

Oblique aerial photography

Nils Karbø, CTO Blom ASA



Blom's recent history

- Technology shifts and New Strategy



New top management

→ 2003

2004

2005

2006

2007

2008

2009

- Collecting / Processing geographical data
- Contracting



- Creating European structure
- Building geographical databases
- Multiple sales



- Value chain expansion
- Developing applications and services
- Navigation
- 3D



Key drivers and developments in the market

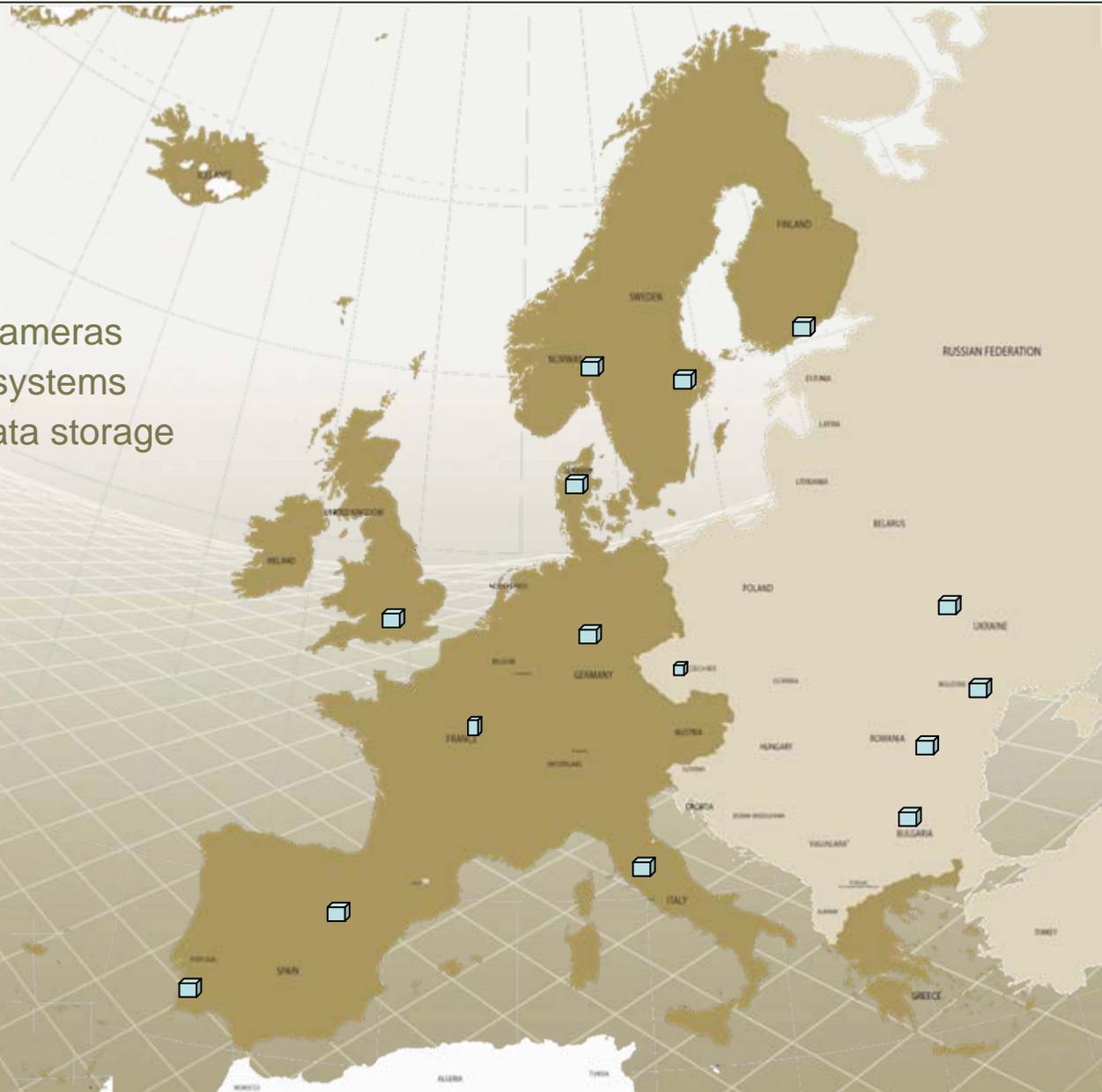
Technological shift of paradigm with regards to data storage, data transmission, data compression, and personal use of handheld devices and GPS



Terminal producers delivers first generation location-based services on their own platforms (Eg: Nokia N-series, HTC)

Blom operates

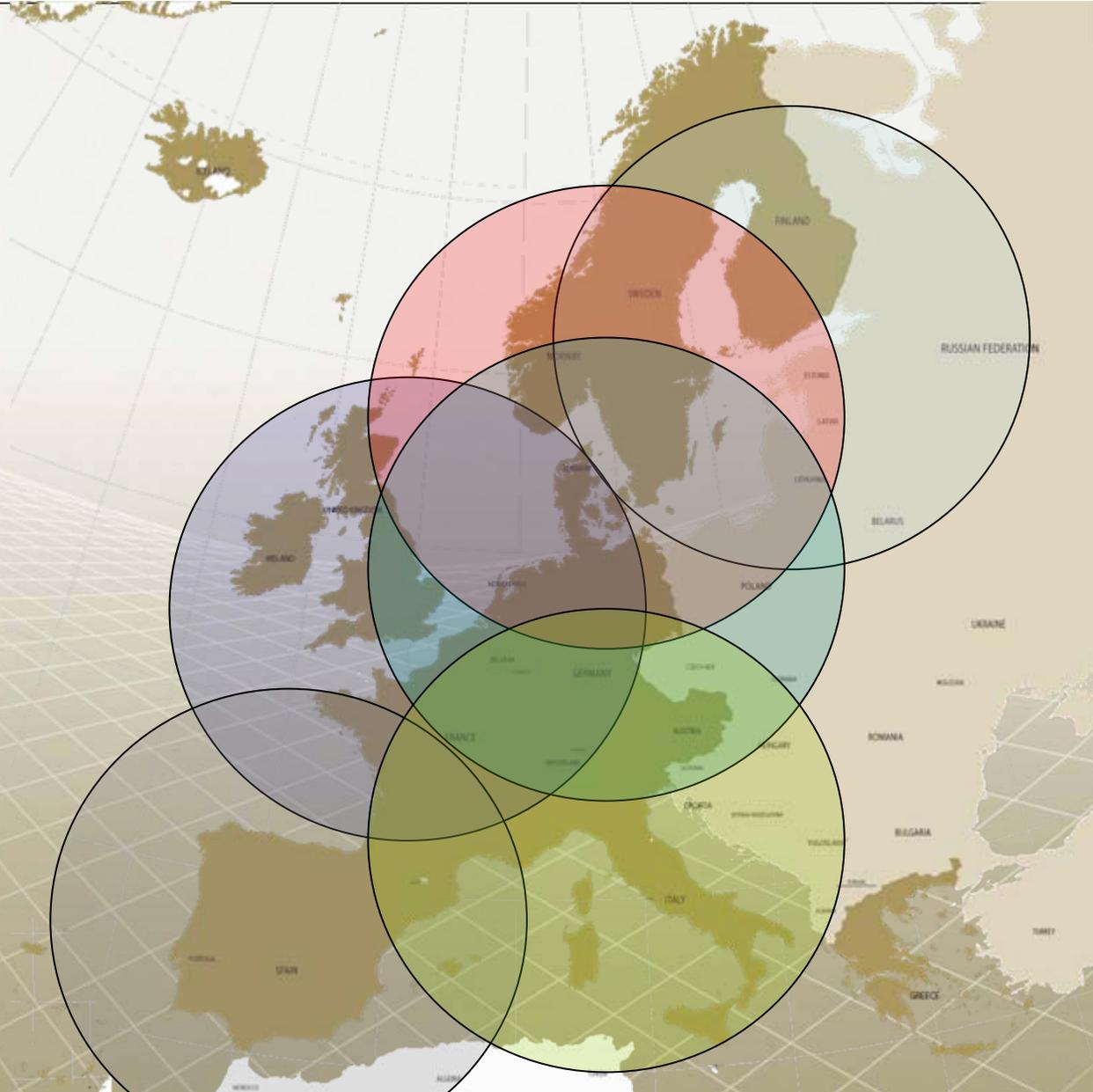
- 29 planes and 4 helicopters
- 10 high-tech lasers
1 multispectral scanner
1 bathymetric laser
- 10 digital photogrammetric cameras
- 15 oblique imagery camera systems
- Software applications and data storage capabilities



