

Current Trends in the European Surveying Market

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SUMMARY

The surveying profession in Europe is facing enormous challenges as technology and legislation create a new paradigm for employment and career opportunities.

One of the major challenges for the profession is whether or not it is able to capitalise upon this change created by the evolving knowledge economy through the provision of added value services and fully engage with such diverse markets as environmental services, planning and development, and property (real estate).

This paper will explore a number of trends currently manifesting themselves within the European market place including changes within the profession. As the critical change from measurement science based services to geospatial and information science based services matures, these changes impact on education, the globalisation of the business environment, and the political dimension.

The European market place, within which surveyors work, is rapidly changing as the skills required in the past give way to new technology; and new opportunities for the provision of added value services jostle with the demands for regulation within state jurisdictions.

This paper explores the diversity of the surveying market across Europe and then looks at the trends which are, as a consequence, developing. Finally the paper will assess the potential impact of these changes in the market place in the immediate future.

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1. INTRODUCTION

Until recently much of the surveying profession was one based broadly upon high-end technology. Today many in the profession are essentially working as part of the knowledge society, where careers are made through the provision of value added services. The knowledge society of which the profession is a major player provides fundamental, well trusted and quality controlled data sets upon which society is built.

A number of major changes within engineering, land administration, cadastral systems, GIS, planning, environmental impact and strategic assessments and even marine projects are occurring with the result that multi professional groupings are being created to generate holistic complete life cycles solutions, of which the surveying profession can form an integral component. If these opportunities are not embraced by the surveying profession, and collaborative working becomes a major outlet for the provision of value added services, professional commercial competitors will move into the marketplace previously dominated by the surveying profession.

Major national and international legislative drivers are constantly moving the professional 'goalposts' and technological advances are moving at, what to some, may be seen as a bewildering speed.

The challenge is stark: can the profession adapt or will it be consumed by a rapidly changing environment?

2. BACKGROUND

The European market place within which surveyor's work is rapidly changing as the skills required in the past give way to new technology; and new opportunities for the provision of added value services jostle with the demands for regulation within state jurisdictions.

Society is always changing: it is the pace of change which is the real challenge today. The move from an agricultural to an industrial society was comparatively gradual and the change to an information society caused few issues for the surveying profession as a whole. The profession's reliance on high quality information gathering and subsequent analysis was a natural home for such professional skills. Today the ground rules of the knowledge society have changed and the profession now has to ensure that it can add real value to the services it offers. Technology changes mean that others can easily perform tasks that were the sole preserve of the profession just a few years ago.

2.1 A changing profession - what is a surveyor?

In most countries mention the word surveyor and immediately a picture forms in the minds eye. Type 'surveyor' into Google and there are 29, 400,000 hits. The definition refers to someone who views and examines for the purpose of ascertaining the condition, quantity, or quality of anything; or someone who surveys or measures land; one who practices the art of surveying. This perpetuates the concept in society of a surveyor as a person who simply uses a theodolite or level – a situation far from the truth.

The single definition created by the Fédération Internationale des Géomètres (FIG) describes a surveyor as: a professional person with the academic qualifications and technical expertise to conduct one, or more, of the following activities; to determine, measure and represent land, three-dimensional objects, point-fields and trajectories; to assemble and interpret land and geographically related information, to use that information for the planning and efficient administration of the land, the sea and any structures thereon; and, to conduct research into the above practices and to develop them.

Is this still valid or have we moved on still further in the Knowledge Society?

The issue faced by the profession is that our skill base and where we add value in the information change is shifting dynamically, and will continue to change. As Franz Kafka said: "You were, as you say, taken on as a surveyor, but we don't need a surveyor. There wouldn't be the least bit of work for a person like that. The boundaries of our smallholdings have been marked out, everything has been duly registered, the properties themselves rarely change hands and whatever small boundary disputes arise, and we settle ourselves. So why should we have any need for a surveyor?"

Clients today can easily ask the same question: what value will this profession provide to this project?

