orbit

MAGAZINE FOR GEOSPATIAL TECHNOLOGIES

EN

TRENDWATCHER

Flemish Government maps all streets

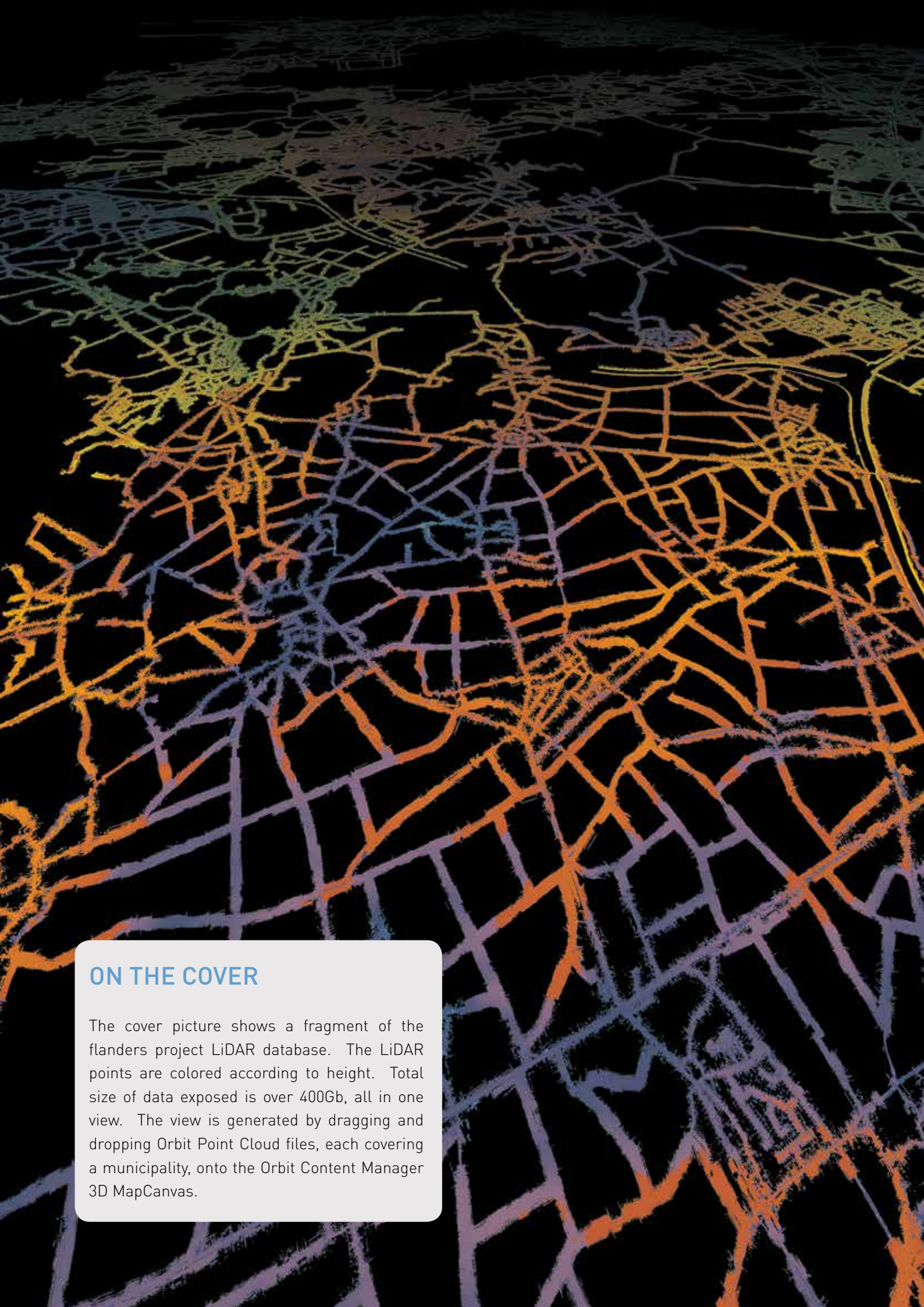
SOLUTIONS

Genesys supplies India's Telecom Industry

Getmapping provides UK with Street Imagery

TRENDWATCHER

Orbit GT's Content Manager



ON THE COVER

The cover picture shows a fragment of the flanders project LiDAR database. The LiDAR points are colored according to height. Total size of data exposed is over 400Gb, all in one view. The view is generated by dragging and dropping Orbit Point Cloud files, each covering a municipality, onto the Orbit Content Manager 3D MapCanvas.

CONTENT

COLOPHON

Publisher: Orbit GT nv

Authors: Tony Vanderstraete
Anju Khatri
Tom Huntley
Lomme Devriendt
Peter Bonne

Editor in chief: Peter Bonne

Graphics : Lutz Stange

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EDITORIAL

Dear Reader,

Welcome back! We're pleased again to present very inspiring cases of large scale use of Mobile Mapping and street level imagery. The business has reached its tipping point where this new disruptive technology becomes not only widely accepted, but also widely implemented and applied in various operational workflows on a global scale.

Although success stories can be found throughout the world, we have to limit ourselves to only a few featuring in this edition. These stories tell the different ways in which Mobile Mapping and Orbit GT's technology make a world of difference for so many peoples' day to day work.

One of India's major telecom operators gains significantly in efficiency and response time. UK's local authorities benefit from operational time, efficiency, reporting tools and more. All of the Flemish government organizations have central access to current and historical street level data of every street in the whole region.

The debate is over. Scale, size, volume, .. are no issues anymore. Orbit GT delivers the best solutions for Everything Mobile Mapping.