European aircraft coverage



3 hours from base



Line of products and services



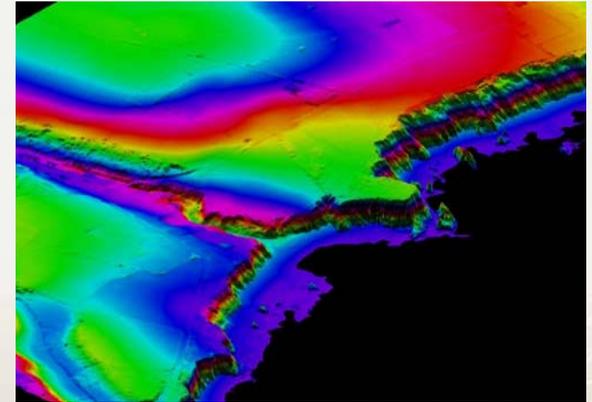
Aerial photo



Vector Maps



Digital Terrain and Surface Mapping



Ortho Image



Oblique Images



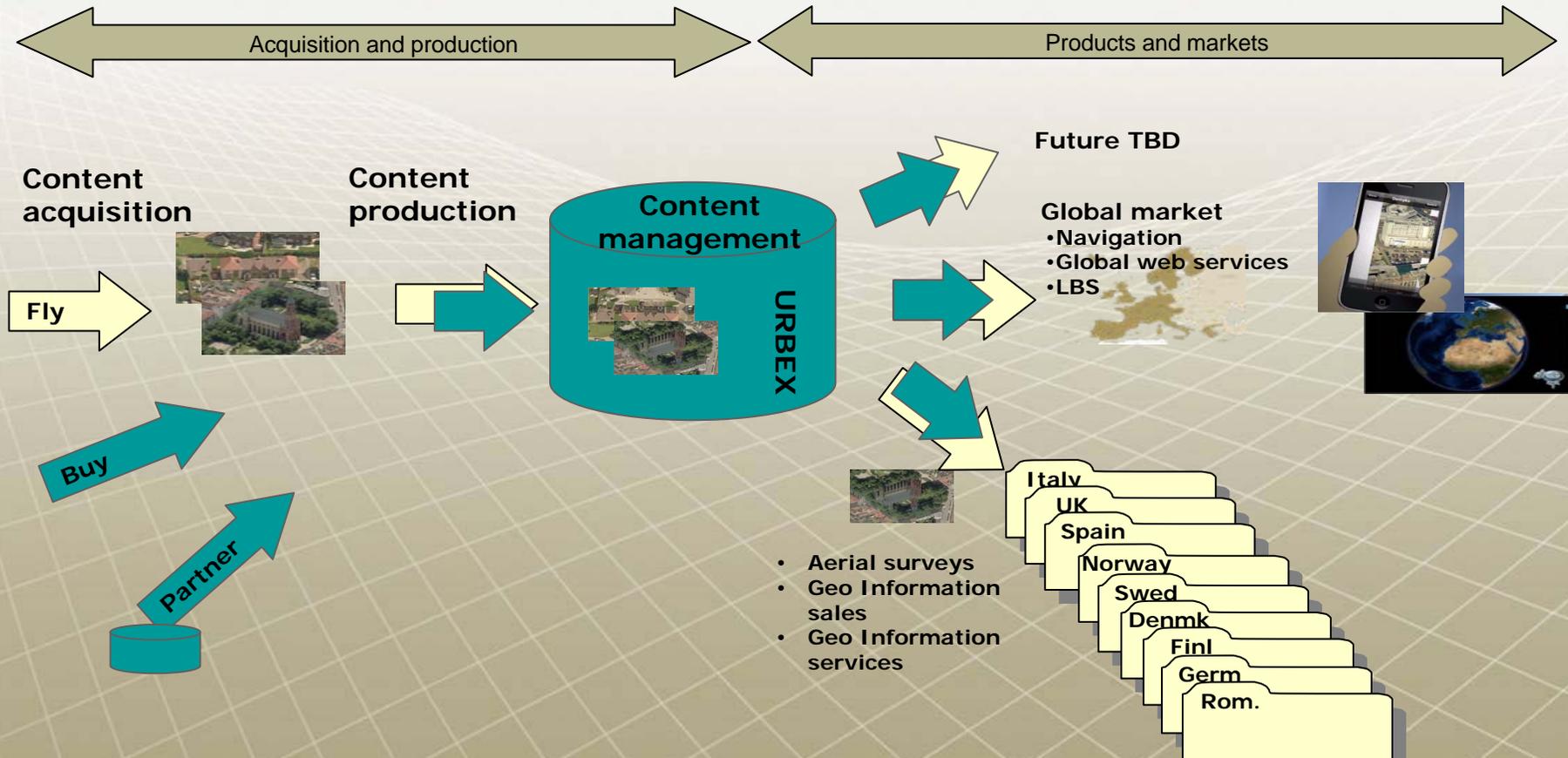
3D Models



Expanding value chain and market reach



- Increase shareholder values through profitable growth
- Leading supplier of services for capturing and processing geographical information



