20 Years of Introducing Geoscientific Information Management Systems (IMS) – an Experience Report

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The inestimable value of geoscientific data has been recognised for a long time. Since many years, primary documents, reports, maps, field observations, analytical results are stored in public and non-public libraries, as hard copies. After computerisation, a wide variety of electronic data recording systems shifted data to computer hard discs, DVDs and other data carriers. The result was thousands of files and data carrier systems that easily could be copied and multiplied, as well as altered without taking track. Metadata was not recorded; the availability of that information was limited. The use of different software products for data digitisation and storage worsened the situation further. In this situation, the implementation of centralised, reliable and safe information management systems became an unavoidable requirement.

Figure 1: Examples of customised IMS based on advangeo® Products

Modern IMS are modular structured and offer interfaces for storage of different types of geoscientific data, incl. library/ archive, map legends and maps, structured and non-structured spatial data, mineral occurrence data, geochemical, geophysical, borehole, hydrogeological and other data. Spatial background data (topographic maps, satellite and areal images) is seamlessly integrated. Technologically, modern IMS consist of a relational database and a GIS. In most cases, Microsoft and Esri products are used. The user interface is usually an easy-to-use windows-style application, completed by a comprehensive GIS, offering functionalities for data entry, data inquiries, export and import as well as semi-automatic map printing. In some cases, data processing features are implemented. National IMS consist of a confidential and a public part. Confidential data is made available on a personal level. Public data is available via a web interface, incl. an interactive GIS. E-commerce and data download functionalities help to provide data on demand, on time, and for affordable prices. Mobile devices capture field data directly into the IMS, avoiding loss of data and difficulties with coding and abbreviations.

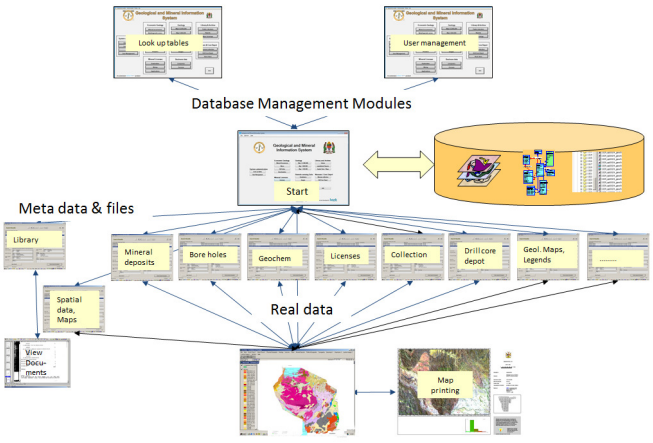

Figure 2: Modular IMS interface structure

The paper presents the history, background and content of four national IMS (Namibia, Ghana, Tanzania, and Uganda), the respective strategies, expectations, difficulties, success stories but also disappointing issues. Based on the long-term experience, and considering the real on-site conditions, key system features, functionalities, technological, financial and staffing requirements are discussed.