Enjoy!

Peter Bonne

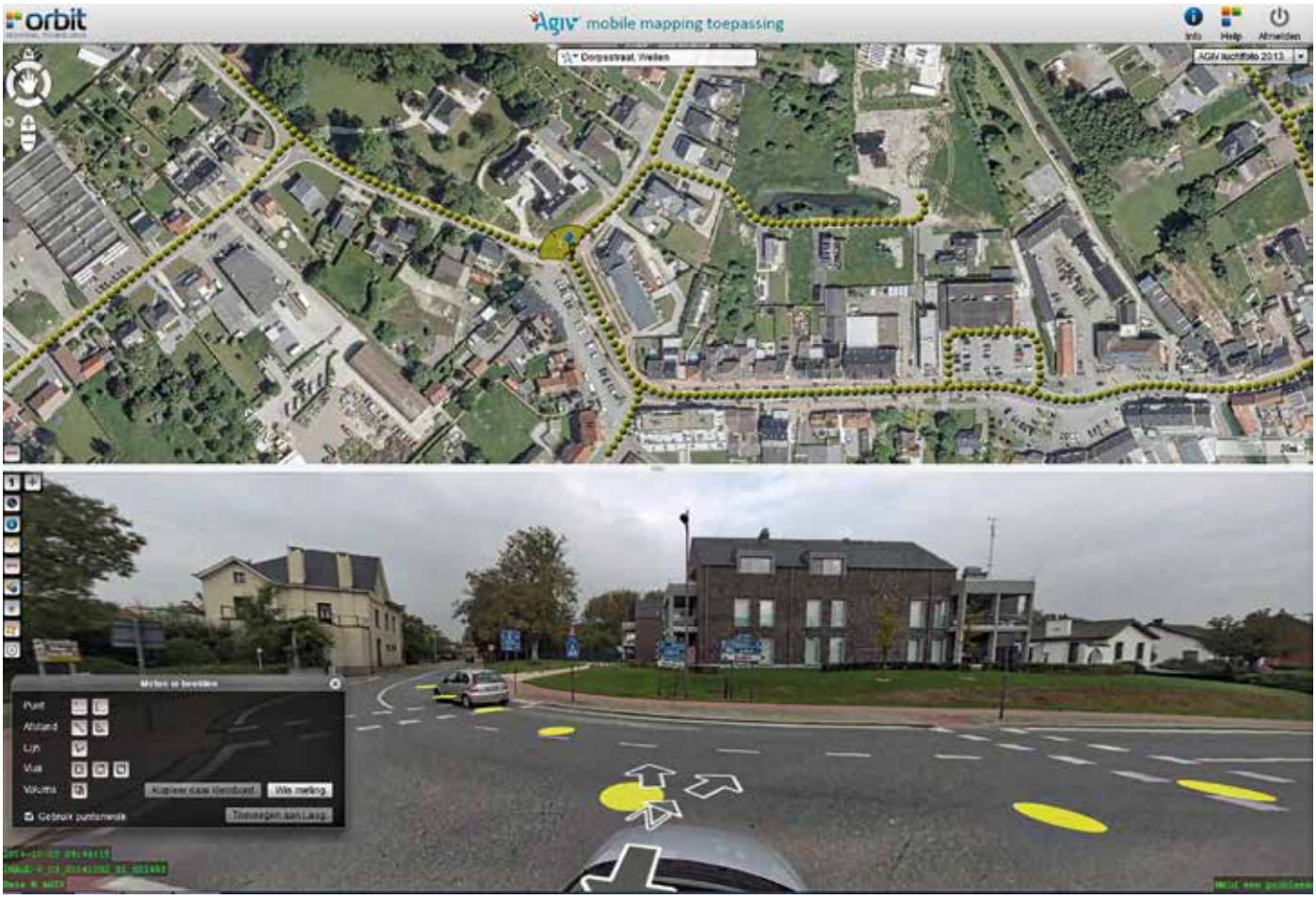
CONTACT US

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

phone +32 9 340 5757
+32 9 340 5750
mail info@orbitgt.com
www.orbitgt.com

TENDERING UP TO DATE WITH TECHNOLOGY AND LEGISLATION

BASED ON A SUCCESSFUL FIRST ROUND IN 2008-2010, AND ON POPULAR DEMAND, THE FLANDERS GEOGRAPHICAL INFORMATION AGENCY (FGIA) HAS DECIDED TO TENDER A SECOND ROUND OF MOBILE MAPPING, COVERING ALL ISSUES LEARNED FROM ROUND ONE.



FGIA's Mobile Mapping portal

Improved points of attention were the coverage of all roads, provisioning the data for all government bodies, and a pre-arranged agreement with the privacy commission covering all privacy related issues at once. From the technical side, FGIA has chosen to keep up with the evolution and has organized a pre-tender RFI to assemble valuable information about the variations in quality, precision, capture speed, sensors, data volume, usability and deployment of data by contemporary mobile mapping solutions. FGIA started well prepared and well informed on this project.

The tender was won in July 2014 by Image-V, a joint venture between Teccon and Grontmij. The job required the acquisition of spherical imagery and LiDAR data for all 65,000 kilometres of roads in Flanders. Image-V started operations with four vehicles. The project initially covers a two year period in which all data acquisition and publishing must be completed. Options to extend this project, subject to FGIA decisions, can be lifted.

