



# 3D CITY MODELLING TECHNOLOGY UPDATE

## EUROPEAN SERVICE PROVIDER BLOM TAKES LEADING MARKET POSITION WITHIN 3D CITY MODELLING

Blom is a leading European service provider within acquisition, processing and modelling of geographic information. With recent advances in technology and advanced and efficient production techniques, Blom is now in a unique position in the market of 3D city models, having produced more than 200 cities of high quality 3D city models during 2009. Blom's models are produced using state-of-the-art, industrialized processes that enable Blom to create new 3D city models at an unprecedented rate.

3D modelling activities based upon photogrammetric technology have traditionally used the stereo vertical imagery to extract building outlines, paste imagery to the roof structure and ground surface and extract what visible building façade imagery is available. Unless filled in with ground-based photography, the resulting façade is not usually complete and can vary in quality depending on the scale of the original photography.

Blom's new line of 3D products and services are comprised of a wide range of 3D city models, from a basic "shoebox" representation of urban environments to a highly detailed, photorealistic representation of reality using actual pictures of the buildings to texture the façades. The products are delivered either off-line or using the company's BlomURBEX® platform technology to stream the data over the web.

Over the last three to four years Blom has created a unique European library of oblique aerial images, using Pictometry®

technology, covering more than 100 000 sqkm with high resolution oblique images captured in five different views; North, East, South, West and vertical. The resolution varies from 10-15 cm. In other parts of the world Pictometry Inc. and other Pictometry Licensees has created similar libraries covering the largest cities and most attractive areas with high resolution oblique images. Together this constitutes a unique global library of highly valuable geographical information.

Based on this library, Blom has in 2009 launched its 3D city model product - Blom3D™ - covering more than 200 cities.

The oblique images are geo-referenced and can be extracted directly from the image database and applied to the building wireframes, previously digitised using photogrammetric techniques or extracted from a LiDAR DSM. Blom has developed automatic routines to select the most appropriate image from the available views and apply it to the façades. Tele Atlas, the leading global provider of digital maps and dynamic content for navigation and location based solutions, has already announced their launch of the photo-realistic 3D models created by Blom as part of their navigation solutions. Their solution, named Advanced City Models, will enhance the user-experience of any navigation system integrating the solution. This will be the industry's most detailed, realistic 3D models and provide a superior experience for the end user in more cities than ever before.



FIG. 1: Example of Blom3D® with four different levels of detail

Blom3D™ is produced in four different definition levels; 3D blocks, 3D blocks including roof details, pattern-texturized 3D blocks with roof details and full, real image-view texturized 3D buildings (see Figure 1). The “real image view texturized buildings” are created by combining oblique aerial images based on Pictometry® technology with the 3D building blocks. Blom3D™ provides three-dimensional representations of major city centres, including buildings and city blocks. The Advanced City Models by Tele Atlas, based on Blom3D™, are designed for use in navigation systems and location based applications. Advanced City Models dramatically improve the clarity and reality of screen images within in-car and portable navigation systems and mobile devices. With the 3D models users are able to see the actual surroundings, helping them more easily find locations and points of interest. In addition to Tele Atlas’ focus on navigation, location based services and internet portals, Blom3D™ are useful in a

