Spatial Information Management
The FIG-Commission 3 in the years 1979 to 2002

The development of FIG-Commission 3 and some highlights form the discussion during the last 25 years of history of our commission may help to see the ongoing changes. Speaking about the new challenges and opportunities, which came up as a result of our fast changing *information society* brings awareness about the changing demand on infrastructure when we change our main source of income from producing industrial goods to a service oriented "*knowledge economy*". However is everything really new or is it just a repeating story that we should already know from the past, where also a longer process of trial and error was needed for developing sustainable infrastructure and business models, which are still under permanent improvement?
During the last decade the demand on better and faster access to up-to-date spatial information for better decision making increased in all countries. The rapid changes of tools for managing information and information for monitoring all the changes is reflected in the increasing speed of decision making within our societies with our profession as one of the providers of tools for *spatial information management*. An optimal development fully relays on qualitatively and quantitatively sufficient information.

All over the centuries geodesists were dealing with tasks like collecting, acquiring, processing and visualizing spatial information and land related data.
One repeating essential element of Land Information Systems
(LIS) is always the link of objects with a position on the earth. Within a LIS a whole range of information for multiple purpose is stored; and it is always positional information beside data about use, legal facts or value that is needed.
The processes of a complete and correct collecting of land related information, modeling of facts from our territorial infrastructure demands a commonly agreed spatial concept, interdisciplinary accepted links, interfaces and cooperation.

The Federation of International Surveyors (FIG) was on the lead by issuing the topic „Land Information Systems" (LIS). On the occasion of the 13. FIG-Congress in Wiesbaden 1971 it was recommended to implement a Task Force in order to bridge the specifications of databases currently in use with the surveying demand and to propose how concepts fit best and models are to be tuned for the surveying profession. The task force started in 1972 under the chairmanship of Mr. H. L. van Gent and presented in 1974 at the 14. FIG-Congress in Washington its first report. Part 1 of this report was focusing on a general description of demand and conditions for a successful implementation of a parcel related LIS. It described the definition of the common basis as well as geometric and semantic concepts. Part 2 of the report dealt with geometric information more in detail.
The 15. FIG-Congress in Stockholm 1977 gave the frame for discussing the „Resolution of Wiesbaden" with the result of highlighting the increasing demand on Integrated Surveying Systems (ISS). Such ISS will be the frame for developing and maintaining up-to-date digital information for map production as needed for land tasks like general planning, developing, identifying, registering and land use planning. The administration and the legal frame for maintaining such systems was identified as one of the hot issues. Because of the importance and the inter-commission relevance of that issues identified by the task force it was agreed to review the current FIG-organizational structures in order to deal best with the changing demand of the profession coming from such ISS.

Reorganization of FIG

During the Permanent Committee meeting of FIG in Paris 1978 the Swiss Bureau proposed to discuss and develop the issue of Land Information Systems within a separate FIG-Commission, which lead to organizational changes as follows:
The tasks of Commission 2 are to be extended by merging their tasks with the current tasks of Commission 3 about professional literature. Commission 3 shall act as "Ad hoc"-Commission for the special tasks and purposes, which should be the topic of LIS for the next two periods to come:
"The (‚ad hoc'-)Commission shall focus on tasks related with collecting, updating, storing, processing and visualizing of land and parcel related information – considering the administrative as well as the technical point of view relevant for that issue".
In 1978 the first international Symposium on LIS was organized by Prof. Eichhorn in Darmstadt (D). This FIG-Symposium identified 8 topics relevant for LIS to be discussed within an interdisciplinary approach like: geometric, technical, methodological framework as well as pending questions on data acquisition and legal frame. The participants agreed on definition of terms within LIS and adopted the Darmstadt-Resolution. The symposium in Darmstadt was lead by the common understanding that the surveying profession with their experience about land related information seems to fit best for new tasks like coordinating and organizing LIS. Other profession's opinion were considered as helpful.

