



Left to right: Roger Quince, Sepe Cassettari, Alun Jones and Jeremy Vine at the Cambridge News Award Ceremony.

From the experts' minds

From a review of their past accolades and present frenetic activity Cassettari and Jones of Cities Revealed, look towards exciting future developments

GEO: The success of any technology is directly measured by the value it provides to the market. In this sense what have been so far the major achievements of TGG in terms of innovation and impact?

We've won many awards for innovation, begins Alun Jones proudly. In the year 2000, we were presented with a Millennium Award for aerial photography a DTI award in 2005 for new product development in the area of visualisation and data capture, and most recently the award from Cambridge News for Small Business of the Year – a major achievement for us. Our influence, adds Sepe Cassettari, is the way people today see imagery as a standard part of the GI suite. The key was to put the product onto a PC platform that everybody had. Before that there were very specialised commercial surveys on a 10-year cycle, so the big impact was to create something that was very much a professional consumer product. This was not just a technical change but created a completely different business model. It was about "productisation", explains Jones, so rather than just creating and delivering a project once it was about creating additional value in the form of usability so that the customer could get a geographic product on a CD that could be used many times and in many different ways thus seeing a considerable return on investment. Now, in organisations, there are hundreds of users of the data so the return on investment is massive. We also introduced value added geographic information products, by extracting spatial information from the aerial photos. And the result, he concludes, are products like the land use database for example. Yes we are turning data into information!

A present of Training, Products and Services

GEO: What is the most relevant contribution that the GeoDATA initiative has offered to the GIS community over the last six years?

So far, declares Jones, we have had about 4000 people participating in

the last six annual events. We run events in Northern Ireland, England, Wales and Scotland and we're looking further a field. But I think the biggest benefit is knowledge, networking ... to meet people, share problems, the opportunity to think "this is what I am doing" and see what other people are doing too and to learn what else can you can with the data. What is interesting adds Cassettari, is that the ethos of all these events is that although people are from commercial companies they do not do a sales pitch, they aren't saying "this is my product this is what it does", but "if you use this sort of data, this is what you can do with it". It's a generic education process and people really like that. It's definitely not a sales pitch, reasserts Jones, but an educational event.

GEO: Which "direction" is this GeoDATA initiative most likely to take in the years to come?

The point is, explains Jones, if you try to do bigger/better you lose the ethos and the networking activity that happens currently. I think that the traditional trade exhibition is nearly dead in a way - because people can get that information from the Internet - what they want to do is network, ask questions and get responses. They want to meet their contemporaries so the future will be to keep that going. The other thing, adds Cassettari, is that the GI industry is far more integrated with all sorts of other professional activities, planning, engineering or whatever. For example we've had people like Experian coming along talking about addressing and credit ratings and all the things they are involved in which is a completely different world.

GEO: Today TGG's portfolio comprises 9 different types of products. What training has TGG delivered to teach the new and broader audience how to get the most out of mapping technology and is there not a risk of misuse of aerial photography?

The aerial photos from my point of view, replies Cassettari, form the base layer, the important source but actually we are now sitting several levels of information above that. When we look at an aerial photo we can see agricultural land use, residential areas etc. We can then build a picture to give you aggregate information about surface run-off or flooding or other issues. You can go back to the photo and see it for yourself but we've done the work for you, the skilled bit is the interpretation and aggregation of the information. It's not the only thing you will use to base your decisions on but it's something concrete. The good thing about the GeoDATA event, reassures Jones, is that it allows us to get close to our users and for them to tell us what the problems are and understand what things are going wrong when you use GIS so when we develop our products we can fill those gaps.

GEO: *Part of TGG consultancy services is to help Local and Central Government in setting up GIS Strategies. What brought you in this direction?*

One of the reasons remarks Jones is that Local and Central Government are very good at installing software but actually managing, sharing and maintaining data has become more of a headache for the users. We did a lot of work with our customers to look at how they move data around in the organisation and how it's shared and managed. What we got back was that they were saying they wanted more direct data delivery from the Internet. And as a consultancy we are there to help people bring data via this means. **GEO:** *What about the architecture...*

On the architectural side we do not push any one database, format or any one piece of software, explains Jones. The clients must make those decisions because we don't sell software or databases so we can sit back a little bit and ask the client if they have thought about architectural issues. Our approach is really more about challenging them to think about the issues that they will need to address in the development of GI across the organization. **GEO:** *Is your offering then more about the data strategy?* We don't only look at the data side, explains Jones, it is also about the usage of GI and we adopt a more holistic approach working with senior management rather than just focusing on buying software. The biggest problem intervenes Cassettari, is that most people still start by thinking "this is the piece of software I am going to buy, this is the data I've always used and I'm going to stick it in the new software"! But you should think about process engineering rather than a GIS strategy, which is what pops out if you get the process right, and if you do that right than you get the software right. So we tend to go back and re-think the process from scratch and that is the key to the whole thing.