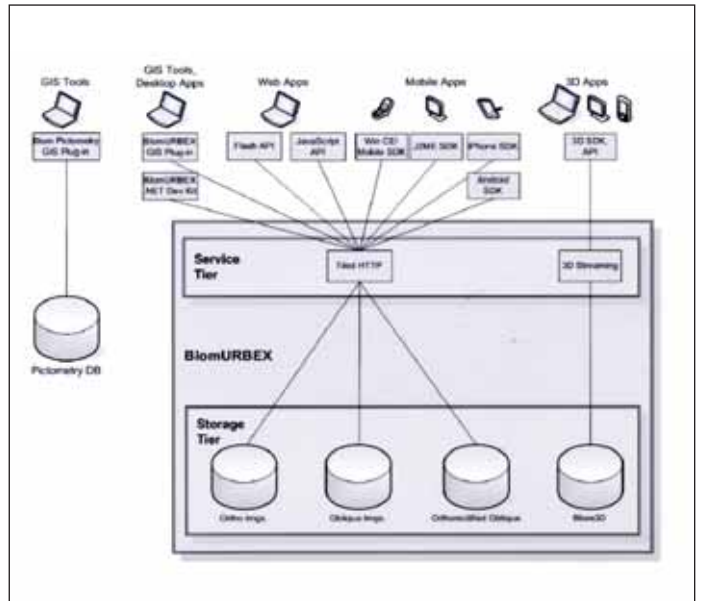


FIG. 2: BlomURBEX® offers a variety of databases to a multitude of platforms

number of industries and applications such as government and municipalities for rural and urban planning, security services, geo-referenced search and emergency services.

The models are produced using state-of-the-art, industrialized processes that enable Blom to create new 3D city models at an unprecedented rate. By the end of 2010 Blom will have more than 400 high quality fully textured 3D city models available both off-line and online via BlomURBEX®, leveraging Blom’s unique database of high-resolution oblique aerial imagery and long experience of geospatial data processing.

### BlomURBEX®

For online delivery, using the BlomURBEX® delivery platform, Blom has developed a range of SDK’s and API’s for web, wireless devices and most major GIS and CAD solutions, offering an unparalleled range of options for the customers.

From a technical point of view, BlomURBEX® is an online service provided by Blom, offering a revolutionary collection of geographical datasets showing urban environments with high-definition real images and 3D textured models, extracted from at least five different views and accurately geo-referenced to fulfill both, end-consumer expectations and professional/engineering requirements. BlomURBEX® data models include:

- Orthogonal images: continuous projected mosaic of vertical views.
- Oblique images: set of fully geo-referenced pictures provided with true orientation and scale.
- Orthorectified-oblique: continuous projected mosaic of oblique views.
- Textured 3D: Full 3D modeled cities with textured buildings and ground layers. All surfaces (ground, building roofs and façades) are textured using real images.

All datasets are available online, and easily accessible from a wide range of platforms and technologies via an HTTP interface – from desktop to mobile: JavaScript, J2ME, iPhone, Windows CE/Mobile embedded platforms and Android. Software Development Kits (SDKs) are provided for each technology allowing the developers to immediately put their hands on and obtain impressive results without the need to take care of protocol details. Mobile platform SDKs provide data caching in order to minimize response time and network usage. There is also a set of plug-ins available for connecting the major GIS Desktops on the market to BlomURBEX® (see Figure 2).



**FIG 3.** Example of 3D model editing, here from San Sebastian in Spain.

Blom's high resolution 3D models clearly add value to different markets like Navigation, Real Estate, Directory Services, Emergency & Security services and Computer Games & Entertainment. Today, there is no market player with the same capacity as Blom, who can offer highly detailed 3D city models with life-like façades, from all over the world, at competitive prices. This is a result of our advanced production processes and unique imagery.

**Blom** is a leading European service provider within acquisition, processing and modelling of geographic information. Blom maintains unique European databases with collections of map, images and models. With particular focus on online services, Blom provides data and solutions to customers in government, enterprise and consumer markets and enables partners to create applications using Blom's databases, location based services and navigation solution. Blom has more than 1,150 employees and subsidiaries in 13 countries. The company headquarter is located in Oslo, Norway. Blom is listed on the Oslo Stock Exchange (ticker BLO). [www.blomasa.com](http://www.blomasa.com)

In Blom3D™, all buildings are represented as individual objects. This makes it possible to edit the models and the latest version of our proprietary BlomURBEX® 3D viewer offers certain editing capabilities (see Figure 3). BlomURBEX® also offers a 3D SDK for low-level full integration into 3<sup>rd</sup> party solutions. With the 3D SDK the user can upload new buildings and remove or change existing buildings. All changes can be stored locally or be uploaded to the server. For off-line delivery, and due to the flexibility of Blom's production process, the models can be adapted to meet different customer requirements.

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