Acquisition

The acquisition requires the combination of high resolution images and 3D-point clouds to allow for detailed observations and measurements. It also requires the blurring of privacy-

sensitive areas on the imagery, being faces and license plates. Within two years, all data must be brought online. As a supplement, the data collected in the first round must be brought online as well in the same application, so users can access new and historic data in one go. To do so, the historic data must comply with the same privacy prescriptions, hence processed for faces and license plates.

For production, Image-V uses Topcon IP-S2 hardware systems and Orbit MM Content Manager software. As subcontractor, Orbit GT assisted in the blurring process and the production workflow.

Maximum use

The Flemish Government and the FGIA have set up this project in such way that a maximum use can be achieved with a minimum of efforts for all government audiences. The online solution has been made available for all partners within the Flemish GSDI-community, predominantly public and semi-public regional and local authorities. However, due to additional privacy restrictions, it is yet not available for the general public. All government personnel can, after a simple and single registration with the FGIA, access the data free of charge and without any additional restrictions on its use.

Online disclosure

The data are disclosed via multiple channels, provided by Orbit GT: (1) a secured online application allowing for browsing the images, comparing temporal series, performing detailed measurements and basic feature extraction, built with the Orbit MM Publisher SDK; (2) the same SDK supporting the integration of the online functionalities within the users business processes, workflows and environment, available to develop plugins; and (3) a mobile app for iOS devices for consultancy.

Image-V cars fully equipped with Topcon IP-S2 systems

Overall, 12 to 13 million images will be collected of each 8,000 by 4,000 pixels resolution, totalling a volume of 120 TB. When adding the LiDAR data and historic series, the data hosting effort is estimated at 250 TB by the end of the job.

More information on the product can be found at (in Dutch): **https://www.agiv.be/producten/mobilemapping**

The mission of the Flanders Geographical Information Agency (FGIA), a regional governmental institution, is to ensure optimal use of geographical information in Flanders by working out solutions that can be integrated by governmental bodies, companies and the general public. Flanders is the largest region of Belgium.

The '360°-beeldendatabank Vlaanderen' is Flanders' mobile mapping solution, managed by the FGIA. Mobile mapping data is considered a valuable tool for a more efficient and effective management of the public domain. Applications are found on different levels of government, both local and regional, and within a multitude of domains including but not restricted to asset management, housing, environment, tourism, and public safety.

Instant comparison: left image is 2010, right image is 2015 clearly showing the change in infrastructure

About the author

Tony Vanderstraete is Teamleader Image Processing and Product Owner aerial photography, digital elevation models, mobile mapping at FGIA.

MOBILE MAPPING LARGE PROJECTS

MANAGING AND ORGANIZING COUNTRY OR CITY WIDE MOBILE MAPPING PROJECTS

In a changing world, techniques to grasp these changes and process them rapidly into actionable data are on the rise. Mobile Mapping is such a technique, and it is increasingly being used to map and update large areas and a big variety of objects that are modeled in geodatabases.

As the conversion of old analog maps into digital content lies behind us, updating is now the challenge. And the demand for a higher update frequency is increasing. Whereas traditional land surveying and stereo photogrammetry still retain their value, it is widely accepted that mobile mapping can speed up these data production processes. Countries, states, counties, cities all start to shift their map update processes from traditional mapping to a mobile mapping workflow. As budgets are tighter than even before, mobile mapping also proves to be cost effective when properly managed. Additionally, street level content adds value to many other tasks throughout administrations, creating improved workflows on quite different domains than mapmaking. It is fast becoming an indispensable source for planning, evaluations, taxation, public safety, environmental management and more.

How to map a country with Mobile Mapping

Let's take a look how to manage and organize large projects, based on a few example projects: the Flemish Government in Belgium has decided last year to cover its 64,000 kilometers of public roads in Mobile Mapping data in less than two years (pointcloud and spherical imagery). The same choice is made by the mapping department of the City of Stockholm in Sweden who decided to capture its 5,000 kilometers of roads and biking trails in point cloud and imagery. Similar region wide projects are performed or in progress for Istanbul (Turkey), Rotterdam (The Netherlands), Barcelona (Spain), The Hague (The Netherlands), Singapore, Seville (Spain) and Santa Cruz (Bolivia). In all of these projects, Orbit software workflows have proven to be key.

In the Flemish project, 64,000 kilometers need to be collected during two years from 2014 to 2016, with an an option to update in 2016-2018. That's quite a big job shooting over 25 million pictures and scanning hundreds of terabytes of LiDAR data. It requires at least four Mobile Mapping vehicles driving continuously as long as weather circumstances allow it.

When looking at the lifecycle of Mobile Mapping data, one can identify 3 major stages : Collection, Feature Extraction, and Sharing (see fig 1).

Collection hardware support and data catalog

While long-term and short-term planning is crucial for this project, one needs to take into account that planning will never cover all needs. If an unforeseen obstacle appears such as a traffic jam or a closed road, one needs to change plans and move priorities. In this perspective it is of obvious importance to have the proper tools to catalog the collection allowing to deal fast and effectively with multiple passes, determining and recollecting poorly covered segments, updating sections with missing data or unsatisfying positional accuracy, and so on. Furthermore, looking into historical and future updates of the mobile mapping data, the data management workflow needs to support and handle every mobile mapping collection system.

Hence, the workflow should be very flexible, able to integrate ad hoc jobs, and create a request-compliant delivery. A primary element is the support for any and all mobile mapping hardware systems from survey grade to mapping grade, using imagery, LiDAR and preferably both. Most-well

know hardware systems these days are manufactured by Riegl, Teledyne Optech, Topcon, Leica Geosystems, Trimble, Mandli Communications, LidarUSA, and 3D Laser Mapping. But also any other system, either commercially available or custom made, is supported by the Orbit software tools.