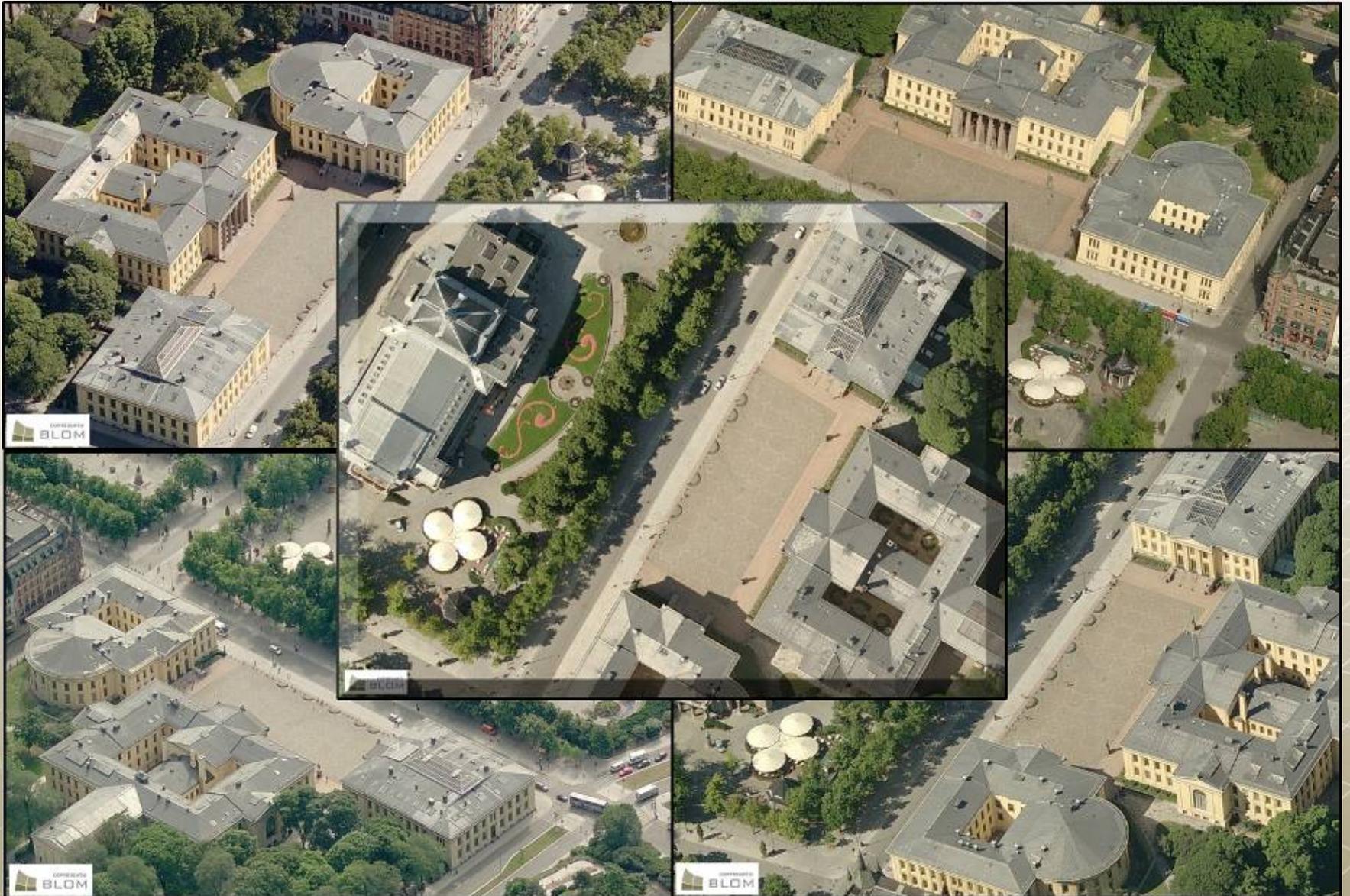
Oblique Imagery

Blom capabilities

- 15 Pictometry® oblique Penta camera systems
- Flexible leased aircraft fleet
- Proven image acquisition capacity of 50,000km² p.a. (10cm resolution)

