GI and Telecoms

GI industry poised to profit from Internet and telecoms boom

The explosion in demand for Internet access, integrated communications and mobile phone technology by business and private consumers has created, almost overnight, one of the biggest and most important markets for geographic information software and services. **John Fox-Clinch** *looks at how this is affecting some of the GI industry's leading players.*

The telecom sector's need for spatial technology to plan and develop wired and wireless networks in a highly competitive environment has made the GIS industry a major beneficiary in four major areas:

Asset management

Companies with cable in the ground, or which are siting and building mobile antennas or other land-based assets, need spatial data for positioning and managing those assets – and this tends to require high-end GIS software with rich functionality.

Location-based services

Mobile phone companies are trying to deliver location-based services via WAP, SMS and other evolving technology. All location-based service comes down to geo-coding and background mapping. Although the GIS functionality required is not very complex, getting the data right and delivering it correctly is a major issue for providers.

Marketing

The operations team at a telecoms company needs to know where everything is and this data has to be managed down to a very detailed level. Once a network is built, however, the marketing department also needs to understand where resources and spare capacity can be found in order to offer services – and to give that information to the sales people. It sounds straightforward, but in the past sales forces without the right spatial marketing information have sometimes vigorously sold services that may not have been deliverable in the expected timeframe. In addition, a GIS can be used to identify potential hotspots of demand to help the operations team prioritise areas for network construction.

Call centre activity and customer care

If somebody phones in about a fault, the customer care team needs to be able to locate the area on screen so that they can put the problem into context. Many of the big UK companies are rolling out their operations to Europe to take account of roaming and new markets.

Geoff Kendall, of InfoTech Europe (formerly Dataview Solutions), says telecoms companies need detailed mapping data to expand into Europe properly but many continental countries do not have the equivalent of an Ordnance Survey. As a result data has to be sourced from a variety of bodies right down to municipality level. It then has to be pulled into one format so that the telcos, as they lay down their networks, have a standard base to work from for planning and asset management.

"Trying to find the equivalent of LandLine data in other European countries at a consistent scale and reasonable cost is something of a nightmare. We may all moan about the OS prices, but at least they provide a single source for the information our clients need – it is not the same in most other parts of Europe!" said Geoff.

Specialists such as InfoTech are pulling this data together in Germany, Spain, France, Italy, Scandinavia and elsewhere but it is very expensive to buy from municipalities and then to process it into a standardised form before selling it on to the telcos.

We spoke to a range of global, UK and European market leaders to assess how they are taking advantage of the new opportunities and trends. This is what they had to say.
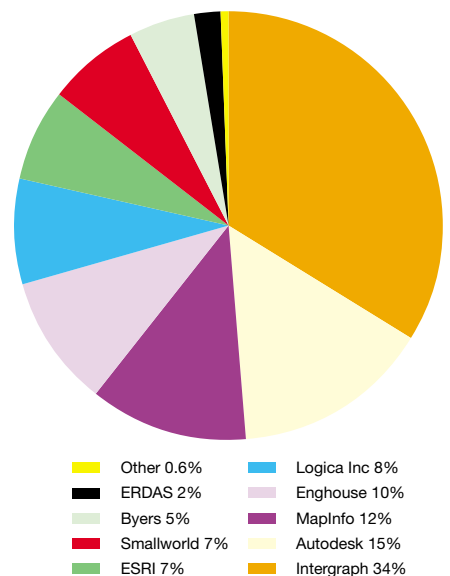
MapInfo poised for the introduction of DSL

The telecoms sector is MapInfo's fastest-growing market. As well as offering services covering the needs of call centres, strategic planning and demand modelling, with both wired and wireless operators, MapInfo does a lot of work based on access via mobile technology. According to communications market manager Simon De La Hoyde, the use of mobile devices, including phones, is rapidly expanding into new areas such as the delivery of personalised and dynamic location-based content. These services will be based on personal preferences set by the mobile users as well as their current location.

MapInfo provides location services such as route planning, navigation, traffic information and find-the-nearest-services. This could be as simple as what bank a user belongs to and where they can find the nearest ATM at any given location.

He added: "In this market sector, our business is more about quality of service and selling the right solutions, not software. We are most successful with call centre and customer care applications where we are able to provide the maps and spatial information operators need to deliver to their customers in an easily understood manner.

"We are also able to roll out information about things such as location of retail stores – and where customers can buy pay-as-you-go vouchers – directly to the users of corporately branded mobile web sites that are effectively turning into portals."