GEO: *What is the major obstacle your consultancy experience envisages for the public sector in maintaining the required updating of these valuable documents?*

It is hard because even if people see a change coming they tend to be reluctant to embrace it and if they know that the change is going to last for the next five years or so, they really need to think about business process in order to make it work effectively. And of course, steps in Jones, for many organisations, one of the hardest things is to define the ROI. GIS is a very tough area and there have been some very good case studies (e.g. the AGI theme of the 2007 conference was about return on investment). When you go into an organisation and talk about spending half million pounds on a GIS setup: software, investing in more staff, staff education, staff training etc....the senior management says: "OK I spend half million pounds but what have I got? What saving do I get?" and quite often many of the savings are intangible. Because the staff are doing their work more efficiently does not necessarily mean they are saving costs, they just do another job instead of what they were doing before. So you have to work with senior managers to let them understand you are modernising the processes and this is the ROI.

GEO: *so in conclusion your educational approach is still there...*

Yes, exclaims Cassettari, we still believe in the power and the value of education!

Finally they are whispering us a possible future

GEO: *Oblique photography is an exciting new development...You also have a*

thermal imaging product. One problem of vertical thermal images is that they give no indication of heat loss from the sides of a building (in the case of a very tall building this could be many times that from the roof). Is there an oblique thermal imaging product planned; would you see it as valuable?

There are two different types of thermal sensors, explains Jones. One is a survey thermal camera, which can be mounted for vertical views from an aircraft; the other is more of a handheld, survey thermal imager. There is no innovation as far as I am aware in developing the two together, not for obliques. Theoretically, postulates Cassettari, you could put the sensors in one aircraft or helicopter but it is unlikely to be cost-effective. However, the main change is that most of the sensors are becoming much cheaper to build. And, what we are going to see is a huge explosion in the range of sensors; different sorts of obliques, verticals, thermals and so on. And this means huge amounts of digital image data capture. So the big challenge for the data providers will be how to integrate different data sources (with different accuracies for example) and build that into a solution to gives you answers that are sensible.

In our workshops we still get asked the most basic questions about standard aerial surveys so we are forced to re-educate people and go back over things again and again. Also, adds Cassettari, what we taught at university at a conceptual level 15 years ago we are now bringing back and doing as workshops - how to measure accuracy in data sets, how to measure quality, etc. But looking to the future, technology will advance and the way we collect data is going to change and anyone thinking forward is going to have to be flexible to take on those new technologies.

GEO: *We need more sophisticated ways of processing this information. Where will this be coming from?*

We have been very bad as an industry, admits Cassettari, in collecting metadata and understanding how to use it. For example, people can take very high-resolution imagery and try to link it with very coarse height data and assume you will get something sensible. Metadata is really important but the way we are collecting metadata is very wrong; in vast amounts in a very structured format that nobody looks at. We are going to have to do this at a much simpler level. If I tell you one aerial photo is 15cm and another is 10 cm. you probably could not tell the difference but it does have an implication. A bit like GI, nobody has yet made a case for metadata.

GEO: *What do you think is the big challenge for a full virtual exploration of a geographic area above, below and at ground level, i.e. integration of multiple database models and ultimately when the time factor is introduced simulation and the possible fantastic new models we can build?*

It may be conceptually fantastic but, warns Cassettari, there are all sorts of practical issues there. We don't collect time information very well and we throw away our changes. Speculating about the future, a lot of the history we had which might inform us about the future we've got rid of. Also, current data structures don't hold time properly...Although, says Jones, we are looking at that right now with some software and data models that will allow us to improve visualisation and look at particular aspects e.g. sun angles, sun shadows over the environment, also the change of buildings over time - take a building out, put a new one in so you can project what a future environment will look like. People like this, Jones continues, but it all depends on how easy these databases can be used. We have to be careful that we, as GIS specialists, don't get wrapped up in our own world and forget the user just wants to make decisions. All these multiple layers of geo-engineering 2D, 3D or 4D have got to be reliable and easy to use and we must make sure we have the right metadata... so that the end users can use it simply and cost-effectively. And talking about integration, he concludes, you need to look at the work of the OGC in creating interoperability standards but we think the market will decide, eventually. For example, KMZ - the Google compression format - or KML - the Google markup language - OGC is looking at these as a standard now and this is a market driven initiative. It is very difficult for any one company to create a standard that is open and can be adopted by a number of systems. The more open you make it, the more likely it is to become a de facto standard.

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