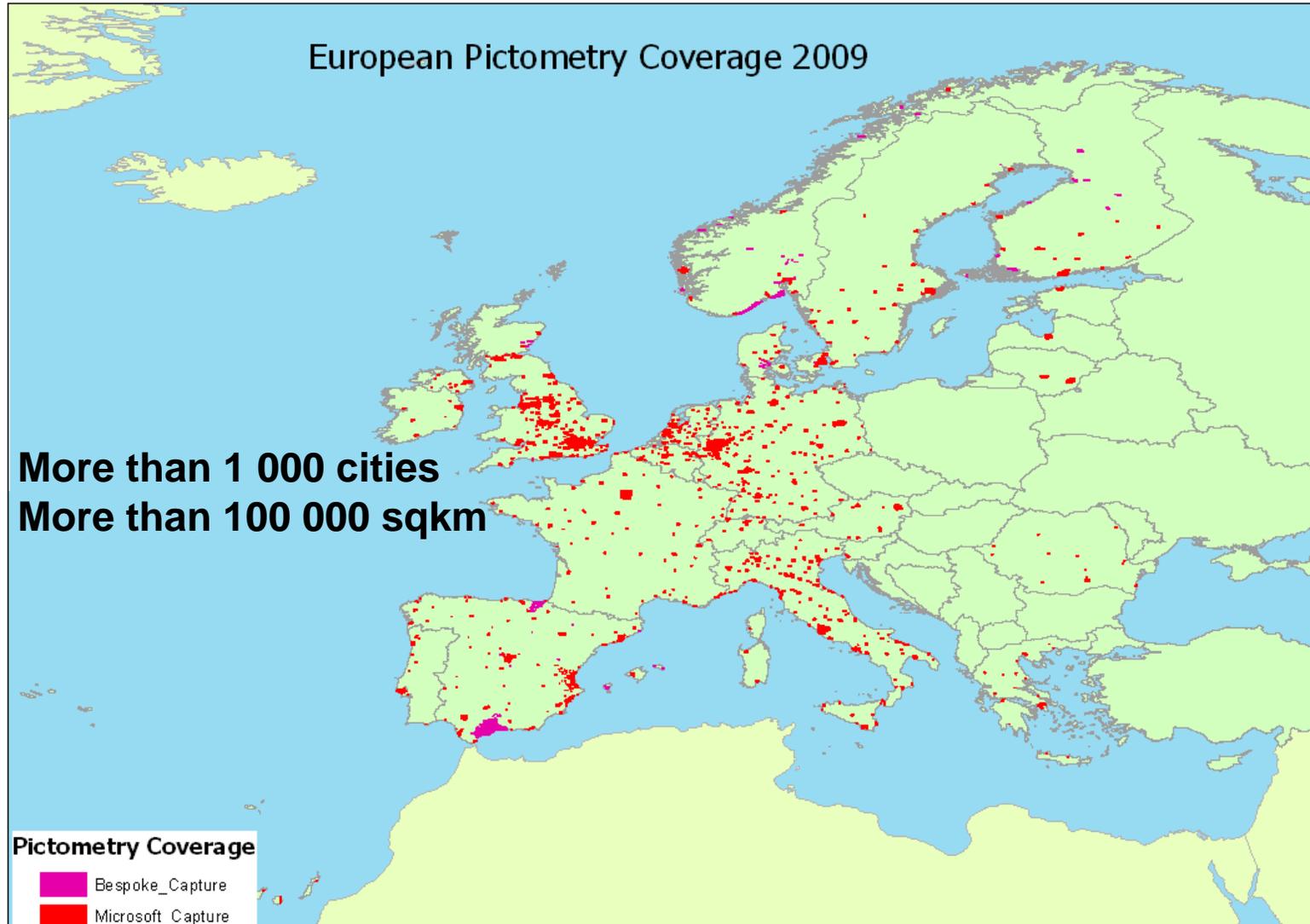


Oblique Imagery



- Images normally captured with 10 cm resolution (3 000 feet flying height)
- Overlap between vertical images normally 60%
- Corner coordinates, exterior and interior orientation parameters available for all images
- DTM included in images
 - DTM from external sources
 - Accuracy of measurements in obliques will vary with quality of DTM
- Orthophoto in library rectified using existing DTM

Blom : Oblique coverage



Products



- Images are available through



or