However, telecom operators want to own such services in-house rather than go to an ASP. Indeed, said Simon, it is obvious from the growth in popularity of services

Other 0.6%	Logica Inc 8%
ERDAS 2%	Enghouse 10%
Byers 5%	MapInfo 12%
Smallworld 7%	Autodesk 15%
ESRI 7%	Intergraph 34%

GIS industry's leading players globally, in terms of telecommunications market share. Source: Daratech.

such as Vodaphone's vizzavi, Genie and Orange.net that they are becoming very important parts of corporate branding and also huge money spinners.

He anticipates that perhaps the next big change in the market place will come in the wired arena with the introduction of DSL (Digital Subscriber Line) broadband connectivity. Effectively, this will give subscribers high-speed Internet access five to 10 times faster than the standard 56k modem. The industry watchdog, Oftel, has decreed that BT must give physical access so that rivals can offer competing services. DSL uses copper line. All consumers need is a small box adjacent to their telephone port and they can use the service.

MapInfo is able to provide operators in this area with a range of demographic data, lifestyle information and the tools to predict what network access speeds are available to any given business location or household.

DSL is already taking off in a limited way for those in the know who can register their interest with BT Open World on the Internet. However, BT cannot cope with demand and competing services will not be operational until 2001.

Competing companies are working on the infrastructure now and have had to submit their bids to BT and Oftel on which telephone exchanges they want to access. By the middle of next year companies such as Norweb Telecom, NTL Telewest, Torch and Kingston Communications will probably be in a position to offer such services.

Summing up, Simon said: "This is where a lot of the future lies. At MapInfo we have in place a number of planning tools, such as service provisioning, applications and operations systems, to deal with the huge explosion in demand for broad band access whether it is through the domestic television, PC or mobile phone."

Website: www.mapinfo.co.uk

YEOMAN Location, a new initiative in location-based services

YEOMAN Location is the name of a new sister company to leading UK GI company Laser-Scan. The new company has been launched to deliver a comprehensive range of location-based products and services. Laser-Scan was acquired earlier this year by the Yeoman Group, an information technology group with expertise in mobile navigation, mapping and communications. YEOMAN Location will draw upon the group's technology and expertise to introduce a family of location-based initiatives, the first of which is a How-to-get-to service called Knowhere Maps.

Driven by the Laser-Scan's well-established object-oriented (OO) database software, the service will offer a multiple-map view of any chosen location at varying scales, using a postcode-based gazetteer as input.

Working with various technology partners, Yeoman Location's evolving portfolio of location-based products and services will enable users to receive timely, actionable information to the device of their choice. Products will include a real-time traffic information service which allows a user to plan an optimum route between A and B avoiding traffic congestion.

YEOMAN Location Marketing Manager Mark Coleman said: "The problem with a lot of routing and direction systems is that they will give you the same desired route whether it is 6 o'clock in the morning or 6 o'clock in the evening, regardless of traffic conditions. One of our services will deliver real-time information personalised for your particular journey and delivered to the device of your choice.

"There is more than just GIS here – we are opening up the boundaries and looking at how converging technologies can deliver a variety of services across a variety of platforms. Whilst much of the GI community is still hung up on graphical delivery mechanisms (i.e. maps) the power of Laser-Scan's OO database technology allows us to look at a broader spectrum of delivery channels, such as voice synthesis, to push routing instructions straight to your mobile phone. Unlike existing in-car navigation systems, which cease to be of use once you step out of your car, Yeoman Location's service-based approach aims to deliver the same information via your mobile phone, PDA or web browser – it is truly multi-platform."

Yeoman Group's management skills and investment capital are also helping Laser-Scan to focus on its core business of developing and supplying advanced GIS solutions to major government and private sector mapping and charting organisations.

Web: www.laser-scan.com
www.yeomanlocation.com
www.yeomangroup.plc.uk

Intergraph focuses on asset management

Intergraph sees strong asset management as a critical factor for success in telecommunications: "Good management knowledge of the network and other assets helps deliver a higher return for shareholders and a better service for

---

Wireless Network Planning – The Next Generation

By Simon de la Hoyde

3G technologies are expected to reach maturity in the next four years, although the planning and construction of these networks is taking place right now. For those involved in wireless networks, competition is fierce and time to market is key. Understanding the optimum location for each transmission tower is vital. These locations need to be carefully planned and mapped out, in order to ensure optimum coverage is achieved. The cost implications of planning these networks, getting them right, or worse, getting them wrong, are enormous. Radio Frequency (RF) engineers need to conduct field tests repeatedly and use propagation models to maximise performance and minimise risk. Reducing the cost of these tests, and the time taken, is where the use of location-based mapping technology comes to the fore.

