

Changing Minds in an Evolving Society

Dipl.-Ing. Gerhard MUGGENHUBER, Chair of FIG Commission 3, Austria and
Rob MAHONEY, FRICS FBCartS, Director of MahGeo



Gerhard Muggenhuber Rob Mahoney

Key words:

1. TRANSFORMATION PROCESSES IMPEDE OUR SOCIETY

People in a society are generally unaware of the impact of slowly evolving changes over a long period of time. Evolution, in contrast to revolution, does not tend to create historical milestones. However, our living space, together with spatial and social environments, is changing significantly. In our business environment a number of significant changes have taken place in the way we use Information technology for our communication.

Similarly the paradigm shift of providing spatial information online as opposed to paper maps has, and is, changing society's mindsets almost beyond recognition compared to just a few years ago. It is not just about new Geo-tools – it is much more about creating processes enabling us to use the interrelated parameters of location, space and time. This has supported the creation of a mobile society that demands rapid access to a variety of information which is just the beginning of the major changes that will confront us in the future. Society is starting to think spatially without realising it and as spatial data becomes pervasive this will be the ultimate shifting of the human mindset.

In the field of spatial information management the changes that are occurring can best be observed by considering three inter-related areas: Geo-tools; Geo-data, Processes; and the Human Interactions which enable them to work.

1.1 Geo-tools

In the past only experts had the education and training to use complex Geo-tools and large organisations were required to finance the introduction of the technology. Today these tools are widely used by the general public, often without them being aware of it. Handheld devices, similar to conventional mobile phones (and now becoming incorporated into mobile phones), have become capable of providing knowledge of the users current geographic position. These

tools, and the services they provide, require improved access to relevant databases. The Geo-industry is now moving ahead rapidly to provide the appropriate geo-tools to support the growing availability of geospatial information. One of the largest exhibitions in Europe designed to display state of the art geo-tools will take place at the FIG-conference in Munich in October 2006.

1.2 Geo-data

More and more geo-data has become available in the public arena in recent years. Within the last decade significant volumes of geo-data have been digitised creating valuable data sources. The impact of this data availability has been to create significant inroads into social interaction both at the individual and organisational level. The industry is currently working hard to harmonise a number of related reference systems that will ensure the interoperability of user friendly data. Users will be able to combine information gathered in the field with positional information derived from GNSS-services (GPS, Galileo) and others. Today, we are addressing some of the major user complaints by combining data associated with different reference frames and different databases. Without this awareness of the issues surrounding the use of some datasets, misinterpreted data could create a potential weakness for such systems.

1.3 Processes

One of the major challenges facing the emerging spatial society is how to improve the processes associated with the wide use and availability of spatial information. In the past the general public was not particularly interested in spatial issues with the consequence that decision making was often regarded as being shrouded in mystery. However, within the last decade individuals have been able to experience the benefits to be gained from improved processes such as **new public management** and **e-government initiatives**. These public sector reforms have focused public administration's attention on the citizens' interests, promoting the need for comparable services within the public and private sectors. Among the initiatives being devised are efforts to improve transparency, together with legal and financial issues such as EU-INSPIRE.

Modern governance requires transparency and the involvement of communities and citizens in decision making processes. This also applies to community based land management processes and the development of administration in general. Modern spatial information management tools facilitate decentralisation, community empowerment, and citizen participation, which guarantee social cohesion and a sense of belonging.

Visualisation of spatial information will increasingly be used to optimise the resources within a given framework. We have to be aware that some societies with various and diverse value systems are naturally under higher social pressure and this requires even more focus on transparent processes.

1.4 Human Interactions

A key issue is how we can introduce the improved use of geo-tools, spatial data and processes. Successful organisations tend to encourage employees to adopt common value systems which

ensure that the activities of individuals are in line with the mission and vision of the organisation. Doing so allows us to go beyond traditional mental perceptions without risking the focus of the organization. This approach also applies to societies where government initiatives are designed to invest in the long term, such as the educational system in Finland, with the intention of creating a shifting mindset.

It is difficult to influence or train the approach of customers to processes and services based on spatial information. Though this is rapidly changing, there are examples of technical innovations being introduced within the last decade without any training at all. A good example of this is the mobile telephone, a complex technological device sold and used with minimal or no training. Similarly services in the sector of spatial information like 'Google Earth' are provided on the web without requiring additional skills in using GIS. This drift tends to suggest that technology is no longer the challenge, nor is it impeding the take up of these systems. The real challenge is to understand people's approach to the utilisation of services and to make decisions at the policy level. This may well lead to a situation where there is a need for society to undergo a fundamental change in the way that it thinks about jobs and service delivery which require integrated processes using Geo-data and some Geo-tools.

2. THE IMPACT OF KNOWLEDGE TO A SOCIETY

2.1 Knowledge

The fundamental development of society is based on knowledge. A few hundred years ago the introduction of systematic education in Europe with all the cultural and educational diversity it created, was the base for many of the innovations responsible for transforming the agro-oriented society to an industrial society. This traditional 'Knowledge transfer' based on the educational system of an individual state has to become a cross-national concept of Life Long Learning. There is considerable variation in the amount of control over the professions administered by the State. This in turn has led to the situation where licences to practise are required in some jurisdictions, with a negative impact on the mobility and development of the professions such as surveying. Improvements have already been achieved at the educational level where the *Bologna process* has been initiated to ensure a harmonised academic education standard across Europe, thus allowing young people to become more flexible. Degrees awarded across Europe will provide certified levels of education and encourage cross border recognition, which in turn will provide greater work force mobility. At the professional level CLGE (Comité Liaison des Géomètres Européens – www.clge.org), as well as the ECEC (European Council of Engineers Chambers – www.ecec.net/java/seiten/index2.jsp) are working on the harmonisation of professional qualifications in geodetic surveying.