Industry format Images + metadata

Libraries + EFS (Pictometry sw)
Libraries + plugin for GIS

or



Wireless & Wireline Access

API SDK Plug-Ins

PC



PDA



Laptop

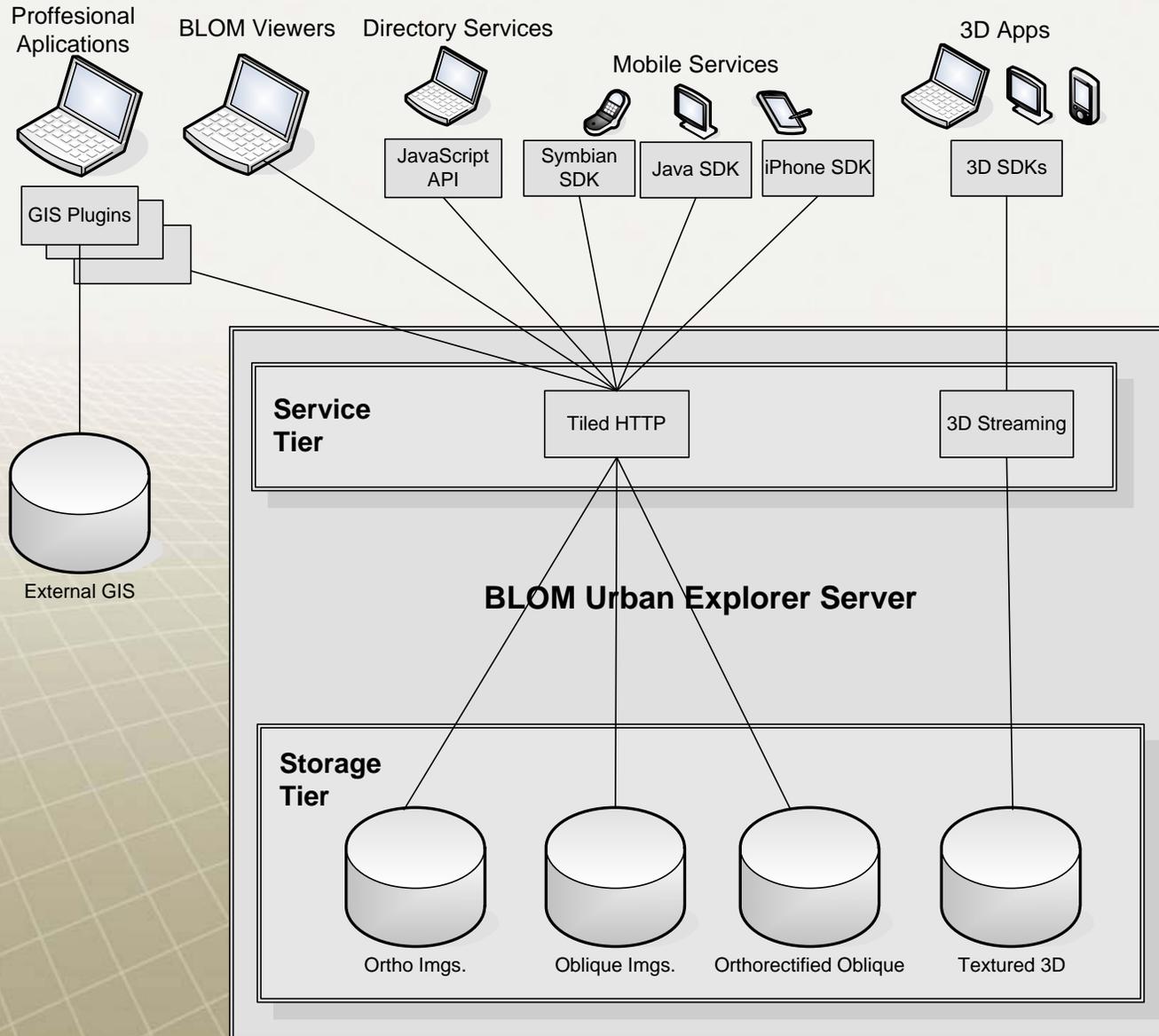


Mobile



PND





urbex - Windows Internet Explorer

http://www.blomurbex.com/

File Edit View Favorites Tools Help

Reganam level of detail lod definition OC

BlomURBEX 3D PAMS twitter What are you doing BLOM 3DCityNav Gjøvik Land Toten Suggested Sites Free Hotmail Web Slice Gallery

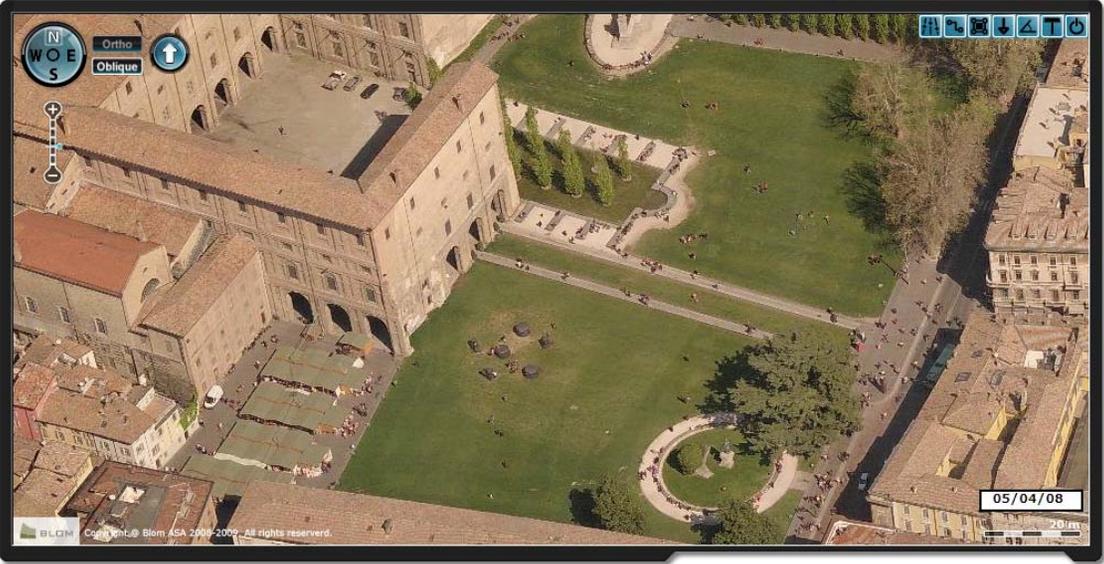
urbex

Page (Alt+P)

