

## Membership Template

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- Surveying profession profile
- Statistics
- The surveying profession in terms of FIG Com 1-10

## The Danish FIG business card ...

**General Information**

Denmark is a part of Scandinavia and a member of the European Community. The total area of the country is 43,000 square kilometres, not including the Faroe Islands and Greenland. Denmark is a low-lying country, its highest point being 175 m above the sea.

Approximately 10% of the country is built-up, 70% is agricultural land and 10% is forest, with the balance being made up of heaths, lakes and streams.

The population covers around 5.3 million people and has a density of 125 people per square kilometre. 1.5 million people live in the metropolitan area of Copenhagen.

Denmark is a monarchy governed by a representative democracy organized on three levels: at the national level there is a parliament with legislative power and minister responsible for certain fields; at the regional level there are 14 county councils responsible for regional matters, e.g. hospitals, upper secondary schools, major roads, rural planning and administration; at local level there are 275 municipal councils responsible for all local public functions. On average a municipality has 20,000 inhabitants.

**The Surveyors**

Professional surveyors in Denmark have a university degree, M.Sc. in Surveying, Planning and Land Management. Their professional fields of activity are surveying and topographic mapping, cadastral tasks, GIS, land-use management and spatial planning.

Cadastral tasks are the monopoly of licensed surveyors in private practice. The Cadastre is maintained by the National Survey and Cadastre at the Ministry of Housing.

In 1999 there are about 800 active surveyors in Denmark. About half of them are employed in private practices concerned with cadastral work, mapping etc. The other half are employed by municipal and national agencies, counties and municipalities (45%) with tasks such as registration of real estate, land-use management and spatial planning or by other private companies, engineering firms etc. (15%) with work areas such as mapping, IT systems and planning.

This leaflet presents a profile of the Danish surveyor in terms of the nine commissions of FIG.

**The FIG office is located at The Surveyors' House in Copenhagen**



**Landinspektørens hus**  
The Surveyors' House  
Den danske Landinspektørforening  
The Danish Association of Chartered Surveyors



**International Federation of Surveyors**  
Fédération Internationale des Géomètres  
Internationale Vereinigung der Vermessungsingenieure



**FIG**

**DENMARK**

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The Danish Association of Chartered Surveyors

# ...the Danish FIG business card

## Professional Practice

Cadastral work, or surveys for legal purposes, in Denmark is the monopoly of licensed surveyors in private practice. Licenses are granted to the surveyors after they have completed a university degree, M.Sc. in Surveying, Planning and Land Management. About 30 students graduate each year.

The education is based on problem-oriented project work, supported by lecture courses to instruct them in necessary disciplines and theories.

When land is to be parcelled out or a property boundary changed, landowners must apply to a surveyor in private practice for a legal document for the preparation of documents needed for registration to the National Survey and Cadastre to be updated.

This application includes documentation of legal rights and is processed in accordance with planning and land-use regulations. Cadastral work accounts for about 40% of the output of a private surveying firm. The rest is made up by engineering surveying (20%), mapping (10%) and land-use management etc. (30%). Surveyors in private practice perform the role of consultants in this field and have traditionally optimized the Danish surveyor.

## Professional Education

Surveyors can only obtain their education at the University of Ålborg as a three-year course of study for a M.Sc. in Surveying, Planning and Land Management. About 30 students graduate each year.

The education is based on problem-oriented project work, supported by lecture courses to instruct them in necessary disciplines and theories.

## Spatial Information Management

The GIS and Spatial Information Management represent a growing challenge to the surveying profession, as well as to public administration in general.

In Denmark all national registers of property data have been computerized. These registers are formed into a network of systems to accommodate the use of digital mapping and to facilitate land-use management. The National Survey and Cadastre is responsible for the coordination.

Surveyors employed in public administration and in private practice alike are taking an active part in this development.

Major mapping and surveying firms use interactive Graphic Systems for updating maps and registers of local authorities. The exchange of digital data is facilitated by the use of a standard format, developed by surveyors.

## Hydrography

Hydrographic surveys in Danish waters are carried out by Navy engineers who are educated and trained while working in the Navy. Only a few civilian surveyors are involved in the field of activity, e.g. offshore and harbour construction.

Hydrographic surveying is supervised by the Royal Danish Administration of Navigation and Hydrography at the Ministry of Defense.

## Positioning and Measurement

Surveying and mapping in Denmark is characterized by the widespread use of modern technology such as GPS, total stations, digital theodolites, automatic plotting tables and IT systems etc.

The use of digital maps, produced by photogrammetry, began in the 1980s during the introduction of the national GIS system to all parts of the country. By 1993 the entire country was covered by large-scale topographic digital maps.

Digital registration for the licence and updating of spatial databases for regional and local authorities are all important tasks for the surveyors.