2.2 Simplified and pervasive technology

The simplification of technology means it is not simply in the use of the technology that the professional should excel; but in the interpretation of the results and the added value that their expertise can add to the information – creating knowledge. Enhanced technology has greatly simplified measurement and data capture procedures, new 'black box' technologies and initiatives such as national RTK GPS networks have essentially freed surveyors from the 'chains' of measurement.

Google Earth has enabled young children to use datasets that five years ago required complex skills possessed by only a few professionals. GPS is sold in the shopping mall and is used by ramblers and motorists who often use the technology without reading the instruction manual - why bother with surveyors when it's that simple?

2.3 The Knowledge society

Society in general is gradually moving from the Information Society to the Knowledge Society. The implications of this shift are profound. The Knowledge Society is well described by (Drucker) "Another implication (of the Knowledge Society) is that the performance of an individual, an organization, an industry or a country in acquiring and applying knowledge will increasingly become the key competitive factor for career and earnings opportunities of individuals; for the performance, if not the survival of the individual

organization; or of an industry, and for a country. The knowledge society will inevitably become *far more competitive* than any society we have yet known for the simple reason that with knowledge being universally accessible there are no excuses for non-performance. There will be no *poor* countries. There will only be *ignorant* countries.”

There is evidence that some within the profession are surfing this trend and capitalising upon the opportunities offered. However, historically there have always been casualties with the move from one age to another as some failed to adapt or adapt too late to the inevitable changes.

2.4 Legislation

Another major change, and it could be argued a primary ‘power trend’, within the surveying profession is how policy and legislation now affects and drives virtually everything a surveyor does. Legislation has always impacted on cadastral survey and various legislative directives such as health and safety, environment auditing and basic human rights have been implemented for many years. But in the last decade, we have seen a plethora of increasing important legislation, related directly and indirectly to surveying, both on a national and international level.

With some notable exceptions surveyors in general have not traditionally engaged in politics (in the USA, several presidents have been surveyors, underlining the importance of land and ownership of property to both states and citizens), and have found it difficult to see how legislation impacted on their insular world of measurement. However, even this has dramatically changed.

National legislation and policy drivers such as:

- In the UK – Land Registration Act 2002, StreetWorks Act 2004, Marine Bill 2006 and even the Licensing Act 2005 have driven survey work to unprecedented levels. Demand now far outstrips the ability of UK survey companies to deliver.
- Government department initiative such as e-conveyancing, GI Advisory Panel (Office of Deputy Prime Minister now DCLG) in the UK
- Major changes to Land Registration in Ireland and changes to licensed professionals (surveyors)
- The bringing together of disparate governmental departments (in Northern Ireland – it is proposed that the Ordnance Survey, Land Registry and Valuation Offices are combined therefore creating the first UK cadastral office).

EU Legislation and policy drivers:

- EU legislation can be divided into two distinct types for this paper:
 - Major EU commission legislation such as the Services Directive and Professional Qualifications Directive. Both of these directly impact on the surveying profession.

- EU directives such as the Water Framework Directive, InSpire, Reuse of Public Sector Information (PSI), Flooding Directive and the work of the joint research centre (JRC) amongst many others. Within many of these initiatives it's important to 'dig' deep to find overt references to surveying but they are there.

FIG President Prof Holger Magel has continually called for surveyors to become more politically active and involved during his tenure as FIG president. It's difficult to monitor surveyor activity in this area but its importance cannot be understated.

The work of a professional surveyor is driven by policy and by international standards.

Either legislation or standards or both affect every single angle reading or planning application or cadastral record. The International Standards Organisation and its EU sister CEN is ubiquitous within our profession producing Geo/GI standards through TC211 and other working groups.

It is essential that modern professional surveyors keep up to date with developments in this area. Policy and standards will be the primary drivers of the profession in the future.

3. THE CHALLENGES

3.1 Changing environment

The world is not the same place as a decade ago and the surveying industry is certainly not the industry of even five years ago. We are in a period of flux, of constant movement coupled with rapid technological advances, legislative changes, constantly changing calls on the skills of surveyors, and the need for adoption of new skills while sometimes the forgetting or at least 'letting go' of old skills. It is open season.

