The company

Headquartered in Dubai, Geodyn has additional operations facilities in Austria for equipment design and manufacture, as well as in Ethiopia for software development and data capture.

Geodyn’s key staff is composed of leading former personal from MAPS Geosystems, with a combined experience of over 145 successful years in aerial photography and mapping projects in over 55 countries worldwide. The team has participated in the design and implementation of procedures to provide the most practical and economic solutions under the given circumstances. The company does not focus on ‘technology transfer’, but on adapting the latest technology to local conditions and thereby drawing the client’s organizations into active participation.

In particular Geodyn reevaluates past development efforts in the light of today’s understanding and needs to ensure practical and valuable goals are achieved. The mantra of Geodyn is assure success for our client, regardless the lengths we have to go to.
Geodyn’s approach

Geodyn’s staff is proud to remain at the forefront of technical development. It concentrates on developing the most efficient and economic data and information acquisition. The principle is what can be done on a computer should be done by a computer, but the solutions must also be adapted to the relevant organizations to sustain the high efficiency. Mapping and GIS projects involve many different technologies and becoming an expert in all of these is very rare. Most people participating in the projects will not become experts, so it is important to ensure the procedures are set up that guide users accurately and effectively.

Geodyn improves the information provided by GIS through the following:

1. **Refinement of the data layer attributes, with emphasis on:**
   - Inclusion of temporal attributes
   - Definition of relevance to the objective
   - Defining the required accuracy of input- and output data

2. **Methods and procedures**
   - We promote the usage of aerial photography in order to permit the reappraisal of the past
   - We design and implement equipment and procedures that permits the fast, economic and comprehensive analogue-digital conversion of aerial photography to the extent that it is recoverable. This is a prerequisite to automated geographic data analysis as well as safe guarding the heritage of a country.

We consider the analysis of aerial photography archives the most suitable procedure to reevaluate previous country wide or local developments. The hindsight obtained is one of the most valuable asset in any planning activity.

ALQUEVA:
Area Name            Al Queva, Evora
Country              Portugal
Year of Photography  1995
Nominal Photo scale  1 : 17,500
The analog-digital conversion is the precondition to the comprehensive analysis of the past. To enable this data conversion Geodyn designed equipment that speeds up this process by an order of magnitude in comparison to traditional film scanning. The necessary equipment has been designed, developed and manufactured over last two years in Geodyn’s development unit in Austria.

The system is based on technology similar to that used in modern large format aerial camera systems. Multiple simultaneous pictures are captured by an array of high resolution cameras and the resulting 20μm imagery is stitched together to seamless images at accuracy of 1/3 pixel. The processing is performed using the full dynamic range of the cameras and includes extensive correction for lens distortions, light fall off and colour adjustment.

In addition to the films, the available photo indices and all film details are scanned, georeferenced and converted into digital photo indices that provide a spatial digital catalog of image availability.
From available imagery to accessible dynamic imagery layers

Having imagery and indices in a digital form makes them available, but not yet easily accessible. GeoDyn have partnered with Esri and have developed procedures to transform the imagery into dynamic image mosaics as image services. This technology utilizes the digital photo indices and scanned imagery to enable users working in a wide range of web or desktop applications to zoom into any location and immediately access all the available imagery. Using only the approximate photo indices, the positional accuracy of the imagery is initially not very high. Therefore GeoDyn then runs aerial triangulation and block adjustment processes on the imagery to refine the accuracy and utilize the dynamic mosaicking and on-the-fly processing capability of ArcGIS Server to provide accurately georeferenced imagery. The digital terrain models required for the accurate orthorectification are either sourced from dataset such as 30m SRTM, from local sources or generated out of the triangulate imagery. As required color corrections and seamline mosaicking can be defined and also applied on-the-fly so as to improve the accuracy while not affecting the source or creating duplicates of the imagery. The result is an image service that provides instantaneous access to any of the temporal imagery. Unlike a more traditional process of converting to static orthophoto mosaic, the use of dynamic mosaics ensures the full information content in the imagery is maintained and accessible. If required as background imagery, the static orthomosaics can also be exported as files or served as simple map services. The conversion of aerial film archives is now fast and affordable. Aerial film archive conversion projects that were slated to take many years to complete can now be completed in a few months. The valuable information presently stored away in inaccessible canisters can soon appear on your screen enabling you to look into the past.

From Image Layers to Apps

The image services enable the full information content of the aerial imagery to be accessible as temporal image layers web browser or advanced desktop applications. For the full value of the imagery to be gained these apps need to be customized to the specific needs of an organization. GeoDyn can quickly configure apps to each user’s requirements and make access to the temporal aerial imagery as simple as zooming into a location and picking the required date.
Massive amounts of valuable information are locked away within the aerial imagery. The apps that GeoDyn provide enable any user to zoom in, look at and interpret the information, but for wider analysis it is necessary to interpret and extract information layers. Due to the source being aerial film, computers are not capable of accurately interpreting such imagery, but the human brain has evolved over millennia to do this very efficiently so long as the appropriate tools are available. GeoDyn develop digital collection procedures that are simple, scalable and quick. They enable the very rapid collection of information layers from the aerial imagery with the appropriate accuracy and attribution for the required analysis. Do you want to know the extent of forests from a specific year, the boundaries of villages, the locations of buildings for roads? These information layers are the basis of knowledge and effective decision making. Here we emphasize on the usage of aerial photography for anything older than 10 years, a period where suitable satellite imagery has been generally available over the last 10 years. GeoDyn's capture procedures can be used to obtain this data quickly from the aerial imagery using trained interpreters or crowd sourcing. The capture can be done by your own organization or GeoDyn can source the required personnel.

From Image Layer to Information

GeoDyn can help you look at the past to understand the current, and make the correct decisions for the future. 50 years involvement in Mapping and GIS led us to become specialist in procuring application specific data that are relevant, adequate and economical and crafted for efficient usage. Draw on our experience and let GeoDyn help you to use spatial data to your greatest advantage.

Consultancy