Being able to visualise these networks using GIS is an invaluable asset for planning the locations of transmission towers. But this is not the only benefit – by understanding where the maximum potential is, and where the most profitable customers are located (using demographic data), planning engineers can ensure the most profitable areas are targeted first.

MapInfo is presently working closely with a number of UK and European operators to provide mapping solutions to meet the demanding requirements of the market – and as it is such a large industry, with so many different areas of expertise, there is a wide ranging list of requirements to be met. Products such as MapInfo deciBel Planner, a mapping-based radio frequency and modelling tool, enable more effective wireless network planning and help accelerate time to market.

By viewing data on maps, service delivery and provision can be monitored and reliability and network problems can be easily identified and located. For wireless network designers to be able to visualise any tall buildings around their proposed transmitter site means that they can see if a particular road or building will receive poor coverage as a result. Using maps that show terrain, clutter maps, streets, towers and demographic boundaries, RF engineers can streamline their data handling and manipulation and, using corporate databases such as Oracle8i, share this information across the enterprise.

Operators of third generation networks face development and engineering issues that significantly differ from the skills gained in rolling out GSM networks. MapInfo has developed a UMTS module to its wireless modelling platform that enables engineers to plan and optimise their network layout.

Simon de la Hoyde is communications market manager, MapInfo.

customers", said Robin Turner, director of Intergraph UK's Government, Transportation, Utilities and Communications Division. Customers include Cable & Wireless, Telewest and GTS. "As the global leader in this market, Intergraph has worked with communications companies around the world, enabling them to achieve more efficient network provisioning and maintenance and optimising asset management to maximise shareholder value.

With our new InService software we are offering an end-to-end solution, managing the entire physical network – not only getting it up and running from the office side but also managing the people who go out and maintain the infrastructure."

Turner sees Intergraph's role as one of providing technology that works with Oracle to create a central repository with no disparate islands of information. He added: "What we are bringing to the industry moves spatial information into the centre of the organisation. It can be accessible to multiple users, not just GIS users, and with Intranet access we can get that information out to far more people."

Organisations need to know where the network is and which customers are and are not connected so that they can adopt the appropriate marketing campaigns to secure new users or sell new services. Traditionally, such network information was only available to the network planners as it was a specialist engineering function. Now, with its FRAMME and GeoMedia software, Intergraph can make sure that this information gets to the marketeers, sales and other appropriate people.

"Telecom companies need to know what type of service to target at people – whether they read *The Times* and shop at Harrods or watch Sky One and go on holiday to Ibiza. It is important to integrate this demographic information with the business and spatial information. We know where the network is and we can easily map demographic data.

"You can no longer look at these issues in terms of the UK alone because most companies involved in the industry have become trans-European, if not global. We are now modelling pan-European networks that can, for example, enable a communications planner servicing a customer based in Madrid to create a private network linking the client's offices in Germany and Sweden."

Summing up, he said: "Business tends to go in cycles and telecoms is currently a major focus for us – it is a booming economic sector and is set to continue for some time, although it is not the only focus and we are not turning away from our other markets."

Web site: www.ingr.com/uk/gtuc

Autodesk helps to squeeze assets

Virtually all of the telecommunications organisations in Europe use Autodesk technology, according to enterprise technical manager Kevin Challen. Historically, Autodesk business has been about asset management but the growth now is in customer relationship management (CRM), particularly among mobile operators, who are far more competitive than the fixed line operators. Companies are also paying more attention to antenna placement in the context of where demand is greatest. In this way, CRM can tie in the systems where they are used.

"Spatial information is the glue that binds the information about customers and assets together – it is our largest growing area. We are still concentrating on the traditional utilities – water, gas and electricity – but they are more static. You do not see new technology in water supply, gas or electricity whereas there is a constant evolution in the telecoms arena. "The industry has moved very quickly from fixed copper to fibre to fibre/co-ax and now to mobile networks. With the G3 (Third Generation) technology we are going to get much higher bandwidth.