BlomURBEX

Blom's unique GeoServer

GO TO



05/04/08

BLOM Copyright © Blom ASA 2007-2009. All rights reserved.

BLOM

Copyright © 2008 Blom. All rights reserved.

Demo Blomurbex

Done

start

Microsoft Meeting 310309 Windows Tas... ANGEL Servic... urbex - Wind... Microsoft SHOM contra... 16:12

Measurement Tools

- Height measurement

BlomURBEX

Blom's unique GeoServer barcelona, port olimpic



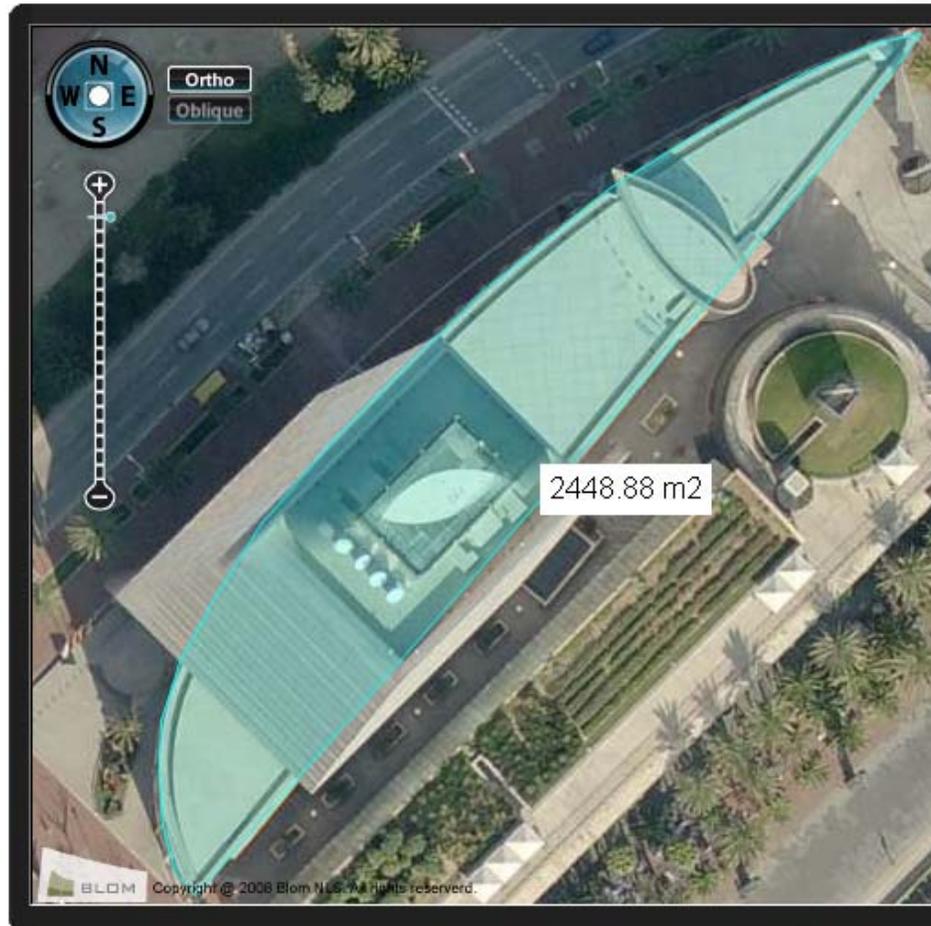
BlomURBEX image, March 2009

BlomURBEX

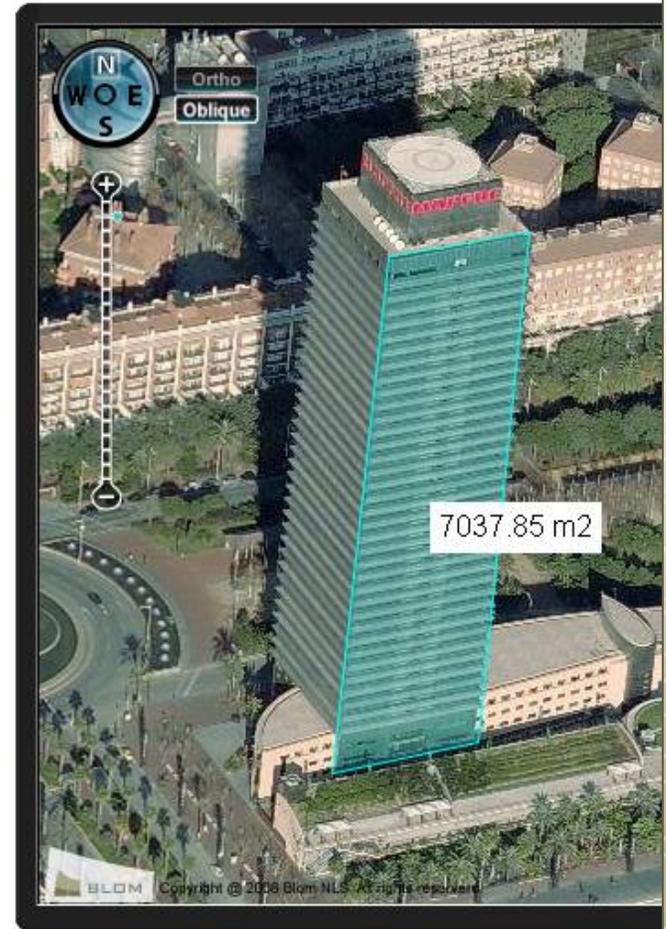
Blom's unique GeoServer GO TO



BlomURBEX Blom's unique GeoServer



BlomURBEX Blom's unique



Computer Platforms

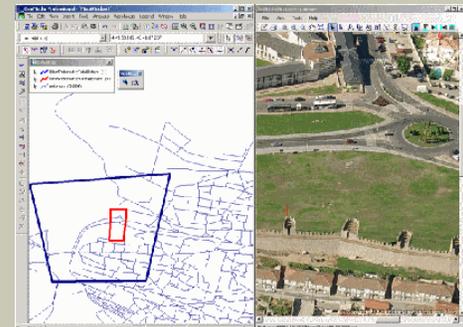
PC:
Local / Internet



Mobile phones:
Local / Internet



G.I.S.:
Local / Internet





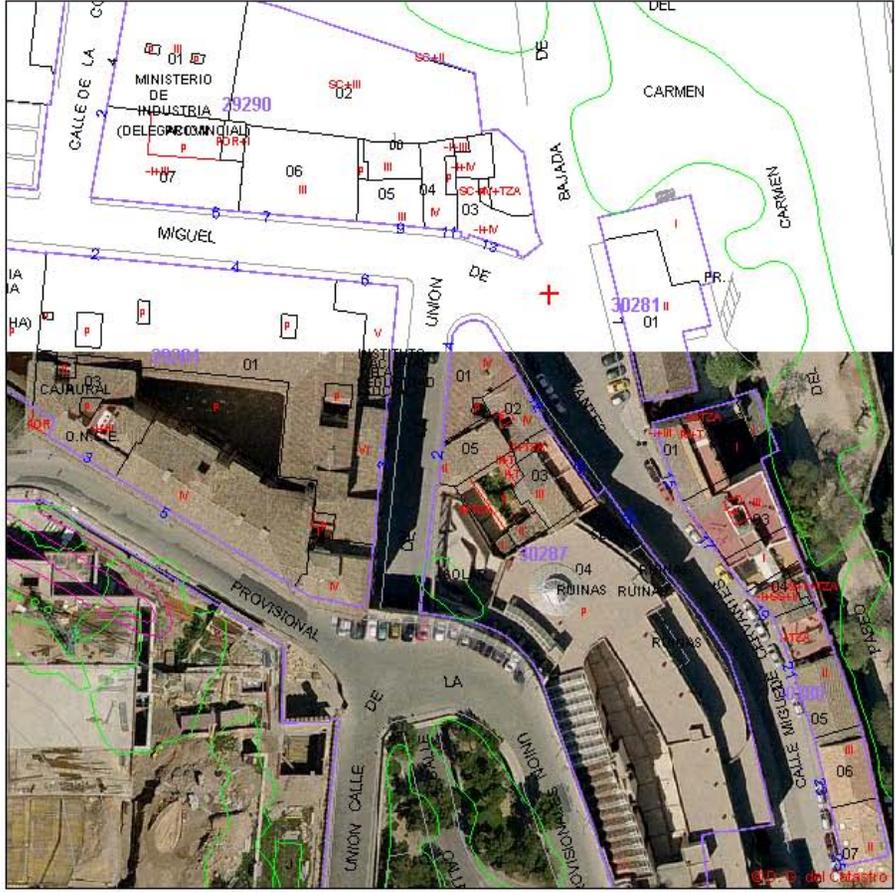
Ciudad : **TOLEDO**

Web demostrativa de Pictometry

Aplicación JavaScript con conexión a Image Web Server de ErMapper y a servicios web desarrollados en .NET.