It could be argued that the EU survey industry profile currently resembles an inverted pyramid with a top heavy loading of senior, highly qualified professionals, (who are usually far removed from day to day work on the ground), and a base level of a small technical surveyor cohort. In many ways this creates a demographic issue for the industry. The 2010 RICS report of 2004 highlighted the demographic issues facing the UK survey industry and in particular highlighted the need for technical grade surveyors.

Does the rest of the EU face a similar problem? Is the current profession slowly getting older and retiring or is the industry evolving in new ways?

Surveyors are now enjoying a real upsurge in salaries and survey companies have actively diversified away from the vagaries of 'engineering and setting out'. The technology is changing rapidly and opening new avenues of opportunity yet still resistance is everywhere, resistance to change, to outsiders, to new ideas or processes.

EU directives aim to sweep away protectionism but will they succeed??

3.2 Changing market

The market is rapidly changing, many would argue for the better. Borders are open and so are areas of practice. Why sit there in the world of engineering when so many other opportunities present themselves? An example of how some legislation indirectly affects the survey industry is the UK Licensing Act 2004. This Act of Her Majesty's Government, on first reading, does not seem to offer much scope for the surveyor. However Quality Assurance, always driven by the thoughts of potential litigation, and the Police requirement that all Licensed premises (every property that is licensed to sell alcohol) must supply a specified internal and external building survey with their application leads directly to a large volume of survey work.

Some companies have become competitively proactive and set out to find new areas of practice. Plowman Craven Associates (PCA) in the UK have pushed into new territory by becoming involved in Computer Generated Graphics (CGI) and have even worked with Hollywood on blockbuster movies such as Troy and the Tomb Raider films. Surveyors now need to be, at least conversant, in graphic design and other non-traditional survey techniques and skills, for example, Laser scanning has revolutionised terrestrial data capture.

This raises a number of questions: Are traditionally survey courses able to adapt? Is there now a real need to concentrate on geodesy? Is there a need for curriculum change? Is there a need for a course in entrepreneurial skills for surveyors to be introduced?

Another area of real change is the relationship between land survey and property. Some argue that property (real estate) is the future for Geomatics. The links are strong and some countries combine the land survey and valuation functions within their licensing systems. Environmental assessments and environmental work in general are rapidly expanding and surveyors should really grasp this area while they can.

This 2006 FIG congress sees the first real environmental surveying technical programme: a potential area for rapid expansion in the immediate future and it is appropriate that FIG pushes forward in this 'new' area of practice.

3.3 Size of market

In order to place emerging market trends in perspective it is worth examining the size of the potential market place. One method is to assess the financial value of the market place and two examples will provide some evidence; though others are available. They provide an indication as to the value of the market place in the future and therefore potential business opportunities:

1. Frost and Sullivan (Frost and Sullivan) placed a value on Geographic Information Systems (GIS) within the European Union Market as 1,276 million euros. They indicate that the industry is expecting a compound annual growth rate of 10.7% per annum between now (when the report was written) and 2010.
2. In the United Kingdom, Ordnance Survey (OSGB) the National Mapping Organisation) data adds value (gross value added – GVA) of up to £150 billion ~220 billion euro to the economy according to (OXERA).

The market fluctuates on an almost weekly basis but we are seeing more and more mixed skill practices and even more importantly surveyors of different nationalities working together in firms. The market grows but does not stay the same. But always the same call from the survey industry can be heard:

- We do not have the surveyors we need!
- There are not enough technical surveyors; all graduates want to be managers.
- What are they teaching them in university? We have had to completely retrain our staff.

Rates and wages continue to rise with surveyors with 5 years experience now earning in excess of 35k (50k euros) in the UK, a substantial increase from the 1990's.

4. FACTORS INFLUENCING CHANGE

4.1 European Union directives

Several major EU directives have been mentioned above but the most important (excepting the possible paradigm shift(s) that the InSpire and PSI directives could offer with regards to National Mapping and Cadastre Organisation (NMCO's)) is the Services Directive.