Kevin also expects Bluetooth technology – developed by Ericsson, IBM, Nokia, Motorola, 3Com/Palm and Toshiba – to make a major impact. "It will provide users with unbroken access to the Internet. In a few years you will be able to buy an intelligent fridge that will know what it contains and, perhaps, communicate with a store to automatically replenish stocks. Or you may be able to

---

Unbundling the Local Loop – Pinpointing the Opportunities

By Simon de la Hoyde

The unbundling of the local loop has barely been out of the telecommunications news headlines recently. In the name of competition, and under the watchful eye of OFTEL, BT is being forced to release data and open their telephone exchanges to other broadband service providers, allowing them access to lines connecting the exchanges to BT's customers. This unbundling is due to be completed in the next few months, opening up opportunities for a myriad of new service providers – all keen to get in on the act.

But, for any new entrant, being able to identify which exchange will be profitable and by inference knowing who and where your best customers can be found, is fundamental to any infrastructure investment planning. Indeed, for the fiercely competitive telecommunications sector as a whole, this customer knowledge is crucial for network planning, strategic development and ongoing customer acquisition and retention.

The telecommunications strategic planner who is considering using local exchanges needs to analyse and model demand for broadband services. Access to demographic information on population, number of households/businesses, population density, lifestyle information and census data is key.

This information needs to be analysed in easy-to-understand geographical terms. The ability to view this data within the context of a telecom boundary, such as an exchange, and to aggregate information such as percentage of business to residential customers, is critical. The ability to measure this against business data such as monthly telecom spend, PC ownership and telephone usage within this geographic arena ensures profiles can be quickly built and understood, thus facilitating the network build-out.

Exchange boundary data, such as MapInfo's ExchangeInfoGB, that clearly shows each exchange boundary, is therefore essential. But it is not just the strategic planner who can benefit. Using an enterprise mapping solution the same base dataset becomes the essential framework and interface for every part of the business – from planning to engineering, marketing and the call centre.

As an example, a service provider may consider offering a reduced tariff for calls to a specific country for a limited period. Using ExchangeInfoGB the aggregated call volumes from each local exchange to that country can be thematically mapped. Immediately, strategists can see which exchanges have the highest potential. In turn, marketing resources and campaigns can be more accurately focused and response rates measured.

Greater customer awareness and the sharing of data across an enterprise helps understanding of the factors affecting churn, such as quality of service, competition and pricing – all key variables in such a fiercely competitive arena. Understanding business strengths and weaknesses is vital to ensure customers receive the services they need, and that these services are delivered in the most effective way. Being able to share and build on data gleaned from others within the enterprise not only accelerates time to market, but helps ensure organisations can stay one step ahead of their competitors.

Simon de la Hoyde is communications market manager, MapInfo.

move into new offices and, rather than wire up a LAN (local area network), there will be a Bluetooth network – a short range radio system that allows you to communicate without the need for a wire-based LAN."

Meanwhile, although existing technology such as fixed copper wire networks are not growing, companies are keen to know where they are and what their condition is, to maximise return on investment. As a result, Autodesk and its partners are actively selling value-added solutions for cable management and sophisticated design tools. "This is not just about recording static information but is more to do with the performance of the cable, such as asking how much is it under-utilised and can customers squeeze more bandwidth down it.

"We are also seeing a shift in who uses GI data. Traditionally, engineers were the users but now it is a corporate resource. You can almost equate it with office automation and customer information-based systems (CIS).

"We have just signed an agreement with one of our partners to resell their technology, giving us the ability to interface directly into CRM. The technology enables a customer desk to find out where a customer is calling in from, see on the map if there is any construction work going on with the plant and, if there is a problem, explain what is happening.

"The technology can also program a follow-up letter, giving a fuller explanation plus, perhaps, some free time and also mention 10 new services just introduced – so it becomes a marketing tool, too!"

Website: <www.autodesk.co.uk>

Kingswood MapMechanics solves business problems

Kingswood sales and marketing manager Theresa Barlow sees internal communication as a key challenge for telecoms companies. "Some of their biggest technical issues are about making sure the right people get to see the right information at the right time, in a format they can understand."

They need to optimise mapping for use by field staff, operations and cabling because such a vast amount of information is being generated, and so many disparate databases need to be brought together, as they continue to grow.

She likens it to an advancing army that cannot keep moving forward without all its support services in place – although in this case the issue is up-to-date, accurate information about their networks.

"The telecom companies are looking at optimum sites for transmitter siting and the 3D module of GeoConcept can help in this context because it shows contour mapping in 3D from any angle. Another key feature of object orientation is inheritancy, in that if you have a particular kind of cable with particular characteristics, all the other cables coming off that cable can be attributed the same characteristics and you don't have to generate such a big database."

She added: "You need to be able to help people with their business problems, not their GIS problems – this is the Kingswood MapMechanics approach."

GI News

Web site: <www.kingswood.ltd.uk>