Escala 1: 1000

Zoom por defecto: 1:2 Orientación: Sur

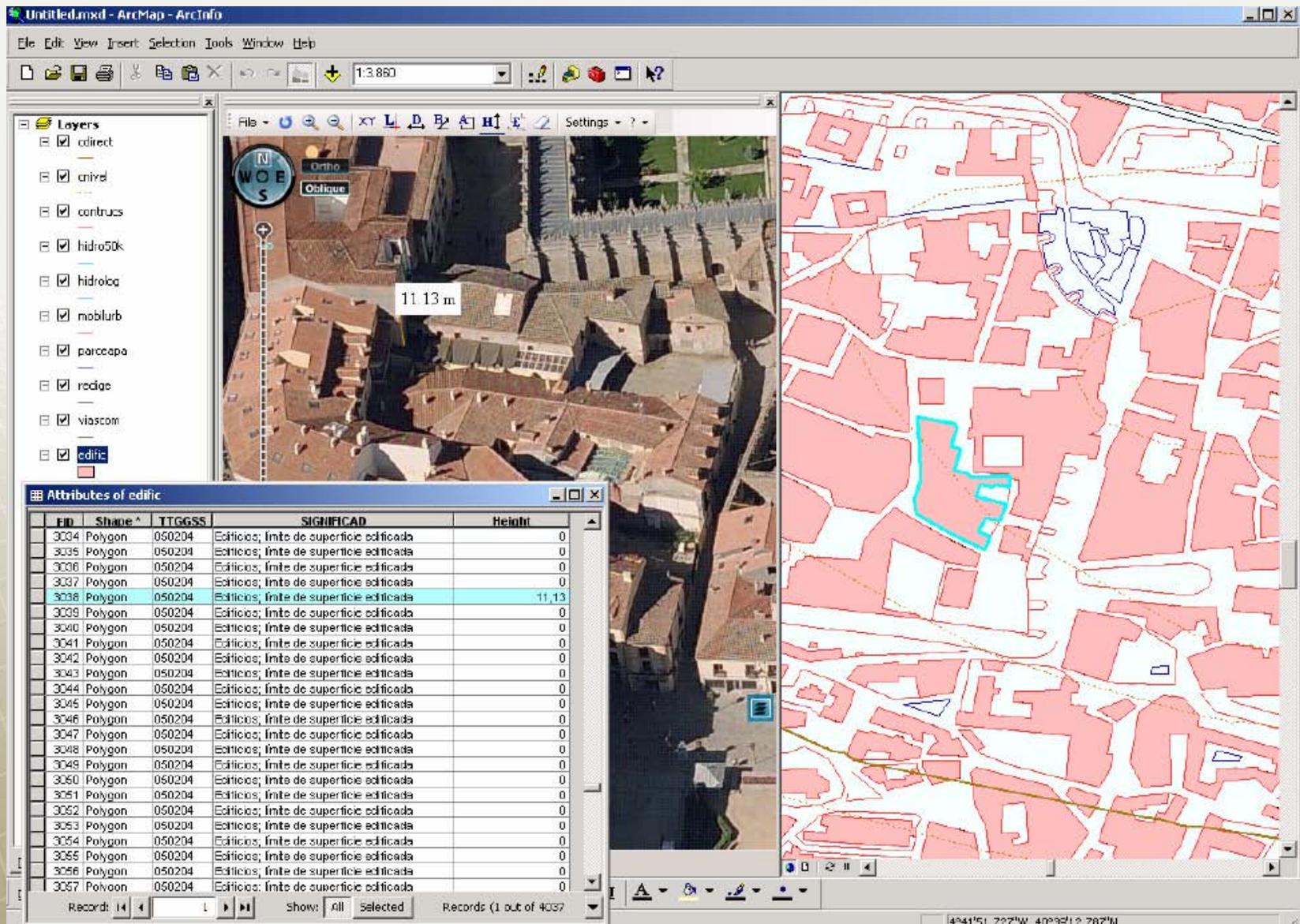




Listo

Listo

Urbex - plugins



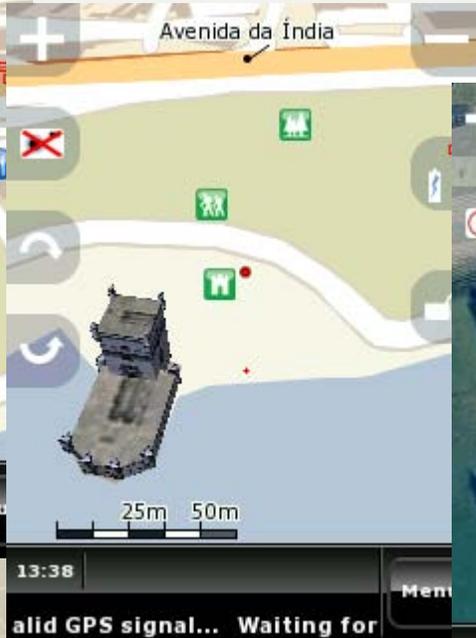
The screenshot displays the ArcMap interface with the following components:

- Layers Panel:** A list of layers including 'direct', 'cnivd', 'contracs', 'hidro50k', 'hidroba', 'moblurb', 'parcepa', 'redige', 'viascom', and 'edific'. The 'edific' layer is currently selected.
- 3D View:** An aerial photograph of a city with a height measurement of 11.13 m overlaid on a building.
- 2D Map View:** A vector map showing building footprints in red and a specific building highlighted in cyan.
- Attributes of edific Table:** A table listing building attributes. The selected row (ID 3038) has a height of 11.13.

ID	Shape	TIGGSS	SIGNIFICAD	Height
3034	Polygon	050204	Edificios; límite de superficie edificada	0
3035	Polygon	050204	Edificios; límite de superficie edificada	0
3036	Polygon	050204	Edificios; límite de superficie edificada	0
3037	Polygon	050204	Edificios; límite de superficie edificada	0
3038	Polygon	050204	Edificios; límite de superficie edificada	11,13
3039	Polygon	050204	Edificios; límite de superficie edificada	0
3040	Polygon	050204	Edificios; límite de superficie edificada	0
3041	Polygon	050204	Edificios; límite de superficie edificada	0
3042	Polygon	050204	Edificios; límite de superficie edificada	0
3043	Polygon	050204	Edificios; límite de superficie edificada	0
3044	Polygon	050204	Edificios; límite de superficie edificada	0
3045	Polygon	050204	Edificios; límite de superficie edificada	0
3046	Polygon	050204	Edificios; límite de superficie edificada	0
3047	Polygon	050204	Edificios; límite de superficie edificada	0
3048	Polygon	050204	Edificios; límite de superficie edificada	0
3049	Polygon	050204	Edificios; límite de superficie edificada	0
3050	Polygon	050204	Edificios; límite de superficie edificada	0
3051	Polygon	050204	Edificios; límite de superficie edificada	0
3052	Polygon	050204	Edificios; límite de superficie edificada	0
3053	Polygon	050204	Edificios; límite de superficie edificada	0
3054	Polygon	050204	Edificios; límite de superficie edificada	0
3055	Polygon	050204	Edificios; límite de superficie edificada	0
3056	Polygon	050204	Edificios; límite de superficie edificada	0
3057	Polygon	050204	Edificios; límite de superficie edificada	0



Perspective view



Landmarks

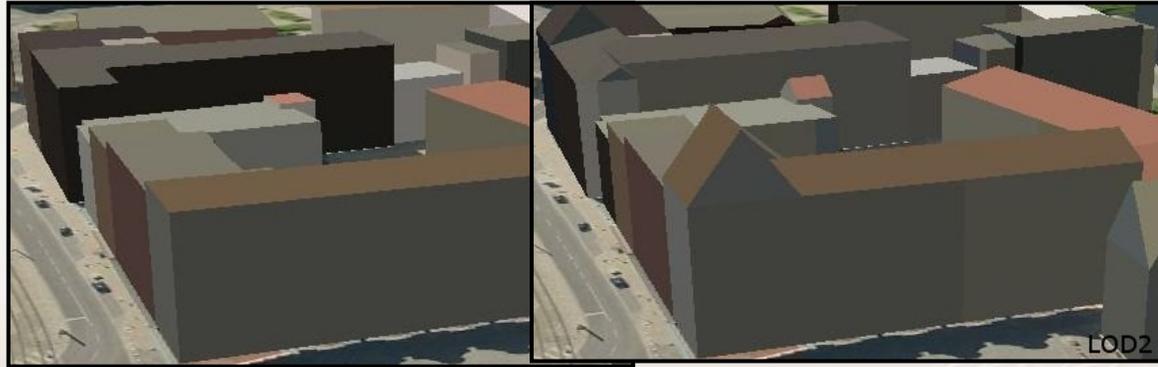


Reality view



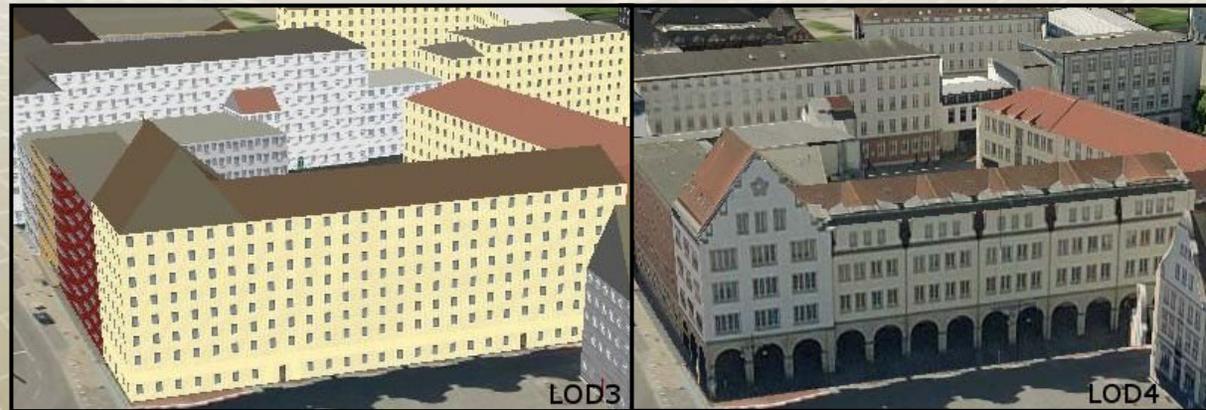
Urbex 3D

- Agreement with Tele Atlas to create the largest high-quality 3D collection in the world (?)
- Online access on BlomUrbex
- 200 cities worldwide in 2009
- Complete set of 3D map components (BLOD1, BLOD2, BLOD3, BLOD4)