While mobile mapping is not strictly limited to LiDAR with imagery, most systems these days are based on a setup that combines both as there are many advantages to such setup : the effort to put both components together is much smaller than the benefits it delivers. While imagery (planar and/or 360° spherical imagery) makes it easy to navigate and interpret, LIDAR provides the accuracy for measurements and feature extraction. The advantages are even higher when dealing with country wide projects where the investment of a single coverage is significant.

Tackling immense data volumes

Just imagine this: a medium scaled system would collect 50 kilometers a day, with an image every 5 meters and a LiDAR system collection some 500,000 points per second. A simple calculation tells you that this type of mobile mapping setup collects 120 GB of data each day, with 70 GB for imagery and 50 GB for LiDAR. In the Flemish example, four cars collect about half a terabyte every day. That's quite a volume. High end systems even go up to 1 TB per day, each. To process all that, it is required to have an optimized workflow and optimized data storage. Orbit's Mobile Mapping Content Manager does exactly that, fully integrated with the catalog requirements as described above and below. Tiling imagery or pointcloud into smaller chunks is no longer required as it creates much management overhead and hence decreases overall performance. Orbit's performance-oriented data storage will prove to be essential in each of these projects.

Fig.1: The lifecycle of Mobile Mapping data

Table 1 lists a number of small and medium sized towns in the Flanders project. Notice the huge number of images and size of pointcloud data that needs to be managed almost simultaneously to achieve full coverage in two years' time.

Cleaning and QC

Cleaning up the point cloud is next. Because of the joint collection of LiDAR and street imagery, so-called ghosts are appearing in the pointcloud, e.g. moving objects that do not match with the imagery. This is an obstacle -and may cause confusion and even frustration- when it comes to mapping and extraction features from the mobile mapping content. Though this step is not always required, it is a challenging job to do. Most of it requires manual judgement as only portions of the cleaning job can be automated. Here again, an optimized data storage, performance, visualization and workflow are key. Figures 2a and 2b show the difference between a non-cleaned and an cleaned pointcloud.

Town	Raw Data size (GB)	Number of Images	Size of Images (GB)	Size of Orbit PointCloud (GB)	Size of Orbit PointCloud Optimized for publication (GB)
Aalter	328	66.763	190,0	132,0	93,5
Bilzen	287	66.088	177,0	96,9	82,9
Destelbergen	193	35.751	109,0	81,6	57,5
Diepenbeek	175	40.554	108,0	65,1	55,7
Hechtel-Eksel	163	36.839	107,0	54,6	46,7
Maarkedal	170	37.947	96,1	67,6	47,6
Nevele	202	44.112	118,0	78,0	55,0
Overpelt	165	40.620	109,0	55,2	47,2
Stekene	199	41.145	126,0	70,5	49,7
Waasmunster	144	27.393	78,6	63,0	44,4
Wortegem-Petegem	153	33.231	94,1	57,6	40,6
Zele	146	30.674	82,7	61,6	43,4

Table 1: number of small and medium sized towns in the Flanders project.

Controlling positional accuracy

As most data collection projects require a certain positional accuracy, one needs to provide proof. While in traditional photogrammetric projects, standard analytics can document the bundle adjustment results, but an equivalent to that for mobile mapping is not yet common. Today, two elements help in achieving exactly that: the GPS position log (trajectory) and ground control points (GCP). The trajectory can be displayed using the projects requirements as thresholds and applying a color scheme. The operator detects immediately which portions of the collected data do not comply. Representation on the map allows to determine which streets to recollect or adjust, while the graph represents the trajectory on a linear timescale. Both views can be used simultaneously and included in reporting. GCP's can be imported and displayed on map and timeline. A simple constraint measurement lists the accuracy and deviation for each GCP, again to be used in reporting.

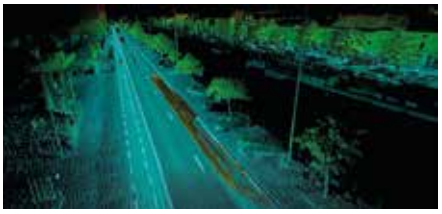


Fig. 2a: non-cleaned pointcloud

Fig. 2b: cleaned pointcloud

For segments of trajectories that do not match the required accuracy, several options can be chosen: either recollect the data, delete this segment and replace it by another pass of that same area, or apply trajectory adjustment based on the GCP's and their constraint measurements. The latter will smoothly correct imagery and point cloud to exactly match the GCP locations while retaining the rest of the trajectory.

Figure 3 shows a screenshot of map and linear graph representation of GPS accuracy.

Consolidation and delivery

Corrections applied to the raw collected data are presented in preview, but not applied to the raw data as each transaction would take too much time to process. Better is to collect all defined corrections, and consolidate them once to create a cleaned and corrected version. Consolidation can be put in a Task Manager so it can run overnight.

Next is to bundle the various consolidated collections into a single Delivery. For example, if collecting a county requires ten days driving two cars, you'll have 20 collections (also called runs). In a delivery, you're bundling that into a single collection. Furthermore, processing options can be applied to convert the CRS, or thin out the pointcloud. The latter can be useful to save space on your hosting facilities when publishing the data for online use.

Figure 4 shows the Orbit MM Content Manager displaying a portion of the Flemish project where streets are colored by collection, combined with a 3D LiDAR data view.

Sharing Mobile Mapping content online

Most of the large scale mobile mapping projects, intend to share the data online, either for internal use or to share to the public. In many cases, a Feature Extraction task is a portion of the overall job, on which we can elaborate in another article later on.