The Services Directive proposes to open up the professional and technical protectionist borders of the EU and help create a 'level playing field' based on transferable skill sets, mutual recognition of qualifications and the 'country of origin' principle. To quote from the official RICS position statement on the Services Directive:

'We actively support the Commission's objectives to create a genuine internal market for service providers, and the benefits that would flow from such an initiative, particularly in realising the goals set for the EU by the Lisbon agenda. We also support the far-reaching approach in this draft Directive, which combines the country of origin principle, targeted harmonisation, mutual assistance between national authorities and other non-legislative activity.'

The *ancienne regime* of the Liberal Professions (in this case Licensed Surveyors) is under threat and although recent developments have seen Germany and France safeguard their position under the Services Directive in December 2005, many would ask if this is a position that can be sustained in the longer term.

4.2 Expanding market

We have already mentioned that the EU surveying market is a constant state of flux with more cross border working than ever before but also and perhaps more significantly, wide ranging practices of multi disciplined personnel. The opportunities are immense but only to those willing to take advantage.

Geomatics and property (real estate) have always been inextricably linked but never has such synergy in the marketplace been driven by policy and technology. EULIS, the EU land

information system is a prime example of EU land Registries working together to harmonise services, the final result should be a fully functioning and integrated EU real estate market. Geomatics personnel are in demand by property companies who require staff adept at data integration and analysis. The technical 'holy grail' for the big investment property firms is how to gain advantage in targeting areas of potential investment before others. The variables are many and the datasets expensive and usually incompatible. However, temporal GIS analysis can really highlight property investment fluctuations by combining datasets from many sources: good examples are a number of studies carried out by RICS on how recently improved transport links have affected property values - AtisReal project at www.rics.org

It will therefore be necessary for future land surveyors (geomatics) to return to their holistic professional roots in property to take advantage of this opportunity but that requires a real step change in current academic thinking, an area which may not be able to react to, what it sees as, the vagaries of market forces. However, the last thing the profession requires is to miss an opportunity as many would suggest that it did with GIS in the 1990's.

5. REGULATED – NON REGULATED (FREE) MARKET

In Europe today there are clearly two separate markets for surveying services – the regulated and the free market. They can both operate in some countries; however in others the market tends to be regulated through 'license to practice'. Even in the regulated jurisdictions opportunities to operate in a free market can still present themselves in a number of business areas.

Potentially the Non Regulated or Free Market may turn out, perhaps not surprisingly, to be more responsive and flexible to market demands. The regulated market will tend to respond as required by the demands of society and political/legislative direction. Importantly, data, information and knowledge may well be shared between both sectors, as more and more added value services are demanded. The regulated market in the form of 'cadastre' provides one of the core underlying data sets that produces public trust and confidence in geospatial data.

There are many reasons why the regulated market exists not least the legal requirements for certification of the cadastre. Against that is the opening of the areas where value added services can be provided in areas where regulation does not exist or poses serious restrictions on competition.

5.1 Regulated

The regulated markets tend to be in the areas of cadastre or precise survey practice where regulation is specific to a jurisdiction and knowledge of local law is essential. In these markets technology change tends to impact working and business practices - though currently there is a comparatively slow rate of change in legal issues that impact professional practice.

5.2 Non regulated (free) market

The free market enables a host of value added services to be generated. This in turn encourages firms to employ a number of diverse professional disciplines that together are able to offer a variety of total service provision both to clients and directly to the general public. Increasingly these do not respect political borders – they become trans-national.

These firms are searching for well qualified professionals with the potential to develop their skills to ensure that they are competent to practice in new areas – they are required to be commercially successful and comply with Profession Indemnity Insurance (PII) conditions. These include well developed business and information management skills in addition to the more traditional technical surveying disciplines.

5.3 Integrated markets

A simple analysis of the 25 countries within the European Union shows that the Ireland and the United Kingdom currently have no professional areas where the profession is regulated (in the sense that licenses are required to practice). In Ireland and the United Kingdom Professional members are regulated by their professional bodies, though there is some initial move towards government certification for some surveying tasks. Other European countries issue licenses to surveyors who are able to prove their knowledge in specific areas of practice, some more than others.

