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A Data Posting from Denmark and the Future

By Thomas H. Davenport

I have visited at last count 19 countries to talk about analytics and Big Data. Of all of them Denmark is perhaps the most interesting. First of all, it's an analytically-focused country. A couple of my trips there were sponsored by the analytics software vendor SAS, and they tell me that their sales in Denmark are quite high given the size of the country. From CEOs to government officials, the people I talked to during my visits were quite focused on what could be done with analytics.

Secondly, it's a country with a culture of caring about the well-being of its citizens, and about quantitative measures of it. Denmark has a strong orientation to social and economic welfare, and a concomitant desire to know how well its programs are working. Statistics Denmark, its central government statistics office, was established in 1850 (we still don't have one in the U.S.), and it's one of the most effective such groups in the world. Denmark's first statistical yearbook was published in 1896; the US still doesn't have one of those either, although my old friend Chris Hoenig at State of the USA is trying mightily. In addition to providing a large variety of online statistics about the country, Statistics Denmark also consults with other countries' statistics offices to help them build their capabilities.

Denmark is particularly focused on the health of its citizens, and it has established a new open data program on health statistics that is quite comprehensive. Municipalities in the country wanted answers to a lot questions on health behavior and social relationships in their cities so they could plan activities around health promotion. They contracted with the National Institute of Public Health at the University of Southern Denmark to produce a survey. "The Danes' Health Status" survey was conducted in 2010 and 2013, and the plan is to conduct it every four years going forward. The survey includes 50 questions on such issues as alcohol and smoking use, diet, and the presence of disease and pain. You can learn how health and health behaviors are related to gender, age, education, employment, and marital status.

Unlike most public data, users can create their own analyses and reports using any variable in the survey. The data can be explored with SAS Visual Analytics, which collects and reports data in a visual, usable, and understandable manner. The survey is a good example of what can be done with open data, and Professor Knud Juel, who led the study, told me that the reaction to the data and analysis tools have been very positive.

That's saying something, because in addition to the open data culture in Denmark there is a strong culture of data privacy. Commercial organizations are generally forbidden even to contact

potential customers if a previous relationship doesn't exist with that person. Danish data privacy laws are even stronger than those in the European Union in general, and the EU's laws are much stronger than those in the US.

These two cultural inclinations—open data on social and economic welfare, and data privacy—are being fought out every day in Denmark. A recent data breach symbolizes the struggle. Each Danish citizen has a unique identification number—called the CPR—that is used for keeping track of a variety of state services. This month there was [news of a large data breach](); the CPRs of 900,000 Danish citizens (about 1/6 of the population) were inadvertently published online. Ironically, the CPRs were from a list of Danes who had expressly asked not to receive targeted email or be called by salespeople.

On the one hand, the use of a unique identification number makes it much easier to compile and analyze data on all sorts of national services and capabilities, including "The Danes' Health Status." On the other hand, once there is the seemingly inevitable data breach, it makes it much easier for data evildoers (evil datadoers?) to practice identity theft and fraud, and for citizens to lose their everyday privacy.

We'll be seeing a lot more of this tension as countries and companies try to manage big and small data on health, citizen services, customer behavior, and so forth. We need tools like the CPR and open data to make this more efficient, but at the same time they make us more exposed. It will be very interesting to observe how Denmark deals with this tension over the next several years, and I am sure that the country will be a bellwether for the rest of the world.

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