

# Henk Scholten: 'The Netherlands takes the lead in geo-information and net-centric working'

---

Camera images, 3D models of wildfires and social media: according to Henk Scholten, who is managing director at both Geodan and Eagle, they all represent applications that can be used for crisis management systems in the future. He firmly believes that innovations in the field of net-centric working and geo-information are now adequate to fulfil this task.

---

by Ellen Schat

## How did net-centric working and geo-information come together?

'I saw the advantages of geo-information early on. In areas like spatial planning, the environment and real estate, the technology was already being used, but hardly at all in disaster management. Changes to this came about in 2004, when the Dutch government decided to give funding to a consortium of businesses who were developing a plan to apply geo-information for disaster management purposes. The commotion following the attack on the Twin Towers, and later the devastation wreaked by Hurricane Katrina, provoked a wider interest too. American scientists started puzzling on the issue of how disasters might be prepared for more effectively. A resulting scientific paper - which later formed the basis for government recommendations - argued that it was impossible to manage for disasters properly without the use of geo-information. It was that paper that really set me thinking. In fact, we got the strong feeling that our efforts in the Netherlands would ultimately find a large degree of support at an international level. In part, it was down to luck that the Netherlands led the way in this field, but on the other hand, we do have a long tradition of fighting the sea, so anticipating potential disasters and putting the accent on safety are very much part of our culture.'

## How does net-centric working fit in with this?

'Net-centric working, which originated in the military domain, ties in seamlessly with these developments. Both during and after disasters, it's vital for key information to be shared as quickly as possible. In fact, evaluations of disasters have shown that

it is this sharing of information in particular that represents the biggest obstacle. The combination of geo-information, linked to net-centric working, offers unprecedented opportunities.

Microsoft approached us to design an innovative system, partly because of developments in America. They had already developed a system, but until then it hadn't been combined with net-centric working. We saw a huge opportunity. Together with Esri Nederland, the Dutch branch of the worldwide leading company in the field of geo-information, Eagle was developed, a crisis management system based on geo-information. In March 2008, we demonstrated this system to a public audience in the Central Gelderland region as part of the Eagle One exercise. Research carried out by TNO, the Technical University of Delft and the VU Amsterdam University revealed that this way of working was quicker and that significant improvements could be achieved in the decision-making process. And, it wasn't just about making decisions more quickly, but making better ones as well. We had suspected that all along, but now we had the scientific proof. An important conclusion and condition is that the system must be connected with the operational processes. This means it has to be used on a day-to-day basis, otherwise it doesn't become routine. Having the right data available is also vital, and that means access to standard databases.'

## What is the current situation internationally?

'The Netherlands is the only country that has a single nationwide crisis management system (LCMS). That's not the case, for example, in Germany, where each federal state has its own system. Of course, disasters do not respect regional boundaries



**Prof. Henk Scholten: 'A crisis management system must tie in with the operational processes'**

## 'With today's technology, every citizen is an indispensable source of real-time information'

or systems. The Netherlands really is at the cutting edge and it may well be that its LCMS will become an export product. For instance, in September 2010, the Eagle crisis management system, on which the LCMS is based, contributed to relief aid for the floods in Pakistan. The system was used by the Ministry of Disaster Management in Punjab, Pakistan's largest province, to store data quickly and easily so that this could be shared with pre-defined groups of users. On the basis of this information, relief aid could be coordinated and priorities determined. The crisis management system was also used for analyses such as calculating the number of affected people and identifying/minimising damage. Internationally, the ball starting rolling after Geodan had been awarded a prize by Microsoft for having developed the best disaster management system in the world.'

### Can you give an example of a recent crisis where the LCMS might have helped?

'When I was following the major fire at the chemical storage depot in Moerdijk, I was really surprised that not all the information about the company was immediately on hand, nor on the chemicals that were being stored there and the like. In such cases, the responsible persons just don't have a clear picture of the situation. In Central Gelderland, as a matter of course, all the spatial information is in the crisis management system to start with. This provides a better insight into the crisis, so that alternative decisions can be made. In Moerdijk, exchange of information was sluggish and it became clear that the regional safety authorities involved had hardly access to each other's information, so were unable to get on top of the problem. A major challenge of the new LCMS is to show that improved access to shared information can lead to more effective disaster management.'

What openings are there for geo-information in the future?

'In the ideal world you want to know how disasters develop. For example, there are models that can predict the spread of wildfires and this too should be linked in with the LCMS. This enables you to decide where firefighters can best tackle the fire. The Public Order and Safety Inspectorate (POS) recently pointed out that many fire services were ill-equipped to deal with fires of this sort. So the LCMS, including models of this type, would represent an effective step-forward.

I believe the mobile component is important too. Everyone in the field should have access to the same information. The most ideal situation of course is to be able to pinpoint the exact location of everyone in the field. Technically, that's already possible, but as yet not an option in the LCMS.

The use of sensors which would enable you to pick up other types of information is a future possibility too. GPS is a well-

known technology already being used. Sensors can also measure the air-quality, or sound sources (shots, for example). Camera images can also be incorporated into the LCMS. Geodan is currently working on a project in Eindhoven where 300 fixed and mobile cameras have been connected to each other for the purposes of public order and safety. If a crisis or disaster evolves, the pictures can also be used for disaster management. A major problem during disasters is the drop out of connections, so it's crucial to be able to create special connections in place. At the moment it's technically feasible to create an ad hoc network making use of satellite information, so that whenever a fire-engine loses a telephone, internet or G2000 signal, it's still possible to retain a link with the other fire crews. We are cooperating with the Ministry of Defence in this project, there are few places in the world where the developments are so advanced.

Another good example is social media. After the earthquake in Haiti, for instance, extensive use was made of social media and likewise in Japan to ensure that people had access to food. At Geodan we are attempting to link twitter and facebook to a structure, so that information can be collected and then classified. We recently carried out a test at the VU Amsterdam University where we simulated an explosion in one of the chemistry labs. Fifty students took part in the exercise, posting messages on twitter, for example, that the elevator had got stuck, or that a cloud of poisonous gas had developed. By collating and linking this information, the authorities and the emergency services have a better and more accurate picture of the situation. It's a useful application and one that will be up-and-running within 5 years, possibly much sooner.'

### Joining forces

Capgemini, Esri Nederland, Geodan and Getronics have won the European contract for the nationwide crisis management system (LCMS). The LCMS will be rolled out this year in the 25 regional safety authorities, the National Crisis Centre (NCC) and the National Operational Coordination Centre (LOCC). The basis of the solution is the Eagle crisis management suite which has been developed by Esri Nederland, Geodan and Microsoft.

### Professor Henk J. Scholten

Professor Henk J. Scholten (1953) studied Geography and is Professor of Spatial Informatics at the Faculty of Economics and Business Administration (spatial economics) at the VU Amsterdam University. He is also co-founder and managing director of Geodan in Amsterdam, which focuses on geographic information systems, and managing director of Eagle.

This article has been published before in GRIP4 Magazine and is re-published in accordance with the publisher SDU and the author Ellen Schat.