3. KNOWLEDGE AS A FOCUS FOR THE FUTURE

Knowledge sharing processes as a central feature of the functioning of governments, as well as of many organisations, have become even more evident with the rise of e-government projects. The former organizational silos, with very limited interlinked or horizontal processes, are in a process of transition. Networking is impacting the working of bureaucracies, bringing together individuals from different organisational units, with different models, to work on a

common goal: the implementation of a project. With multiple agencies and multidisciplinary knowledge coming together, it is necessary to combine and reconnect the required knowledge. The implementation of inter-institutional projects requires a balanced mix of exploration and exploitation of knowledge, where exploration is more important in the conceptual phase, and exploitation becomes more fruitful in the implementation phase.

Good ideas come from people with talent working collaboratively together. Tabberer (2003), emphasises the need for organisations to be not only reasonably good at managing data (maps) and information (planning processes) but also at managing knowledge (i.e. profiting from 'lessons learnt' in a way others can readily use). This approach applies not only to institutions but also to whole regions such as the European Union, and also to the world wide non-governmental organisation of professional surveyors, FIG.

3.1 Role of FIG

The International Federation of Surveyors (FIG) supports the current transformation process by providing a platform for networking, transfer of knowledge and sharing of innovative ideas amongst professional surveyors world wide.

FIG, through its ten commissions, focuses on specific topics within the surveying profession. Examples of the commissions work are provided in documents downloadable from on the FIG website www.fig.net. These include:

- Mutual Recognition of Professional Qualifications
- FIG Surveying Education Database
- Hydrography in Ports and Harbours
- Contributions to sustainable development:
 - Urban-Rural Interrelationship for Sustainable Development
 - Best Practice Guidelines in City-wide Land Information Management
 - Spatial Information for Sustainable Development.
 - Land Administration for Sustainable Development

FIG cooperates closely with a number of organisations including:

- United Nations Office for Outer Space on multiple and integrated satellite systems (GPS, GLONASS, GALILEO)
- Habitat Professionals Forum,
- The Joint Board of Geospatial Information Societies
- International Federation of Hydrographic Societies
- UNB on Marine Cadastre
- United Nations Working Party on Land Administration

Whenever people communicate they convey knowledge and skills highly contextualised to their current work situation. The way of creating, managing and disseminating knowledge artefacts (e.g. a protocol of a meeting) has already changed considerably in recent years. The integration of spatial information, including temporal aspects, will increasingly be embedded in processes leading to optimised decision making and transparency. Communication, cooperation and networking form the basis for knowledge sharing processes, and will create a

shifting mindset that is more efficient and dynamic, enabling geodata to be used effectively in the development of a modern society.

FURTHER READING

“Land Information Management for Sustainable Development of Cities – Best Practice Guidelines in City-wide Land Information Management”, FIG Publication No. 31, ISBN 87-90907-21-3. www.fig.net/pub/figpub/pub31/figpub31.htm

Keith Murray, Robert Mahoney (2003). Interoperability in Geographic Information – technological idealism or business critical? Fédération Internationale des Géomètres (FIG), Paris 2003

“Marrakech Declaration - Urban-Rural Interrelationship for Sustainable Development”. published in English, French, Arabic, Copenhagen, Denmark, FIG Publication No.33, ISBN 87-90907-32-9 www.fig.net/pub/figpub/pub33/figpub33.htm

Tabberer (2003), Knowledge and Innovation – ‘five easy pieces’, www.standards.dfes.gov.uk/innovation-unit/pdf/knowledge_and_innovation.pdf?version=1

BIOGRAPHICAL NOTES

Dipl.-Ing. Gerhard Muggenhuber

Gerhard is head of FIG-Commission 3 “Spatial Information Management”. For over more than 6 years contributed as active member of steering committee of UN-ECE-Working Party on Land Administration, an advisory body on land registration matters to the UN-ECE in Geneva.

Within his job at “International relations department of BEV – the Federal Office of Metrology and Surveying - the Austrian Cadastre and Mapping Agency - proved his extensive experience in the management and land administration systems. Within many projects funded by the World Bank and by the European Union in Eastern Europe and Asia he contributed as project manager and expert.

Rob Mahoney FRICS FBCartS

Rob is Director of MahGeo an Independent Consulting Company based in the UK. Rob is a past Chairman of the RICS Geomatics Faculty, current Chairman of the RICS Faculties and Forums Board and an active member of FIG Commission 3. Rob has extensive experience in the management of land information, and land registration, together with the associated technologies and business processes. He has been engaged upon a wide variety of successful national and international projects including: the feasibility Study for the National Land Information Service (NLIS); its Scottish equivalent ScotLIS; and has been an advisor to the Hungarian, and Isle of Mann Governments on the computerisation of the land registration systems. He has also worked on other projects worldwide. He is also a member of the UK Governments GI Information Panel.

CONTACTS

Dipl.-Ing. Gerhard Muggenhuber

FIG - Chair of COM3-Spatial Information Management www.fig.net/figtree/commission3/

International Relations Dept. at BEV - Federal Office of Metrology and Surveying

www.bev.gv.at

A-1025 Vienna, Schiffamtsgasse 1-3

Email: geomugg@gmx.at

Rob Mahoney FRICS FBCartS

Director of MahGeo

Email: robmahoney@mahgeo.com