

## **Manage and View large datasets in real-time**

Within the last decade, digital imaging techniques replaced the classical negatives and dark rooms. Thus in many Microscopy facilities a tremendous amount of digital image data piles up in various data formats and has to be stored, administered and documented. Moreover, due to technical improvements i.e. the increased resolution of images, automated image acquisition tools and the growing number of 3D and 4D applications, the data is overwhelming the storage and administration capacities. Only by using dedicated image management systems the whole process of image acquisition, documentation and storage can be automated, standardised and most importantly, will keep the value of your image over a long period of time. Collaborative viewing and analysis of these large datasets also becomes an issue, although storage can be handled with today's technology, transfer of such large amounts of data is still a challenge. Techniques to access large dataset formats are now essential to allow exploration while leaving the data in the original location, Google maps is a perfect example of how such techniques are implemented. In addition to loss-free and effective documentation, the stored knowledge can be further reinvestigated under different new aspects and kept in use even after the operator left the laboratory.

However, the introduction of image databases is the first step towards a final solution for data handling, since there is a lot more information that has to be handled, e.g. sample specifications, preparation protocols, analytical data and measurements. Future laboratory data management systems must provide a convincing solution for storing all essential data that arise during the process flow of laboratory investigation. These systems will most likely replace the old-fashioned hand-written laboratory journal.