

## The 3rd Danish Hydraulic Institute Software Conference within its sociotechnical context

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### THE CONFERENCE

The two earlier conferences in this series organised by the *Danish Hydraulic Institute* (DHI), called *DHI Software User Conferences*, established these gatherings as among the most important events in the hydroinformatics calendar. Building on this success, this third conference in the series introduced an important shift in emphasis away from a primary concentration on users of DHI Software. It now moved more towards hydroinformatics software developments and applications generally, and then not predominantly from the point of view of DHI, but of DHI and its partners working in unison. This shift in emphasis was clearly necessary, if only because several of these partners were now substantial suppliers and consultants in their own right. In particular, *Arc Info*, which is much larger than DHI in volume of sales, used this occasion to launch the fully object-orientated 'Version 8' of its Geographical Information System (GIS) software. The first applications of this were specifically developed together with DHI for water-related problems.

The participation was dominated by the kind of creative-business persons and organisations that are the mainspring of development in hydroinformatics. Although as many as 20% of participants held academic positions, most of these were engaged in software development and practical applications. A total of 254 persons were registered for the full three days. The largest attendance, not surprisingly, was from Denmark itself, with 73 persons, a considerable proportion of whom were DHI staff. The next largest group was from the Czech Republic, with 32 persons spread over 17 organisations; the UK followed with 23 participants, then Italy with 19, the USA with 15,

Sweden with 14 and Japan with 9. A total of 31 countries were represented. It was perhaps a consequence of the change in emphasis that some countries in which DHI has a particularly strong software presence, such as Switzerland, were not represented at all on this occasion.

Despite the rapid growth in 'partner' software and its applications, the Conference was still centred around DHI's own products and services. In his introduction to the Conference, DHI's director, Asger Kej, explained that DHI now had more than 3500 installations of its software packages (in more than 100 countries). It was currently spending between three and four million dollars a year on the maintenance and development of existing software and approaching two million dollars on new developments. Some 60 man-years of research and development were being expended in 1999. The computer-integrated telephone system of the software support centre would shortly be extended to provide a 24-hour-a-day service.

The three days of the Conference were mostly taken up by six parallel 'tracks' of presentations and discussions, entitled 'general', 'river', 'urban', 'water resources', 'coastal' and 'hydroinformatics innovation'. The subject matter comprised innovative applications and methodologies together with associated new software developments. Three keynote lectures were given: the first on the development of hydroinformatics by the US Army Corps of Engineers, the second on advances and applications of weather radars, and the third a description of the first application of computers to hydraulics in Denmark just 40 years earlier.

A familiar and popular item carried over from previous conferences was a series of 'book an expert' sessions, in which users of software could discuss specific kinds of applications in relation to the software features available. DHI made 48 of its experts available for these sessions, while partner organisations provided more again. The presence of these partners as exhibitors greatly strengthened this participation. One of the themes on the partner side was that of inter-operability of software with products from several, and often competing, organisations. A data exchange system, an advanced visualisation package and some exceptionally detailed digital terrain modelling software all emphasised this theme. Thus, although these tools were demonstrated with DHI and its partner products, it was made clear that they could just as well be used by products from other organisations and using other procedures.

Among several other events, competitions were held: one concerned with automatic calibration methodologies and their software realisations served again to demonstrate how difficult and complicated such competitions can be.

## THE CONTEXT

From a purely DHI point of view, the most obvious purpose of such a Conference is to build a sense of community among DHI's partners, and between these and DHI itself. This community extends not only over software and associated business ventures, but even more significantly over applications and associated methodologies. Thus, very popularly, it extends not only over tools, but further and even more emphatically over the ways in which these tools are employed for specific social purposes and within specific social contexts. By the same token, the brand identities that are built up in this way have to do not only with the tools, but also, and inseparably, with their modes of application. The whole notion of quality, similarly, has these two sides. To accentuate this, the high quality of the venue, the Scanticon Hotel, with its superb facilities set in its own extensive parklands, formed a perfect backdrop. The food seemed to go on forever and was quite disasterously good! The entertainment, and

especially the exquisite concert of chamber music held in the Great Hall of the Elsinore Castle (of Hamlet fame) left a lasting impression of the highest quality of place and presence.

Although still centred upon DHI's own products and services, the Conference was marked by the strengthening of the periphery of organisations that have now gathered around this event. If a certain analogy may be permitted, it is as though DHI behaves like a planet that is increasingly attracting other organisations into its orbit – or is itself being brought into more complex orbits together with other planets. The result is a system of increasingly complex interaction. The sheer range and diversity of the organisations represented at this Conference and the myriad ways in which they are cooperating, competing and interacting generally is nothing less than extraordinary. One has the sensation of witnessing an emergent phenomenon at this creative-business level. Mutual inspiration and emulation appear as the major drivers of a group-learning process that is proceeding with unprecedented rapidity. Moreover, this is a necessarily transnational process. At a rough guess, the turnover of the organisations represented at this Conference in hydroinformatics was of the order of US\$100 million, whereas DHI's own part was only of the order of US\$30 million. As a further indication of the influence of this ever-stronger periphery, although DHI's group business volume continued to increase in 1998, its Danish share stagnated, with all the growth being in its wholly- and partly owned subsidiaries outside Denmark. Although at the time of the Conference DHI's Danish business was growing vigorously again, its subsidiaries and partners were on the whole growing even faster.

In the language of standard sociotechnical studies, we have to do here with the phenomenon known as 'translation', whereby the power of an idea, a concept, a paradigm or anything else of this kind resides in the readiness with which it is appropriated and employed by others, who then 'translate' it into their own sociotechnical contexts.

What one was witnessing at this conference was, in effect, the still gathering power of the new socio-technical paradigm of hydroinformatics. This translation process was then implicit in the non-hierarchical,

non-authoritarian, minimally preconceived and organisationally 'flat' structure of the Conference and all the business arrangements that gathered around it. The structure that emerged in effect transcended the earlier one of a 'DHI Network', and indeed it served to illustrate the transcending of the standard-business concept of 'network' generally.

This kind of phenomenon, which is observed in creative-business environments, is analysed in a recent book of Fukuyama and we can do no better than to quote from this in our deconstruction of the *DHI Software User Conference*, as follows:

'There is by now a substantial literature on the rise of the network as an intermediate form of organisation between hierarchies and markets. But if we understand a network not as a type of formal organisation, but as social capital, we will have a much better insight into what a network's economic function really is.

'By this view, a network is a moral relationship of trust, in which a group of individuals share informal norms and values beyond those necessary for ordinary market transactions. A network is different from a market insofar as networks are *defined* by their shared norms and values. This means that economic exchange within a network will be conducted on a different basis from economic transactions in a market.

'Everyone who has worked in a hierarchical organisation knows that there is a constant struggle going on between superiors and subordinates to control information.

'The reason that networks, defined as groups sharing informal norms and values, are important is that they provide alternative conduits for the flow of information through and into an organisation. Friends do not typically stand on their intellectual property rights when sharing information with each other, and therefore do not incur transaction costs. Friendships thus facilitate the free flow of information within the organisation.

'Nor do friends usually spend a lot of time developing strategies to maximise their relative power positions vis-à-vis each other.'

From this point of view, therefore, this Conference was directed primarily to developing a shared sense of norms and values in an ambience that was most conducive to the establishment and deepening of personal friendships based upon these shared norms and values. It was by any measure a great success, but in this last sense it fulfilled its purpose to exceptional effect. It was a great credit to its organisers.

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## REFERENCE

Fukuyama, F. 1998 *The Great Disruption: Human Nature and the Reconstitution of the Social Order*. Profile, New York.