The opportunities to provide value added services appear to be much greater in the Non Regulated market with the result that professional surveyors provide services to both markets, where licenses permits. The dynamic adoption of new techniques and innovative service provision can for example require merger and collaboration with multi-professional teams and companies in order to satisfy client demands for design build and operate projects.

6. TRENDS

6.1 Educational dimension

To quote Horace 'est Modus in Rebus' – there is a middle way and it is imperative that the traditional triumvirate of professional 'institution – industry – academia' work together to safeguard the future. A revolution is needed and none more so than in academia. Prof Pedro Cavero presented a paper at a CLGE event in December 2005 (this paper is available at www.clge.net) where he outlined the enormous provision of courses in geodesy as opposed to less vocational but more broad based courses such as land administration and real estate.

How many surveyors with these skills does the market really require?

DIT Dublin, Ireland, has integrated strong elements of planning into its courses but an over emphasis on measurement tends to persist in many EU academic institutions. The reasons are many and mostly historical and in some cases driven by commercial interests. The black box technology of current instrumentation, it can be argued, makes the content of many current courses redundant. The academic institutions will find it very difficult to survive in the future surveying profession unless they make significant moves away from engineering

applications (important but less so now than a decade ago) and move towards real estate and environmental/planning content. The profession needs well-rounded, broadly educated individuals with a strong element of initiative and business sense together with the ability to communicate – an element that should never be underestimated.

The loss of GIS, as a preserve of the surveying profession, was a disaster and can be traced back to the splitting of academic courses between traditional surveying and GIS; the curriculum should have been fully integrated into a single course. But it would be naïve to assume that academics are not under the same commercial pressures as everyone else and naturally wish to attract more students!

The mid 20th century to 1990's could be seen as a measurement 'blip' within the history of the profession, which ironically, was both created and destroyed by technology. Surveyors have become the 'data slaves' of others, providing no intellectual input or objective viewpoint on their work but providing others with the information to make decisions. Surveyors need to become decision makers based on 'our' interpretation of information (such as environment) but this requires a real step change in how the profession sees itself and the remuneration it seeks to command. The teaching of the subject area is just the start.

6.2 Globalisation

There are clear indications that even the land market is subject to globalisation. The trend (Dale) towards globalisation means that land markets should increasingly be seen in an international rather than a national context. Access to land for development is necessary if countries are to attract foreign direct investment. An efficient land market with equal rights for all citizens will enable a country to participate in the global economy and gain acceptance on the world stage as an equal partner. In planning for the future, countries need to understand global land markets.

6.3 The political drivers

These extracts from a recent (July 2006) RICS policy update provides a flavour of the coming debates between the perceived protectionist regulated professions and the open market policies of the EU Commission:

Cross-border services: Commission steps up on implementation

Infringement proceedings against Germany and Austria for hindering the free movement of services in the internal market are being taken forward by the European Commission. Cases against France and Italy have been put on hold because meanwhile the two countries have made progress on implementation. The Commission's action against Germany is based on unnecessary red tape German authorities imposed on foreign-based service providers who post non-EU national workers there.

Commission targets France, Spain and Greece on qualifications

On 29 June, the European Commission announced legal action against France, Spain and Greece in the field of recognition of professional qualifications. France had forced professionals in the medical sector to make a declaration for each service to each patient and to a limit of two days on their professional stay in France. Greece had failed to comply with a European Court of Justice ruling, only allowing registered opticians to own optician

shops. In Spain, hospital pharmacists from other member states find it difficult to practice in Spain because their qualification is not automatically recognised as required by the Qualifications Directive.

The political drivers are many. EU policy drivers are mainly aimed at opening markets to competition; national policy drivers are increasing efficiency and harmonisation within government departments. All seem to agree that cross-departmental working and e-government are striding ahead. National governments have also woken up to the fact that surveying, real estate and geospatial information provision and currency are essential facets of a modern, functioning society and perhaps explains the increased interest from policy makers.

6.4 Impact for the profession

One key question that must face all professional surveyors is what impact these trends will have on fees. Competition and surplus resources can drive fees down. However, if we regard the measurement orientated surveying market of the mid to late 20th century as a historical 'blip', and focus on the generation of true value added services worthy of recognition, this may not be an issue in the longer term.