In April 1979 a new team of Commission 3 chaired by Prof. Dr. Josef Mitter (A), Sune Andersson (SWE) as Vicechair and Christoph Twaroch (A) as Secretary started with their first **Commission 3 meeting in Vienna**. Based on the Darmstadt-Resolution" a workplan was developed.
In April 1980 the next **Commission 3 in Budapest** was an other milestone for the development of Commission 3 and preparation for the Montreux Congress.

Congress Montreux

Already at the ***16. FIG-Congress in Montreux*** in August 1981 Commission 3 contributed with more than 30 papers in 6 sessions from the wide range of LIS. It was the first time that a FIG-Congress provided the fame for discussions focusing on data-theory, training needs for LIS, LIS for developing countries, data structures and databases, national reports on LIS. Sessions were well attended bridging several geodetic disciplines in cooperation with other commissions.
The importance of cooperation among neighboring disciplines was highlighted by a joint session with ICA and ISPRS.
The proposal of Commission 3 for the definition of "***Land Information Systems***" was adopted by a resolution of the FIG-General Assembly:

> *Having in mind the need for close cooperation with other professions in order to cope with the fast developments of methods and technology the commission 3 aimed to cooperate with research groups as well as users groups from different countries for developing a conceptual model of LIS.*

As a result of this in March 1982 the ***Commission 3 meeting in Rome*** chaired by Mr. Sune Anderson focused on conceptual framework and terminology for LIS – also preparing the FIG-Congress 1983 in Sofia.

Congress Sofia

In June 1983 the ***17.FIG-Congress in Sofia*** was at the National Palace of Culture "Ludmilla Schivkova". The "ad-hoc"-Commission 3 focused on theory of LIS, applications of LIS as well as technical, economic and legal aspects of LIS.
The "Sofia resolution" as well as the workplan was adopted by the General Assembly. The "Ad hoc"-Commission for the special tasks became a permanent status named Commission 3 "Land Information Systems".

In 1984 the Commission 3 was busy with meetings in Athens in Kawasaki and Edmonton. The Annual ***Commission 3+7 meeting in Athens*** was hosted by the Technical Chamber of Greece on the occasion of the ambitious Cadastre project announced for Greece. The Greek Ministry of General Planning, Condominium and environment stressed in his opening speech of the Annual meeting of Commission 3:

> *"We need models, which proved to be successful in other countries – and we need it quick. We are planning a two step approach: Firstly a systematical cartographic data acquisition; secondly data for Cadastre and Land Registry. The maintenance of all these data is crucial for the success…. International experience is more than welcome.*

The symposium in Edmonton in Canada in Oct. 1984 focused on the interrelation of industrialized counties and developing countries in the process of implementing LIS. It is obvious that sophisticated advanced systems are offered to developing countries often causing additional problems for sustainable long term continuation of an project. Using simple tools and systems to be expanded later, but covering the current demand seems to be a much better approach – not only for developing countries.

Congress Toronto

In June 1986 Toronto – the city on the northern bay of lake Ontario was called meeting place in the language of the Hurons – was the meeting place for the ***18. FIG-Congress***. The final resolution referred to the tasks of Commission 3 as follows:

- The cooperation of experts on Information and communication with the decision makers on Land Policy and General Planning is needed for a better resulting decisions.
- Case studies might facilitate the better understanding of interrelated processes with benefits for system developers as well as users.
- The Chairman might implement task forces and Working Groups

In 1987 ***Commission 3 met in Oslo*** on the occasion of the FIG-CP-meeting and organized a two-days "Symposium on Digital Mapping". Participants of the symposium will well remember: The referents Bie, McCullagh and Robb presented the conclusions within a futuristic sketch. Based on the recommendations of the Toronto meeting a study group on LIS for developing counties was implemented leaded by Prof. P. Dale.

In June 1988 a joint **COM3/COM7 annual meeting in Bali** (Indonesia) focused on Management of rural and urban space and interrelations of LIS with education and technology. That Workshop which was followed by the South Asian Surveyors Congress was also an awareness campaign for the use of LIS in Indonesia.

