **3D Mapping Cloud** has the answers to each and all of these problems. That's exactly why we built it. At Orbit GT, we have over 10 years of experience in Mobile and UAS Mapping, hence handling terabytes is not an issue for us. Nor is fusion of data and combining sensors such as cameras and laser scanners, or other sensors. Our proven technology has broad and strong industry support, is being used globally, and covers a wide range of applications. This technology is now brought to the web. And as a bonus, to all portable devices as well.

The SaaS model allows for a moderate monthly spending rather than a full purchase of IT infrastructure, that's a no brainer. On top, it returns supplementary business models. sharing opportunities, monetizing your valuable data, and most of all integration capabilities that boost performance and time-to-market. Furthermore, updates are posted regularly and there's nothing you need to do to get them.

From a usage point of view, it allows you to tender out based on data specifications, accuracies and other quality parameters, instead of on hardware or feature choices. You can share resources with your contractor, or vice-versa. You can fuse data from various vendors, contractors or archives, and combine with your own. At the same time, 3DMC can operate as a megastore for all of your large 3D resources, searchable, sharable, immediately available for use, or archived. Isn't that how it's supposed to be ? We think it is.

We all know that managing your own IT infrastructure is a burden and a large cost. SaaS based solutions offer relief to any IT department and especially regarding its TCO. Furthermore, managing big data requires big infrastructure, so SaaS becomes even more cost-saving. On the operational side, tons of money get saved by the capability to easily share information in real time, be on top of a project, and have instant status feedback. So that helps to raise your profitability, get your deliveries on time, and provide the customer with more insight than he ever knew was possible. As an end user, you can get access to vast volumes of data without having to worry about technical details, data formats and so on. **It just works**.

# Solving IT challenges with SaaS

It is quite obvious that the IT infrastructure required to support these immense volumes of data is not an every day job. It's an ongoing battle. Many studies have shown that the



Total Cost of Ownership of your own IT setup cannot match up with the cloud based SaaS model. So if you have too much money to spend, by all means go ahead. You'll probably prefer to use one of our on-premises Publisher products in that case. As a plus, 3D Mapping Cloud can operate in Hybrid\* mode, accessing both cloud-based as on-prem resources on the fly ! But logically, the SaaS model is not only profitable, it also reliefs you of many headaches : no setup, no hardware maintenance, no software upgrades, no storage backups, and so much more. Thank (who-ever you like) for this !



# WHY SAAS IS BENEFICIAL TO ORGANISATIONS

- No additional hardware costs: the processing power required to run the applications is supplied by the cloud provider.
- No initial setup costs : applications are ready to use once the user subscribes.
- Pay for what you use: if a piece of software is only needed for a limited period then it is only paid for over that period and subscriptions can usually be halted at any time.
- Usage is scalable : if a user decides they need more users or storage or additional services, for example, then they can access these on demand without needing to install new software or hardware.
- Updates are automated : whenever there is an update it is available online to existing customers, often free of charge. No new software will be required as it often is with other types of applications and the updates will usually be deployed automatically by the cloud provider.
- Cross device compatibility : SaaS applications can be accessed via any internet enabled device, which

makes it ideal for those who use a number of different devices, such as internet enabled phones and tablets, and those who don't always use the same computer.

- Accessible from any location : rather than being restricted to installations on individual computers, an application can be accessed from anywhere with an internet enabled device.
- Applications can be embedded / integrated : with some software, components can be integrated in other applications such as websites, to suit the needs and workflow of a particular customer.
- Summary
  - There are no setup costs with SaaS, as there
  - often are with other applications
  - SaaS is scalable with upgrades available on demand
  - Access to Software as a Service is compatible across all internet enabled devices
  - As long as there is an internet connection, applications are accessible from any location



The 3DMC Viewer's simple and attractive GUI, showing over 2TB of aerial and streetlevel LiDAR.

# **GET STARTED NOW**

# Sign Up

**Sign Up today.** It's easy, and in a few clicks you can experience the power and performance of 3DMC. If you want to use your own data, use one of the Upload tools to bring it online (see www.3dmapping.cloud ). You can also try our Sample data or ask a third party to share some with you.

3D Mapping Cloud works with an Account per organisation, holding a number of named users that are invited by the account manager. We call that a Plan. You can upscale or downscale at any time. If you require storage capacity, that can be scaled up and down separately. As a trial user, you have 2 weeks to explore the sample data, with no limitations on the viewer's capacities.

# **The Viewer**

You start by accessing resources via your Catalog. If you don't have any data yet, you can always try out our Sample data. The viewer works with a left-hand side toolbar, and can open a sidebar to the left. There's also a menu in the top right corner.

Use the left and right mouse buttons for easy and intuitive navigation. Switch views in the toolbar on the fly, from 3D to image and back. Use the Resources sidebar to manage the Resources or alter their appearance. The Screen Layout toolbar set's the layout of different simultaneous viewing windows. The Measure sidebar offers all measuring tools, their results, and the export and download capabilities. You can also open Publications in the same way. Publications will typically have a restriction on the usage of additional resources and some sidebar functionalities as intended for nontrained consumers. The Viewer, with all of it's capabilities, is also available as SDK\*, **for free.** 

Get to learn how to use the Viewer on www.3dmapping.cloud.

### The Console

The 3DMC back office is called "Console". Here's where you manage your Account, the Catalog and the Users. On the Account level, you manage your plan, the allowed user logins, the storage volume and other services you require from 3DMC. The Catalog part manages the individual resources, their sharing settings and metadata, and the publications that you have set up and shared. On the

User level, individual user settings, permissions and roles are defined, as well as their participation in any team. On the management level, performance and usage indicators and dashboards\* provide insight in your account, and the Marketplace\* provides the instruments to monetize your data further.

The Console is Self Service and Self Manage : you have full control of everything.

### **Cloud Storage and Security**

Orbit GT goes the extra mile to ensure the best possible performance and security for your data. 3DMC can use all Data Centers across the globe – Using Microsoft Azure, we have access to the best global spread. So you pick the data center that is nearest to you, or to your customer, to ensure the best performance. By default, data redundancy is take care of, as well as guaranteed uptime.

It is even possible to setup your own private 'cloud within the cloud' ("Tennant") to ensure that you have your private storage discs and computers running for only your organisation. In some countries, government organisations can use the Gov-only Data Centers that Microsoft provides. And finally the Hybrid\* solution is there to keep your most valuable resources on premises. All of these options are transparent for 3DMC. Isn't that cool ?

Security and Privacy are covered by design. 3D Mapping Cloud uses 2-step user verification, user authentication, secured SSL sockets, proprietary implementation of user identification, binary data transfer, and no directly access to any of your data (physical data storage location cannot be accessed from outside the cloud's servers). It is probably the most secure environment in the mapping business.

### Where to go next?

New features are regularly posted and documented on our Blog. Check out the Blog posts, the FAQ pages, and follow us on social media such as Facebook, Twitter and Linked In. That's the best way to keep up to date with What's New. In the Viewer, you can open up the Blog Postings in the top left menu.

# Now go to www.3dmapping.cloud and discover the future of 3D Mapping !

\*Note : Some of the described features are not yet live on date of release of this magazine (September 2017) but will become worldwide available soon after.

# 3Dmapping P

THE DISCUSSION IS OVER THERE'S NO BIG DATA ISSUE ANYMORE...