So here we are with terabytes of imagery and point cloud data trying to share that in an easy way to pro and non-pro users. To do so, Orbit's Mobile Mapping Publisher is selected in all mentioned projects, and this is how it works.

Prepping the data for online use

When importing the just collected data using the Content Manager, the imagery and LiDAR data is immediately converted to performance-optimized data formats. The cool thing is that it is immediately ready for publishing. However, the Content Manager also includes the delivery capability, allowing to optimize a second time as there are two extra issues you may wish to take into account: the CRS, and a thinning of the pointcloud. The latter will save you some hosting space, hence reduce hosting costs. The former will save computation time in case a CRS transformation needs to be done in real-time, resulting in better performance while retaining lower tech requirements.

In a country-wide project, you may wish to deliver by town, in a city-wide project, you may choose to go by the city's subdivisions. In any case, you will be delivering a bunch of Deliveries to be published. Publisher configurations allow to easily group deliveries into a single Publication, to which login credentials, vector data and much more can be associated. Deliveries can be categorized, for example by year, vehicle, quality or anything else. The end user can choose to switch on and off each category.

Basic online sharing

The Publisher immediately publishes to a webpage. Use the login to get access to the publications that your administrator has determined. For open projects, a login may be skipped.

Fig. 3: Trajectory Adjustment

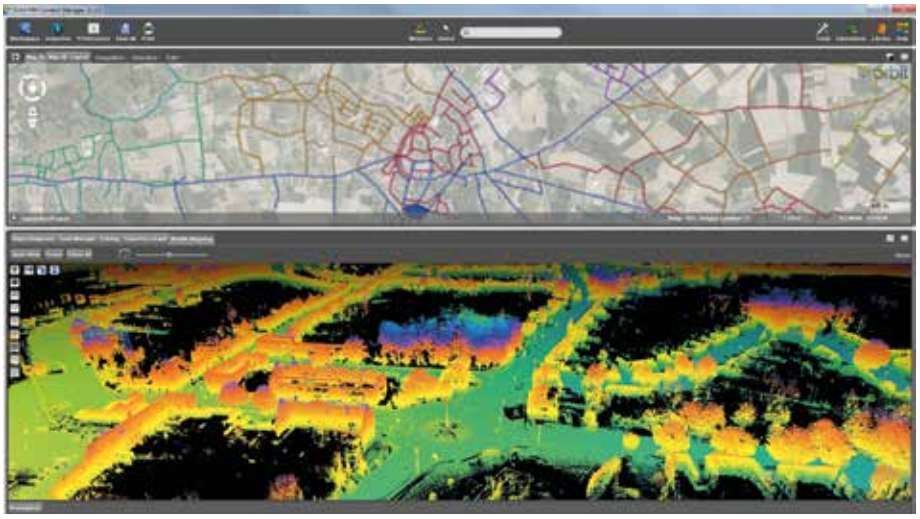


Fig. 4: Mobile Mapping Content Manager

One can also use the free iOS App (figure 5)

Integrated online sharing

At the same time, the Publisher also publishes to the SDK that can be used to embed access to Mobile Mapping content into any host software or workflow. Integrations are off-the-shelf available for ArcGIS, ArcOnline, AutoCAD, MicroStation, GeoMedia, QGIS and more. Others can use the SDK to embed in any workflow. Figure 6 shows integrated mobile mapping access in ArcMap.

Preserving privacy

In some of the mentioned projects, the intention is to share at least the imagery with the public. This means that privacy laws must be respected, by blurring out faces and license plates.

The Orbit Mobile Mapping portfolio includes a workflow to

- identify faces and plates on imagery
- blur those areas and reprocess the imagery
- present an option to the end user to report a problem and
- have a helpdesk activity process the problem reports and upload corrected images.
- provides a fully closed loop to support any privacy related issue, which may even be used in other processes as well.

Fig. 6:Mobile Mapping content in ArcMap

Conclusion

We can conclude that the workflow that is being used to collect is as important as the collection itself. Mobile Mapping is more than just collecting data from a mobile vehicle. It must be seen as a complete lifecycle, being able to deliver the right content to the right user. Getting the collection organized, supporting multiple data collection vehicles and sensor setups, keeping an overview of collected data and managing its immense volume is a first step. Cleaning and correcting is next, up to accuracy and general QC, consolidation and final delivery. Finally, sharing the data online and integrating it into the end user's workflow completes most projects. Essential to its success is the use of fully integrated and optimized processing software that covers all needs.

Fig. 5: IOS app

About the authors

Peter Bonne is CEO at Orbit GT.
Dr. Lomme Devriendt is Marketing & Sales Executive at Orbit GT.

TELESCAPE: ORBIT GT'S MOBILE MAPPING INTERFACE INTEGRATED WITH GENESYS LIDAR AND PANO DATA

With the total number of telecom subscriptions pegged to touch the one billion mark by the end of this year in India, according to the Telecom Regulatory Authority of India; and with the upcoming 4G roll out, there is an immense stress on India's existing telecom network infrastructure.

The winner of this fierce competition between the Indian telecom giants simply boils down to how they utilize and upgrade their existing infrastructure in a scenario already congested with multiple players. Optimum route planning of the Optical Fiber Cable as well as efficient management of corresponding assets including precise location of the cables is the need of the hour.

This is where Genesys International steps into the picture to streamline the workflow of telecommunications in a country that is already strained to its limits for space to construct new sites and routes for a next-gen telecom infrastructure.