Congress Helsinki

In June 1990 the ***19.FIG-Congress in Helsinki*** took place in the Finlandia-Hall. The CP-meeting agreed on a new definition of the term “Surveyor”. At the opening ceremony a control point on the rock in front of the Finlandia Hall was unveiled - a plaque states the geographic Coordinates, the surveying method as well as the occasion of erecting that monument.
In the meanwhile Commission 3 was structured in three Working Groups. The WG on “LIS for developing countries” attracted full awareness with their newsletter on implementing LIS. The Working Group “Managing large quantity of data” and the Working Group “Aspects of access to data” contributed with their topics.
The final resolution highlighted the demand on facilitating access to spatial data from public administration for improving the benefit of using LIS.

In September 1991 the international FIG-Symposium and Commission 3 meeting in Innsbruck focused on “Environment and Land Information” Papers from 14 countries contributed to LIS and shifting to the term GIS.

Congress Melbourne

In March 1994 the ***20. FIG-Congress*** took place in the World Congress Centre in the Centre of Melbourne with about 1700 participants, 82 technical meetings and 334 papers coordinated by 9 commissions. The key success of that congress was the vitality – also by facilitating the exchange of experience and thoughts by balancing technical information with social events and Kraft of the Congress.
In COM3 Helge Onsrud /Norway succeeded Ernst Höflinger /Austria as commission chair. The work of Commission 3 showed the diversity of demand (quite different organizational structures as well as challenges of integrating GIS) coming from different countries

In October ***1996 the Commission 3 meeting in Copenhagen*** attracted 50 experts from 16 countries to the seminar “GIS/LIS and the future – sustainable development” . One of the discussed issues was the future of commission 3 and the link with other commissions and organizations with the result that COM3 should focus more on managerial than on technical aspects of GIS/LIS, which leaded to the proposal of renaming Commission 3 to “Spatial Information Management”.

At the FIG-PC meeting in Singapore Commission 3 contributed with the first session ‘Building National Spatial Data Infrastructure (NSDI)”.

In Nov. **1997 Commission 3 annual meeting in Thessaloniki** was hosted by the Aristotle University of Thessaloniki. Professor Ioannis Maniatis: The term "*Sustainable Development*" is much wider than the term "Protection of Environment". It has important financial and social dimensions and its founding principles are the equality of all people of one generation as well as the equality of the present generation with the generations to come”.

Congress Brighton

The ***21. FIG-Congress in Brighton*** had the motto “Developing the Profession in a Developing World” hosted by the Royal Institution of Chartered Surveyors: “Surveyors must see themselves as members of an international profession if they are to survive the enormous changes taking place in the world economy”.
The main discussion at the General Assembly dealt about the new FIG-statues including the implementation of an permanent FIG-Office in Copenhagen.

Beside the technical program with about 120 speakers an “open forum” gave opportunity to listen to speakers with high reputations discussing global themes like technological development, global market and infrastructure

For many years Commission 3 was concerned with issues related to the automatisation of Cadastre. Its remit was later expanded to take a broader view on issues related to GIS in general. During the period 1994-98 COM3 has concentrated on the strategic and political topics rather than technical questions – GIS and legal issues, GIS for developing countries and for sustainable development, and the building of spatial infrastructure have been priority topics. As a result of this the name of Commission 3 was changed in 1998 from Land Information System and GIS to ***Spatial Information Management***. The term *Spatial Information Management* (or Geographic Information Management) has been adopted by several involved in the traditional GIS businesses. The headlines of Commission 3 meetings were like: “Spatial Data Infrastructure”, “GIS and Legal Issues”, “GIS/LIS in Developing Countries and Countries in Transition” and “GIS/LIS and Sustainable Development” focusing on the results of Agenda 21.
The new name of COM3 “Spatial Information Management” underlined the observation that nowadays the challenge is in forming information out of all the data data acquired. How to transform data into valuable information with value for the user resulting in better decision making.
In June 1999 the FIG-Working Week was hold Sun City, South Africa. Commission 3 contributed with 8 presentations and had a meeting with 20 participants. The key note speaker Wolfgang Grulke from the company Futureworld, had focus on the fact that the internet gives us the possibility to sell our knowledge all over the world instantly. He argued that the value of information is limited, whereas information combined with knowledge is of great value. He recommended us to consider that in a global information marked there is a risk that government loose power and control. How can they tax intelligence?
In 1999 FIG elaborated jointly with UN “The Bathurst Declaration on Land Administration for Sustainable Development“.
In Oct. 1999 the Annual meeting of ***COM3 in Budapest*** was hosted by the DLM. Keynote speakers came from World Bank (**Jaime Vazquez-Caro**: The Vienna Initiative - Real Property Rights in ECA Countries) and from UN-FAO (**Fritz Rembold**: Importance of GIS and related data in Rural Regional Development).