An RICS policy extract highlights the cross border nature of future EU Directives with a significant mapping/surveying element:

Ministers agree on flood prevention draft

Only six months after the Commission's draft for a directive on flood prevention, ministers have secured agreement on the most controversial issues in the draft. Ministers from Romania and Bulgaria, two more flood-prone countries awaiting EU membership, had joined the discussions. Delegates agreed to extend the scope to include both national hydrological basins and transboundary basins, and included a provision to ensure that any risk management plans must not be of detrimental impact to flood risk downstream in other countries. On timing, it was agreed that preliminary assessments should be carried out by 22 December 2012, flood risk maps should be drafted by 22 December 2013, and flood risk management plans should be published by 20 December 2015.

7. CONCLUSIONS

The surveying market place in Europe is changing as society increasingly moves into a 'Knowledge Based Economy'. No longer is the surveying profession able to trade on its ability to collect, analyse and manipulate data as it has in the past. The profession has to provide value added service if it is to survive.

Essentially, there are two markets for surveying services and both are subject to external pressures and influence. However they are not mutually exclusive and will, due to external influences, develop at different rates. Technology will continue to become easier to use by non-professionals. This should not be of concern to professionals as long as they focus their energies on providing value added services. The trend for more cross border service provision and practices offering total service across a wider number of professional disciplines is likely to increase. The trends generally indicate considerable scope and opportunity for a diverse and responsive profession.

The trends in summary show that:

- Technology will require less and less skill to use and will not require a surveyor;
- The provision of added value services through the increasing sophistication and application of professional knowledge is a key to survival;
- Education must adapt to the challenges of the level of services required;
- Technical grade surveyors will play an increased and critical role in highly specialised area;
- The impact of substantial globalisation will have a massive impact on the need to work with and in multi-professional groups sometimes across national borders;
- Increased engagement at the political level by heads of profession is essential in the European context if the benefits offered to society by the profession are to be fully understood and acknowledged.
- A need for professionals to gain an international/cross border professional qualification as well as a local/license.

REFERENCES

Kafka, Franz (1926) "The Castle" - ISBN: 0141183446

Dale, Mahoney and McLaren (2002) "RICS Land markets in the modern economy". ISBN 1842191055

Frost and Sullivan <http://www.frost.com/prod/servlet/frost-home.page>

OXERA <http://www.ordnancesurvey.co.uk/oswebsite/aboutus/reports>

Drucker, Peter F. (1994) The 1994 Edwin L. Godkin Lecture Knowledge Work and Knowledge Society - The Social Transformations of this Century May 4, 1994 Harvard University's John F. Kennedy School of Government

InSpire <http://www.ec-gis.org/inspire/>

EULIS <http://www.eulis.org/>

JRC <http://www.jrc.cec.eu.int/>

GI Advisory Panel <http://www.gipanel.org.uk/gipanel/index.html>

BIOGRAPHICAL NOTES

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Rob is Principal of MahGeo an independent GI and LIS Consultancy. Rob studied Land Surveying at the Polytechnic of the South Bank, is a Fellow of the Royal Institution of Chartered Surveyors and current Chairman of the RICS Faculties and Forums Board, a

Fellow of the British Cartographic Society and an active member of FIG Commission 3. Rob has presented over 40 papers on associated topics.

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); it's 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. Rob is a regular contributor at international GIS conferences and guest lecturer at many masters' courses in GIS. He is also a member of the UK Governments GI Information Panel

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James is a Chartered Land Surveyor, Chartered Geographer and graduate of DIT Bolton St, Dublin and University of East London. He has worked on some of the largest engineering projects in Europe including Canary Wharf and Broadgate, London and spent several years mapping refugee camps in the Middle East whilst working for the United Nations. He has broad experience of land survey in many countries around the world including the Seychelles, Palestine, Philippines, Syria, Egypt and Belgium.

James is currently Director of Land within the faculties and forums department of the Royal Institution of Chartered Surveyors (RICS). The land group covers the specialist survey areas of Environment, Geomatics, Minerals and waste management, Rural and Planning & Development and contains over 30000 members.

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