The Indian Connection

Genesys International has partnered with Orbit Geospatial Technologies this year to become an authorized reseller of Orbit GT Mobile Mapping software products. This partnership has put Genesys in a pivotal position to be of immense help to ease the current infrastructure crunch scenario faced by India's telecom industry.

Challenges

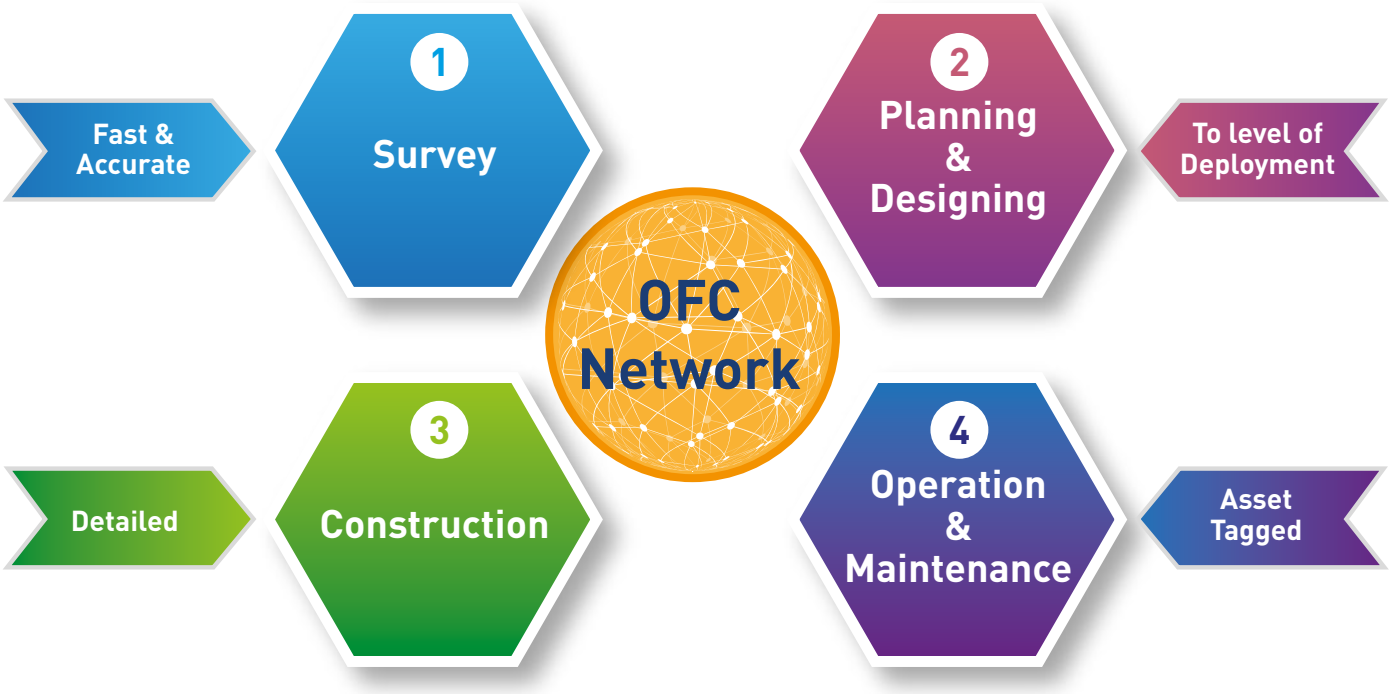
The continuously evolving telecom technology and intense competition has necessitated very tight financial and inventory controls, maximum utilization of installed physical inventory and high quality of uninterrupted service to the customers. At the same time, resource shortages and budget constraints combined with fast-paced asset maintenance cycles make managing work order backlogs and maintaining infrastructure data crucial for managing the whole value chain. In the event of service interruption, quick access to the network data as well as the ability to locate, diagnose, and respond to the failure has become a challenge.

The biggest challenge faced by every Indian telecom company is the absence of a unified platform on which information pertaining to right of way, cable layout location and plans as well as individual asset locations are available. The space crunch results in different telecom companies intruding each other's right of way resulting in a loss of connectivity during digging or upgradation phase. This is because the location of cables and assets along the route are not accurately known.

The solution

Orbit GT's Mobile Mapping software combined with Genesys' state of the art LiDAR Data sets has resulted in a revolutionary shift in the way surveying and mapping is carried out in the Indian telecom industry. For the very first time in India, the integrated platform TeleSCAPE has resulted in georeferenced LiDAR point cloud data sets that can be viewed on a web-based environment.

The integration of LiDAR point clouds coupled with 3600 HD Pano Imagery within Orbit GT's Mobile Mapping software reflects the ground reality as it is. The spatial processing functionality provides the experiential feel of reality on the desktop. This enables countless spatial data derivatives and field reality interpretation capabilities. This facilitates informed decision making processes across the entire project lifecycle as illustrated:



HIGHLIGHTS OF THE TELESCAPE INTEGRATED PLATFORM:

- Complete asset inventory on a web-based platform
- Entirely customizable to suit different clients' needs
- LiDAR+Pano data enable the user to accurately measure distances, lengths and heights of every feature visible on screen
- Detailed route survey can be undertaken on a desktop-based environment
- Feature tagging both on site as well as in the office, highlighting deviations, faults, etc.
- Feature extraction from on screen LiDAR data
- Precise location of ROW helps save legal costs due to damage of nearby cables belonging to other companies
- O&M team can be directed to the precise location of the faulty cable or asset, thus saving costly downtime

DELIVERABLES OF THE PLATFORM:

- Maps can be printed directly from TeleSCAPE
- Ability to export video files of a corridor for O&M team to cross reference accurately on field
- Detailed route survey of new corridors helps in planning new OFC laying routes
- Picture of a fault along with its location can be printed making it easier to locate on field
- Geospatially tagged attribute data sets
- Doubles up as a marketing tool as TeleSCAPE can be used to identify potential new connections along survey routes

ABOUT GENESYS

Genesys International Corporation Ltd is the pioneer of the LiDAR technology in India, and is now the largest LiDAR acquisition and processing firm. Genesys has proved globally its expertise across various verticals over 19 years. The firm has an unique blend of understanding the emerging consumer applications around mapping technology as well as capability on the enterprise side to offer innovative solutions revolving around state-of-art remote sensing, LiDAR, aerial survey and photogrammetry techniques.