The annual ***COM3-meeting 2000 in Athens*** with the title *"**S**patial **I**nformation **M**anagement - Experiences and Visions for the 21st Century"* was hosted by Technical Chamber of Greece, Ktimatologio S.A. (Hellenic Cadastre) and the National Technical University of Athens. On the excursion to Ktimatologio participants learned about the new ambitious Hellenic Cadastre project for Greece starting again with a new cartographic data acquisition before collecting Cadastral data in the field supported by 75% from EC-funds. The real challenge seems to be the cooperation of surveyors with other professions like with the Land Registry - working in Greece since many years.

In October 2001 the Commission 3 Annual meeting was held in ***Nairobi*** on the occasion of the ***International Conference on Spatial Information for Sustainable Development*** hosted by the Institution of Surveyors of Kenya (ISK) organized jointly with the FIG-COM3 and the United Nations Centre for Human Settlements (Habitat). The Conference included the *International Symposium on Cost Management of Low-Cost Housing* organized by the Institution of Quantity Surveyors of Kenya (IQSK), International Cost Engineers Council (ICEC), the Africa Association of Quantity Surveyors (AAQS) and FIG Commission 10 on Construction Economics and Management.
The conference was co-sponsored by the UN- Economic Commission for Africa, the UN-Environment Programme, the University of Nairobi, Department of Surveying and Department of Land Development, ICA and ISPRS.

The success of the conference with the huge number of 450 participants may be considered as a milestone for Commission 3.
The final Nairobi-resolution was published as ***FIG-publication No.32***: „***The Nairobi statement on spatial information for sustainable development***" in co-operation with the United Nations.

In 1999 as a follow-up on the Memorandum of Understanding between UN-HABITAT and FIG Commission 3 agreed on preparing a Best Practise study on "Land Information Management for Sustainable Development of Cities" . The result of the work is documented in **FIG-publication No.31 "***Land Information Management for Sustainable Development of Cities – Best Practice Guidelines".*

Congress Washington

The ***22. FIG International Congress*** in Washington, D.C. USA in April 2002 attracted almost 4,000 participants from almost 90 countries. The technical programme included the FIG technical programme with more than 450 presentations in more than 110 sessions. In addition in the domestic programme almost 160 papers were presented. Further there were several workshops organized by ACSM and ASPRS.
Commission 3 had the responsibility for 11 technical session and three joint sessions. In total 43 speakers showed up. In addition the Commission was involved in five more joint sessions. The commission 3 held two formal meetings during the congress. Both meetings were well attended with in average 30 participants from 21 countries.
The discussions in the sessions revealed that several in audience had strong interests sharing knowledge in best practice in data-modeling, XML and other technical issues. One proposal is that FIG or one of the sister-organizations establish a best-practice web-site as a basis for knowledge-sharing. ***Knowledge-sharing*** might be one of the issues that could strengthen the cooperation between the FIG Commissions and the sister organizations.

In Sept. 2002 Commission 3 hold it's **Annual Meeting in Istanbul** on the occasion of the GIS2002 Conference. The president and the director of FIG attended the annual meeting. The president of FIG, Bob Foster, thanked the Turkish colleagues for their successful organization of the GIS2002 Conference and for the great hospitality.

