GIM INTERNATIONAL INTERVIEWS JOHANNES SAILE, MANAGING DIRECTOR INPHO GMBH, GERMANY

Transferring Theory into Practice

In 1980 Professor Ackermann founded INPHO GmbH as a spin-off from his institute at Stuttgart University. A quarter of a century later, the company looks like staying independent for another 25 years; most shareholders are staff members and 70% experts in photogrammetric technology. To mark the anniversary we interviewed managing director Johannes Saile.

Company Background
In 1980 Professor Ackermann founded INPHO GmbH as a spin-off from his institute at Stuttgart University. For its first twenty years INPHO was active as a developer and supplier of innovative software components for photogrammetry and terrain modelling, the majority of software licenses being distributed through OEM partners supplying
photogrammetric systems. In 2000 INPHO turned fully into a photogrammetric system provider, covering the entire workflow of photogrammetric projects from digital image capture all the way through to orthophoto generation and stereo plotting. The company thus strengthened its direct sales activities to end-users within Central Europe, extended its support capacity and built up a worldwide distributor network with partners in 27 countries. The company now has 25 staff members and subsidiaries in Espoo, Finland (Inpho Technology Oy) and Baton Rouge, USA (inphoUSA, Inc.); 40% of the employees are active in research and development, 30% in technical support and 30% in sales and administration.

What objectives did Professor Ackermann have in 1980 for founding INPHO as a spin-off from research results coming out of his photogrammetric institute at Stuttgart University?

One of Prof. Ackermannâ€™s primary objectives has always been the successful transfer of his research results into practical application. This idea was supported in the 1970s by the unique opportunity for a professor at Stuttgart University to run a separate research institute next to his university institute. Governmental restrictions made necessary the transfer of these activities to a private company (GmbH) in 1980. Consequently, INPHO owes its existence to the vision of Prof. Ackermann and to governmental decisions in the State of Baden-Wuerttemberg.

What have been the main contributions of INPHO to photogrammetric technology?

For several technologies our company has been the first in the world to offer a commercial software product. Way back during the era of analytical photogrammetry, around 1985, we contributed with the first automated digital measurement system for 3D measurement of industrial surfaces (InduSURF / MATCH-I), applying area-based matching. INPHO also provided the first solution for GPS-supported aerial triangulation (PATB/ SKIP), which opened up the possibility of drastic reduction of ground control. In the era of digital photogrammetry we developed the first products for automatic DTM generation (MATCH-T), using feature-based matching, and fully automatic aerial triangulation (MATCH-AT). After becoming a photogrammetric system supplier in 2000, INPHO completed its portfolio with advanced and unique techniques for true orthophoto generation, orthophoto mosaicking and semi-automated building extraction.

It is now over a decade since Prof. Ackermann retired; how do you manage today to link up with scientific developments?

For many years now we have co-operated successfully on technology transfer and R&D work with universities such as Technical University Vienna (Prof. Kraus) and Bonn University (Prof. FÃ¶rstner), and with research organisations such as VTT (Finland) and Institut de Geomatica (Spain). The company is also an active member of ISPRS and closely follows up on and contributes to the activities of the scientific working groups. But, of course, the long experience of our development and support team and daily customer contacts are of equal importance in keeping track of new technologies and requirements.

What are your main product types, who are your main clients and how is your customer-base distributed across the continents?

Our current portfolio includes complete, modular photogrammetric systems and solutions for large DTM and Lidar projects. On the photogrammetry side our products cover the complete digital photogrammetric workflow, including aerial triangulation, stereo data collection, DTM generation and editing, ortho-rectification, colour balancing and mosaicking. In addition, INPHO software components are

prepared for smooth integration into any third-party systems. As an example, many customers use MATCH-AT and OrthoVista in combination with photogrammetric systems from other manufacturers. In the area of DTM/Lidar, INPHO offers powerful tools for filtering and editing of huge Lidar point clouds, and complete solutions for building up and managing large DTM projects like nation-wide DTMs. Meanwhile, we have a large customer-base of more than a thousand users in over a hundred countries all over the world. Typical users of our products are service companies offering geo-data collection by photogrammetry and Lidar, and all state authorities involved in supplying geoinformation.

From a business perspective the past decade may be characterised as the era of take-overs. What are your strengths that you are able to maintain your market position, and how do you see this today?

The answer, from our point of view, is quite simple: the strengths and the quality of the companyâ€™s products and the supply of qualified support ensures satisfaction among the customer-base, which then results in further business. One secret might be that most of our shareholders are staff members as well, interested in keeping our activities self-determined next to doing prosperous business. As our experienced staff combines expert knowledge in photogrammetric theory and photogrammetric production with wide know-how in software engineering, we are confident of keeping our independent position. Of course, maintaining our strong position requires constant efforts towards further innovation and improvement, for which we are prepared. Our main focus has always been on increased efficiency and automation of photogrammetric tasks in combination with rigorous modelling, resulting in optimal productivity.

What technological developments in image data capture and information extraction from imagery do you expect for the coming decade?

The big challenge for the future will be further automation of the overall photogrammetric process, including automated feature extraction. This process will benefit from images with higher geometric and radiometric resolutions. Available multispectral information from modern aerial sensors and combined multi-sensor information will further contribute to better feature extraction. More sophisticated modelling of the real world is needed to fulfil the various needs of the information society.

How do you see the future of photogrammetry in relation to current rapid developments within the domain of GIS?

Photogrammetry in combination with Lidar and other sensors will continue to be a major source for GIS data capture. It provides data in a standardised and efficient way, with high and scalable accuracy. As GIS applications become more popular in day-to-day use, so the need for up-to-date source data will increase. This will require even more automation in data collection and processing. So far the majority of photogrammetric systems are running in stand-alone environments with connections to CAD systems and data exchange is realised via file interfaces. But more and more, photogrammetric systems are connected to GIS databases. GIS data is overlayed with digital stereo imagery and can be directly checked and updated without file transfer. As an example, Summit Evolution, the stereo plotter within INPHOâ€™s system developed by our partner DAT/EM Systems International, is now available with Stereo Capture for ArcGIS integrating photogrammetric data acquisition into the ESRI world. INPHO and DAT/EM have become ESRI partners.

Geomatics curricula at universities are more or less permanently under review. What would be your recommendations to revision commissions with respect to content and the ratio of theoretical to practical training?

All of us are facing a rapidly changing world. Who is really able to forecast all the skills that will be needed in ten years time? Therefore my recommendations are to teach a wide range of basic theoretical knowledge, and the fundamentals of economic processes. We consider practical training combined with â€˜learning by doingâ€™ also very important. We actively support this idea by offering all of our software as a combined INPHO education kit to educational institutions, under very attractive conditions.