Genesys' capabilities in spatial data acquisition, management and applications over a diverse range of platforms have led the company to work with many global initiatives partnering with several international geospatial majors. Besides providing services and solutions, Genesys owns a vast repository of spatial data with a special focus on the Indian markets.

For more information, please contact:
Anju Khatri, Genesys,
73-A, SDF III, SEEPZ, Andheri East, Mumbai, India 400096
Phone: +91-22-44884488
E-mail: sales@genesys.com

GENESYS

About the authors

Anju Khatri is Marketing Manager for Genesys International Corp.

GETMAPPING USES ORBIT MOBILE MAPPING TO DELIVER HIGH RESOLUTION STREET MAPPING

Getmapping plc is a leading provider of aerial photography, mapping products and data hosting solutions in the UK and South Africa. Founded in 1998, Getmapping was the first organisation to create a complete photographic record of the UK, called the Millennium Map. Since then, Getmapping has expanded to provide Web Services (WMS, WFS, INSPIRE), hosted GIS and consultancy to a range of industries in the public and private sector.

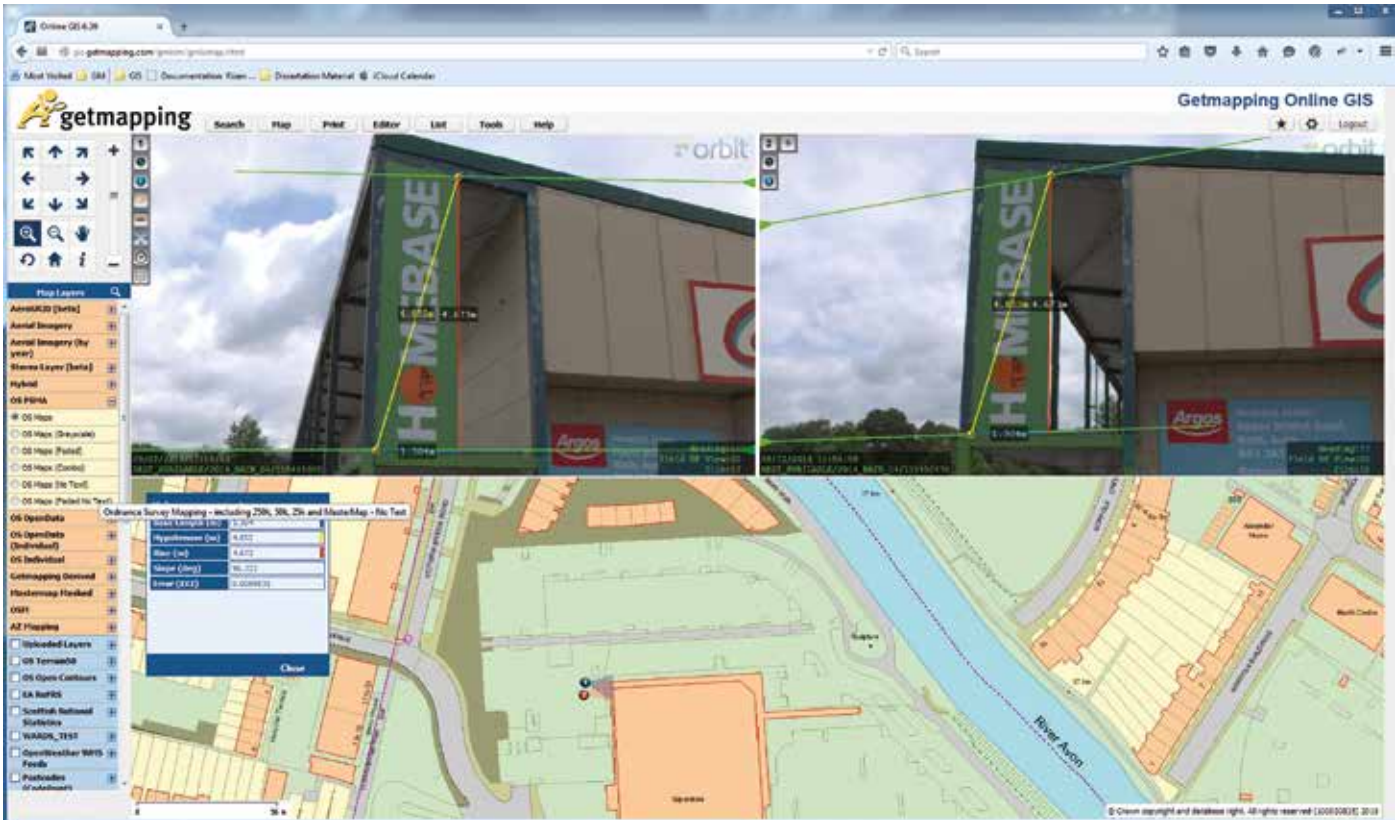
In 2014, Getmapping entered into a reseller agreement with Orbit GT for the Mobile Mapping portfolio and added Street Layer to its product line. Street Layer is high resolution, 360° panoramic street-level photography. Its geometric accuracy combined with the ability to make measurements, overlay GIS data and compare time and date stamped imagery make it an invaluable resource for any organisation maintaining a large asset register or looking to cut the cost of site visits. The equipment used can be mounted on any vehicle and is easily packaged to be shipped around the world, allowing us to operate anywhere at short notice.