Outlook

The new technologies imply new methods for data capture in digital form. There will be more data - with lower costs per unit - to be used in public and private administration as well as in business. These data will seek for tools to manage, model, integrate for decision making and to visualize the results.
Real time and post processed surveying will be increasingly important parts of the *Spatial Data Infrastructure* or better to say: "Spatial Information Management"
"Personal navigation" is another hot issue. The online access to spatial information can already now provide individualized information as part of Location Based Services.
The Internet as a information network will grow together with the mobile services provided through hand-held devices. Spatial information will be available independent of space and time. All that has great influence on development of organizational and business structures, but also the way of visualizing spatial information will change a lot. Not only is this setting new challenges to all those who manage and serve geospatial data but it also means that it is necessary to reconsider database architectures and technologies on a much shorter cycle than ever before.
And last but not least the Commission should continue to act a strong strategic adviser on ongoing developments within Spatial Information and Knowledge Management for the FIG

Council, the other FIG commissions, the member associations, the Unit Nations, the World Bank, the Aid Agencies etc.

The topic of Spatial Information Management is still the key issue for all of us contributing to the development of our information society being used as headline for questions like:

- Cooperation of organizations?
- Which data are of value for decision making?
- Completeness and reliability of data / information?
- Use of information for a better decision making process?
- How to cooperate with other organizations on Knowledge-sharing
- Developing new models like Clustering for improving the efficiency

FIG as organization bridging the professional diversity of the worldwide surveying profession, providing the frame for giving and taking information and sharing knowledge facilitates to a smoother process of coping with all the changing world and contributes in shaping the changes. Commission 3 is covering one part off all that. Chukwudozie Ezigbalike, UN-ECA, stated 1996 at the FIG-Commission 3 meeting in Copenhagen:

> *The word "technology" means an association of methods, techniques and equipment which together with the people using them, can contribute significantly to solving a problem. This implies that technology should be in keeping with the local culture. it should preferably be easily understood and applied by workers.*

FIG-Commission 3 communication

The ***FIG-Commission 3 newsletter*** was initiated and started by Peter Dale and provided all over the years valuable information to all recipients. Mr Sune Andersson /Sweden, Mr.W. A Robertson from the Department of Surveying and Land Information in New Zealand and Mr. Bo Lauri fulfilled a tremendous good job as editors, keeping the newsletter interesting for all of us.
Following an agreement with Commission 7 in 1994 a joint newsletter was issued until 2000 twice a year with about 800 copies each time. Later on this newsletter was replaced by the ***FIG-Commission 3 homepage*** which was implemented in September 1997.
In 2002 a ***FIG-Commission 3-CD*** with more than 600 MB of information was distributed among COM3.

Former Chairmen of Commission 3 passed away

Mr. Gerhard Eichhorn, honorary member of FIG since 1990, passed away in March 1999. Gerhard one of the initiators of FIG-Commission 3 in 1978 and 1985-87. Both as the chairman of DVW and as COM3 chair his dedication led to the establishment of a comprehensive land information system inc which surveying data, played and leading role.

Mr. Sune Andersson, passed away in February 1999. Early, Mr Anderson saw the possibilities to rationalize activities through Information Systems, and he played a very important role when the Land Data Bank in Sweden was developed and implemented. Internationally Sune Andersson was recognized as a prominent expert within the field of Land Information Systems, and contributed through FIG, as well as through other international expert groups, to acknowledge the importance of Real Property Information in the society. Sune was chairmen of FIG-Commission 3 in the years 1998-94.

Mr. Ernst Höflinger, honorary member of FIG since 1998, passed away in February 2001. Since 1981 Mr. Ernst Höflinger contributed with ideas and concepts as Austrian delegates to FIG. He has contributed a lot to the development of this organization and its members. FIG has lost a very important person spreading the ideas of developing the profession on an

international level and encouraging the exchange of experience among international professional associations. Additionally Ernst has become a friend of many delegates coming from more than 80 countries in FIG commissions. Ernst was chairmen of FIG-Commission 3 in the years 1992-94 , just the period of time when the “iron curtain” in Eastern Europe was broken down and new approaches of private ownership were implemented, which was the starting point for global restructuring also with the result of increasing demand in GIS for new ways of better decision making. Ernst was a milestone for all of us by highlighted and facilitated the cooperation and the interdisciplinary approach.

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Composed from reports and minutes of Congress and meetings in addition to publications and own sources.
http://www.fig.net/figtree/hsm/index.htm