BLOD1

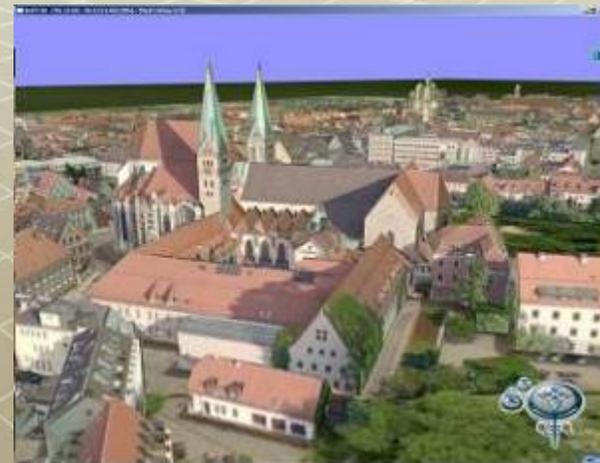
BLOD2



BLOD3

BLOD4

- Blom provides technology to integrate 3D into desktop, web, mobile and navigation applications and devices
- Real picture facade stick to the 3D polygons



3D City Models

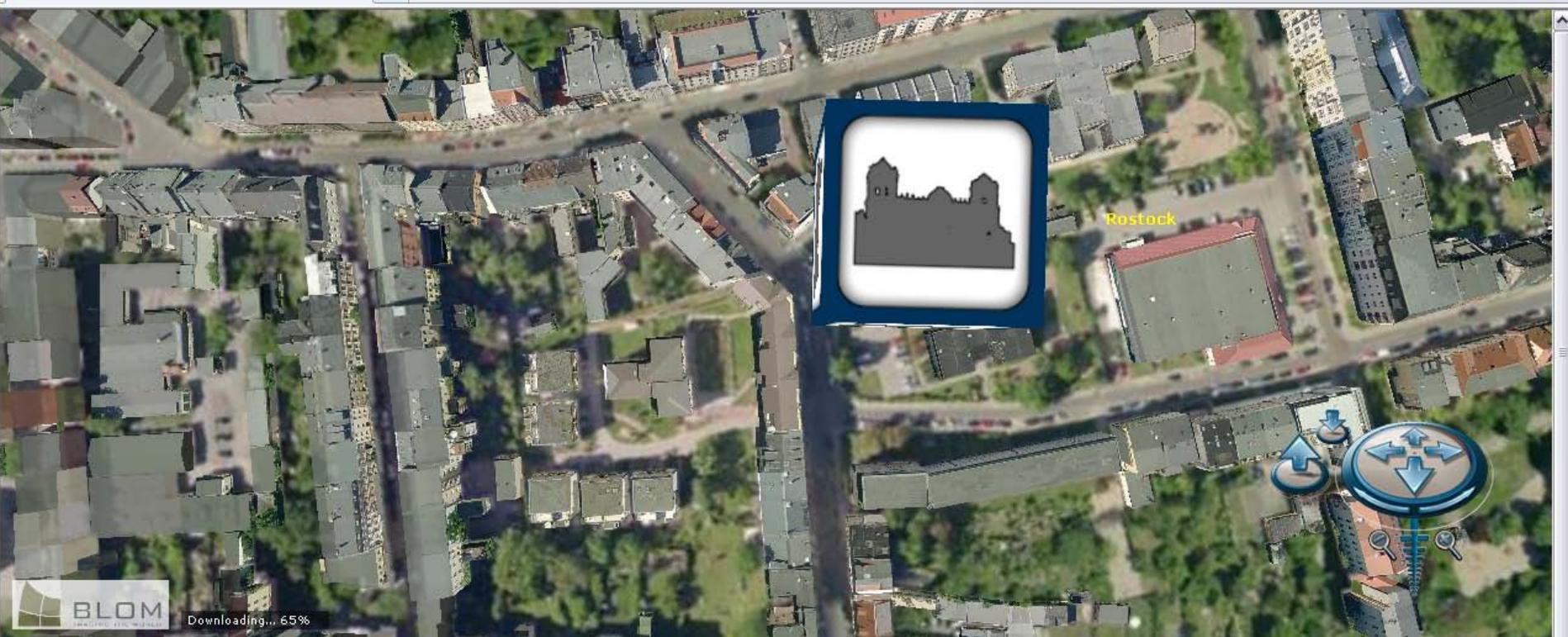




Navigation bar with address bar (http://www.blomurbex.com/3d/), menu bar (File, Edit, View, Favorites, Tools, Help), and toolbar (Reganam, FritzTV, Games, Gadgets, News, E-mail Notifier, Ent Feeds [257]).



Map controls including 'Change quality: HQ MQ LQ', 'Show road: ON OFF', a 'Go to:' search box, and LOD selection buttons (LOD4, LOD3, LOD2, LOD1).







Change quality: HQ MQ LQ

Go to:

Show road: ON OFF

LOD4 LOD3 LOD2 LOD1

http://www.blomurbex.com/3d/

File Edit View Favorites Tools Help

Reganam

BLOM 3D City Nav BlomURBEX 3D PAMS twitter What are you doing BLOM 3DCityNav Gjøvik Land Toten Suggested Sites Free Hotmail Web Slice Gallery

BlomURBEX 3D



Change quality: [HQ](#) [MQ](#) [LQ](#)

Show road: [ON](#) [OFF](#)

Go to:

[LOD4](#) [LOD3](#) [LOD2](#) [LOD1](#)

http://www.blomurbex.com/3d/

File Edit View Favorites Tools Help

Reganam

BLOM 3D City Nav BlomURBEX 3D PAMS twitter What are you doing BLOM 3DCityNav Gjøvik Land Toten Suggested Sites Free Hotmail Web Slice Gallery

BlomURBEX 3D



Change quality: [HQ](#) [MQ](#) [LQ](#) Go to: LOD4 LOD3 LOD2 LOD1

Show road: [ON](#) [OFF](#)

javascript:cbloomurbex3d.addModelLayer(0,'draft_lod1_04');cbloomurbex3d.reloadLayers();cbloomurbex3d.setMaxVisibleDistanceForModel



Change quality: HQ MQ LQ

Go to:

LOD4 LOD3 LOD2 LOD1

Show road: ON OFF

In Conclusion



Significant Growth Opportunities



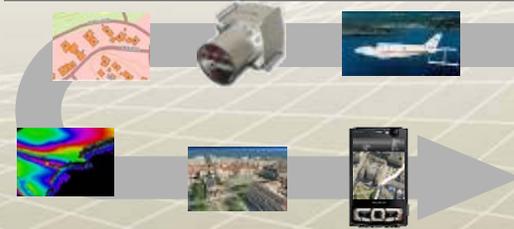
The Leading Database



Growth and Profitability Track Record



Full Value Chain Capabilities



Blue Chip Customers and Partners



Pan-European Footprint



Thank you

Q & A

Visit our web site at www.blomasa.com