Getmapping Street Layer

Street Layer imagery is captured regularly to customer specifications. We have employed technology from our aerial survey department, using a multi-sensor, high-resolution camera mounted on a vehicle to ensure we can get the best imagery possible. All images are processed into geographic space using high grade GPS and are time stamped allowing for detailed and accurate analysis. We are also able to capture off-road areas such as tow-paths and cycle paths and can even mount the system on a boat to capture unique data of inland waterways.

The remit of Street Layer is to give organisations access to a subscription-based hosted service to serve panoramic street level imagery alongside a feature rich GIS application.

A key driver for the use of hosted GIS services is the ability to deploy powerful, scalable, yet intuitive systems to a large number of users without relying on desktop GIS licences. Our Street Layer



Gettmapping Online GIS Solution integrating Street Layer

service is designed to be a scalable solution for any size organisation to provide users with:

- Base mapping
- Street level imagery
- Business information / Asset data
- Data collection (asset management) tools
- Analysis tools
- Data publishing services (WMS/ WFS)

Out of the box

Our vision is to provide users with the ability to disseminate all kinds of information at any level of their organisation through a service that requires minimal training and maintenance both from a supplier and client perspective and is available as an 'out of the box' solution.

The Orbit Mobile Mapping technology integrates seamlessly into Getmapping's online GIS software, combining the accurate and intuitive tools within the Mobile Mapping client with a host of asset management, analysis and data management tools. The result is a multifunctional tool that can be used across an organisation for asset management, data verification, event and disaster planning, and much more. Users can have access to a combination of vertical, oblique and panoramic imagery allowing them to make the most informed decisions.

Panoramic street level imagery is now being widely used among our customers, with one organisation supplying over 600 users with around 500,000 panoramic images of their local district. Martin Laker, GIS Team Leader at Bath and North East Somerset Council says: "Street Layer has generated savings in many departments and is used throughout the Council for anything from planning, insurance validation to our customer service team taking calls. It's now an essential layer in our mapping infrastructure".

Street Layer provides B&NES with a tool that can simultaneously reduce the day to day costs of running the organisation by cutting the travel budget and also provide every employee with access to a tool for creating visual, simple and informative maps or reports.

Low maintenance, fast deployment

As a service provider, we are acutely aware of the need for 'low maintenance' solutions. Orbit's EOS Console (remote administration for the Mobile Mapping Publisher) allows us to manage projects at various levels (workspace, user group, user profile) and once captured, new projects can be published within minutes. The ability to rapidly create and manage projects allows us to run smaller scale surveys on tighter timescales. This has proven particularly useful for 'Street Layer Sites' – our small scale site based survey. Used primarily for asset management, site managers are able to maintain a location based inventory of their assets through Street Layer. For sites that can be difficult to move around (such as airports), the ability to navigate to an asset and identify potential problems or risks while undertaking a repair means less time on site and less downtime for critical operations.

These types of projects may require regular capture and the ability to capture and publish within 24 hours increases confidence in the product and reduces our time spent delivering data. The flexibility provided by the EOS console means we can quickly create new users or user groups and assign available projects to each. When a customer commissions updates to their imagery, we continue to host historic imagery in separate projects, giving them a complete photographic record of their area for monitoring change and progress and allowing them to view different epochs of imagery side-by-side.

Room for Growth

The partnership with Orbit GT gives us true flexibility with who we do business with. With scalable options for usage, we were able to prove the concept integrated with our business model. When we need to upgrade, we can do this quickly with no downtime to our users. The API also offers us exciting development options for the future, with the ability to incorporate WMS/WFS feeds, feature extraction, point clouds, etc. As Street Layer continues to prove itself as a product, we are looking forward to working with Orbit GT to integrate these exciting features into a cloud based application.

ABOUT GETMAPPING

Getmapping is a public limited company, which is the UK's leading supplier of aerial photography, mapping products and data hosting solutions.

Founded in 1999 Getmapping pioneered the concept of nationwide coverage of aerial photography creating the most comprehensive and detailed aerial photographic survey of the UK, called the Millennium Map™.

Getmapping was also the first company to take advantage of the Internet to deliver its new imagery through the online channel. Thousands of architects, engineers, developers, GIS professionals and many more have benefited from easy access to its digital data.

Today Getmapping produces its own vertical aerial photography, oblique photography and height data derived from its aerial survey program.

About the author

Tom Huntley
Business Innovation - Geospatial Specialist

Tom works in Business Innovation, developing and consulting on hosted mapping products from initial design up to release and beyond. Tom is mainly responsible for B2B projects, working with Getmapping partners and resellers on creating new business using Getmapping's Online GIS products.

orbit
GEOSPATIAL TECHNOLOGIES

Everything Mobile Mapping

Streetlevel Imagery and Point Cloud Production, Feature Extraction, Sharing Integration in your Workflow

3D laser mapping
Leica Geosystems
LiDAR USA
TELEDYNE OPTECH Everywhereyoulook
RIEGL
MANDLI COMMUNICATIONS
TOPCON
Trimble