## Engineering Surveys

A number of surveying firms have specialized in high-precision surveying in the fields of engineering, construction and industry. Sophisticated methods have been developed to check construction elements, machinery etc., employing both classical surveying methods and terrestrial photogrammetry.

The great bridge and tunnel projects in Denmark during the 1980s have presented a major challenge and a large employment area for the surveying profession. The projects include advanced engineering surveying such as check measurements using stereo controlled theodolites and photogrammetrical methods.

## Cadastre and Land Management

The National Survey and Cadastre is responsible for geodesic and topographic surveys and mapping, statistical charting and for maintaining and updating the cadastral register and map.

The cadastral work is divided to the licensed surveyors in private practice.

The present cadastre was set up 150 years ago, and covers a total of 1.5 million properties in Denmark. It consists of a parcel register, a register of control points, the legal survey measurements and the cadastral map, originally in a scale of 1:6,000. The cadastre is updated daily.

The register as well as the maps are computerized. The cadastral information is available on the Web.

Legal rights to land ownership, mortgage, encumbrance are recorded in the land book at the local district courts. The Land Book is based on the cadastral identification.

Rural land management is mainly the responsibility of the county councils as prescribed by the land-use laws on nature and environmental protection etc. and is a work area for surveyors as well as for architects and engineers.

## Spatial Planning and Development

Spatial planning is the responsibility of the local authorities supervised by the National Spatial Planning Department under the Ministry of Environment and Energy.

Regional and municipal structural plans present the guidelines for land use and needs of different sectors. Environmental issues are forming a core issue in the plans.

Implementation of the structural plans is ensured by providing local plans with binding effects on the landowner.

Public participation is ensured in all planning procedures.

Surveyors in private practice also deal with valuation matters as technical advisers in the area of construction and design. The registration of property may often be performed by a surveyor employed by a county or municipal council.

## Valuation and Management of Real Estate

Valuation of property is a public task in Denmark and is carried out by valuers appointed as officers. Valuation is connected with the transfer of property or mainly a task for real estate agents.

This means that valuation and real estate management are not areas of work for surveyors in Denmark. However, surveyors in private practice must have a basic knowledge of real estate finance in order to facilitate their role as consultants.

Surveyors in private practice also deal with valuation matters as technical advisers in the area of construction and design. The registration of property may often be performed by a surveyor employed by a county or municipal council.

## General Information

Denmark is a part of Scandinavia and a member of the European Community. The total area of the country is 43,000 square kilometres, not including the Faroe Islands and Greenland. Denmark is a low-lying country, its highest point rising 175 m above the sea.

Approximately 10% of the country is built-up, 75% is agricultural land and 10% is forest, with the balance being made up of heaths, lakes and streams.

The population covers around 5.3 million people and has a density of 125 people per square kilometre. 1.5 million people live in the metropolitan area of Copenhagen.

Denmark is a monarchy governed by a representative democracy organized on three levels: at the national level there is a parliament with legislative power and ministries responsible for certain fields; at the regional level there are 14 county councils responsible for regional matters, e.g. hospitals, upper secondary schools, major roads, rural planning and administration; at local level there are 275 municipal councils responsible for all local public functions. On average a municipality has 20,000 inhabitants.

## The Surveyors

Professional surveyors in Denmark have a university degree, M.Sc. in Surveying, Planning and Land Management. Their professional fields of activity are surveying and large-scale mapping, cadastral tasks, GIS, land-use management and spatial planning.

Cadastral tasks are the monopoly of licensed surveyors in private practice. The Cadastre is maintained by the National Survey and Cadastre at the Ministry of Housing.

In 1999 there are about 850 active surveyors in Denmark. About half of them (40%) are employed in private practices concerned with cadastral work, mapping etc. The other half are employed by ministries and national agencies, counties and municipalities (45%) with tasks such as registration of real estate, land-use management and spatial planning; or by other private companies, engineering firms etc. (15%) with work areas such as mapping, IT systems and planning.

This leaflet presents a profile of the Danish surveyor in terms of the nine commissions of FIG.

## General Information and statistics

- Country area
- Population
- Surveyors total
- Surveyors in the association
- Code of ethics
- CPD program
- Mutual recognition policy

## Professional Practice

Cadastral work, or surveying for legal purposes, in Denmark is the monopoly of licensed surveyors in private practice. Licenses are granted to the surveyors after they have completed a university degree, M.Sc. in Surveying, Planning and Land Management and worked for a surveyor in private practice for three years. There are about 120 private surveying firms, employing about 300 surveyors in total.

When land is to be parcelled out or a property boundary changed, landowners must apply to a surveyor in private practice for a legal survey and the preparation of documents needed for their application to the National Survey and Cadastre for the Cadastre to be updated.

This application includes documentation of legal rights and approvals in accordance with planning and land-use regulations. Cadastral work accounts for about 40% of the output of a private surveying firm. The rest is made up by engineering surveying (20%), mapping (10%) and land-use management etc. (30%). Surveyors in private practice perform the role of consultants in this field and have traditionally epitomized the Danish surveyor.

