

## Chapter XX

# The Managerial Challenges in the Transformation of the Danish Geodata Sector

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## ABSTRACT

*The organizational transformations in the Danish mapping, charting and geodata sector from the mid eighties to the mid nineties are summarized. New products and possibilities raised by information technology were the driving motive behind the ambition to develop an integrated national geographical information system (GIS). The visions and commitment of key people, especially the Director General of the National Survey and Cadastre in Denmark, seem to have been decisive in this, for the government, uniquely successful development within the Danish public administration in which also private enterprises have taken part. Guidance from specific systems or organizations development methods has played no role in the process of change, and the study of the present case suggests that such guidance is of minor importance compared to professional insight, visions and leadership.*

## BACKGROUND

The application area of concern is land surveying and geographical information systems (GIS). From an informatization point of view the measurement of land gives scope for large data systems, with intimate connection to the science of geodesy. The basic data, obtained by measurements in the field, have an indefinite lifetime. They consist of alphabetic location names, descriptions and numeric coordinates. The volume of data grows steadily as new measurements are made. Surveyors take part in the collection of new data, and ordinary people take part in the over-all process every time they use a map produced by the systems. There exists a broad variety of data that can be localized, directly or relatively, within geographical reference systems as points or areas at the surface of the earth. Such data, which can be presented in maps, are termed geodata. Computers may be used for checking and conversion of the raw data, for preparing the field work, and for converting the data for geographical information systems, e.g., in the form of maps.

Cartography and mapping have always called for the most advanced equipment and techniques for measurements and calculations, a fact connected with the importance of having correct and updated maps in societies where ownership to land and the shape of landscape are crucial in many relations, in both times of peace and of war. This application area was among the first to utilize the computing machinery when it appeared after the second world war. In Denmark, the first industrially produced computer GIER was developed in 1958-60 in a close collaboration between the research institution Regnecentralen and the Geodetic Institute (Svestrup et al., 1976). Also today we see how mapping institutions and defense organizations in all the industrially developed countries demand the most sophisticated computing and satellite technology to produce maps adequate and convenient in a large variety of contexts.

Here we will summarize the organizational transformations in the Danish mapping, charting and geodata sector since the mid eighties until the mid nineties. The pivotal effort was the merger of three governmental mapping institutions. Based on an account of this merger given by its leading personality, Peter Jakobsen, Director General of the new National Survey and Cadastre, we will discuss what seems to be essentials in major organizational and technological transformations.

### The Original Three Mapping Institutions

The three institutions involved were: the National Land Registry (Matrikeldirektoratet), the Geodetic Institute (Geodætisk Institut) and the Nautical Archives (Søkortarkivet).

The purpose of the National Land Registry from its start was to lay down two sets of facts: (a) the ownership of the land, and (b) the size, position, shape and yielding capacity (land valuation) of the individual properties. This required maps in a fairly large scale that were currently updated with changes in the circumstances just mentioned. The National Land Registry comprised in its latest analog state in the mid eighties of about 18,300 maps in scales from 1:500 till 1:4,000 covering approximately 2.9 million title numbers. In Denmark the cadastral work has traditionally been entrusted to licensed surveyors under the supervision of the National Land Registry. In the two metropolitan municipalities of Copenhagen, the cadastral administration has for historical reasons been left to the local government. In the southern part of Jutland, which was under

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