## Professional Education

Surveyors can only obtain their education at the University of Aalborg as a five-year course of study for a M.Sc. in Surveying, Planning and Land Management. About 30 students graduate each year.

The education is based on problem-oriented project work, supported by lecture courses to instruct them in necessary disciplines and theories.



There is a ratio of one teacher to twelve students. The curriculum consists of one year of basic study, followed by two years of general studies and examinations in the main fields of surveying and mapping, cadastral science, GIS, land-use management and spatial planning.

During the last two years of the course, project work has a scientific approach. Students are given the opportunity to specialize in certain fields of the surveying profession, with their examination taking the form of a final project.

## Spatial Information Management

The GIS and Spatial Information Management represent a growing challenge to the surveying profession, as well as to public administration in general.



In Denmark all national registers of property data have been computerized. These registers are formed into a network of systems to accommodate the use of digital mapping and to facilitate land-use management. The National Survey and Cadastre is responsible for the coordination.

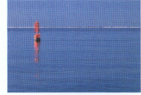
Surveyors employed in public administration and in private practice alike are taking an active part in this development.

Major mapping and surveying firms use interactive Graphic Systems for updating maps and registers of local authorities. The exchange of digital data is facilitated by the use of a standard format, developed by surveyors.

## Hydrography

Hydrographic surveys in Danish waters are carried out by Navy personnel who are educated and trained while serving in the Navy. Only a few civilian surveyors are involved in this field of activity, e.g. offshore and harbour construction.

Hydrographic surveying is supervised by the Royal Danish Administration of Navigation and Hydrography at the Ministry of Defense.



Compilation and production of nautical charts is carried out by the National Survey and Cadastre at the Ministry of Housing. The chart portfolio covers the waters around Denmark, the Faroe Islands and Greenland, and contains about 170 charts in scales ranging from 1:10,000 to 1:3,000,000, as well as related nautical publications.

## Positioning and Measurement

Surveying and mapping in Denmark is characterized by the widespread use of modern technology such as GPS, total stations, digital theodolites, automatic plotting tables and IT systems etc.



The use of digital maps, produced by photogrammetry, began in the 1980's during the introduction of the natural gas system to all parts of the country. By 1993 the entire country was covered by large-scale topographic digital maps.

Digital registration for the utilities and updating of spatial databases for regional and local authorities are all important tasks for the surveyors.

## Engineering Surveys

A number of surveying firms have specialized in high precision surveying in the fields of engineering, construction and industry.

Sophisticated methods have been developed to check constructional elements, machinery etc., employing both classical surveying methods and terrestrial photogrammetry.



The great bridge and tunnel projects in Denmark during the 1990's have presented a major challenge and a large employment area for the surveying profession. The projects include advanced engineering surveys such as check measurements using servo controlled theodolites and photogrammetrical methods.

## Cadastre and Land Management

The National Survey and Cadastre is responsible for geodetic and topographic surveys and mapping, nautical charting, and for maintaining and updating the cadastral register and maps. The cadastral work is attended to by the licensed surveyors in private practice.



The present cadastre was set up 150 years ago, and covers a total of 1.5 million properties in Denmark. It consists of a parcel register, a register of control points, the legal survey measurements and the cadastral maps originally in a scale of 1:4,000. The cadastre is updated daily.

The register as well as the maps are computerized. The cadastral information is available on the Web.

Legal rights to land (ownership, mortgage, easements) are recorded in the Land Book at the local district courts. The Land Book is based on the cadastral identification.

Rural land management is mainly the responsibility of the county councils as prescribed by the land-use laws on nature and environmental protection etc. and is a work area for surveyors as well as for architects and engineers.

## Spatial Planning and Development

Spatial planning is the responsibility of the local authorities supervised by the National Spatial Planning Department under the Ministry of Environment and Energy.

Regional and municipal structural plans present the guidelines for land use and include a comprehensive element of harmonizing the needs of different sectors. Environmental issues are forming a core issue in the plans.

Implementation of the structural plans is ensured by providing local plans with binding effects on the landowners.

Public participation is ensured in all planning procedures.



In this field of activity, surveyors, together with architects and engineers, perform the role of professional planners, employed by counties or municipalities, and deal with urban development and information systems.

## Valuation and Management of Real Estate

Valuation for property taxes is a public task in Denmark and is carried out by ordinary people appointed as valuers. Valuation in connection with the transfer of property is mainly a task for real estate agents.

This means that valuation and real estate management are not areas of work for surveyors in Denmark. However, surveyors in private practice must have a basic knowledge of real estate finances in order to facilitate their role as consultants.

Surveyors in private practice also deal with valuation matters as technical advisers in the area of compulsory purchase. The expropriation of property may often be performed by a surveyor employed by a county or municipal council.

