# Information Technology Infrastructure

## Executive Summary

This report by **NWLab**s, with mapping input from **Compass Informatics**, to the Department of the Environment and Local Government deals with Information Technology Infrastructure as an input to a National Spatial Strategy.

The report outlines global changes that are taking place in the nature of telecommunications and their importance in the context of the emerging Information Society. Key technologies that are fundamental to the provision of advanced telecommunications based services are identified. Changes resulting from the process of deregulation in the Irish telecommunications marketplace and their impact on information technology are noted.

These changes are on-going and the character of Irish telecommunications is changing on a daily basis. The report identifies the broader trends and the implications of what this means in the context of spatial planning.

The report concludes that:

- Telecommunications infrastructure will continue to remain the most important component of national infrastructure provision for the immediate future.

- The range of technical options or possibilities available means that every part of the country could be equipped or serviced with an appropriate telecommunications infrastructure within the short to medium term.

- The de-regulation process will deliver competitive telecommunications access mainly in urban areas. Industry based in predominantly rural areas will not benefit from this process to the same extent. As a result the "digital divide" will widen between urban and rural areas.

- Local groups or communities need to address the provision of alternative infrastructures in these rural areas.

### Infrastructure

- It is apparent that nearly all the larger towns and urban areas have access to an appropriate infrastructure at this moment. The coverage of smaller towns and rural areas is extremely erratic and these areas are in danger of being by-passed or of under participating in the impending information society unless this situation changes.

- Other interim infrastructure solutions (e.g. FWPMA/FWA) have the potential to deliver services into neglected areas at this moment. These can provide an alternative to the incumbent network and accelerate the deployment of broadband. Nevertheless these solutions may not result in significant end-user cost reductions if alternative and competing network infrastructure is not available to these new service providers.

- The physical typology or location of the national backbone network is not a significant factor. Bandwidth capacities in the national backbone networks are not considered to be an issue. It is expected that on-going innovation in network technology will continue to increase these capacities where suitable optic fibre cable exists.

- Investment in network upgrades and in network technology is likely to continue to be demand related. This means that where demand is weak or dispersed as in rural areas, demand may not materialise to justify investment.

## Competitive supply

- The speed with which an appropriate telecommunications infrastructure covering all the country can be achieved is more dependent on nontechnical issues than technical solutions. The stimulation of local or alternative network infrastructures and the creation of competition at the level of local network supply is a key issue.

- Major progress is being achieved by the ODTR in de-regulating the telecommunications industry. De-regulation may however result in a more pronounced imbalance in the supply of competitively priced services for end-users in certain areas of the country.

- Unless competing networks evolve it is unlikely that dramatic reductions in the cost of leased circuits of bandwidth will materialise or network resilience issues will be addressed throughout all the country. This will have a knock-through impact on the possibility of locating "e-commerce" type companies in many areas of the country. It will also impact on the speed of roll-out of advanced services to residences and SMEs in these areas.

- Local authorities or planning regions need to address this local telecommunications infrastructural issue. Solutions could range from the requirement to install optic fibre capacity in new roads infrastructure or the creation of a national or regional "carriers carrier" which would lease interconnect capacity to individual operators.

- The speed of roll-out of alternative local networks is also a cause for concern. It is apparent that local planning bottlenecks exist. Planning permission for masts and other facilities needed locally should be prioritised. The future telecommunications access needs of business parks, new housing estates or communities should be addressed as part of local government planning.

## Demand Stimulation

- Clusters of multinational software companies have successfully developed in Dublin, Galway, Limerick and Cork. Such clusters are likely to be sustained due to the attractiveness of these four locations. In turn these locations are also likely to be the primary locations of new software firms created by former employees of these multinationals. However due to the continued preference of e-business based businesses for Dublin locations for reasons of telecommunications infrastructural costs, the view is that ecommerce and related businesses, will concentrate in Dublin. The establishment of the "Digital District" in Dublin will further add to this concentration.

- The provision of low cost bandwidth and dark fibre to Galway, Limerick and Cork would encourage greater e-commerce activity in these locations, building on established software clusters.

- In parallel with providing physical infrastructure other initiatives are required to increase Internet awareness, improve IT literacy skills and NSS - Information Technology Infrastructure generally stimulate accessibility in a broader context. In turn these initiatives will also help stimulate local demand for better and cheaper infrastructure and meaningful e-services that utilises this infrastructure.

- Some of these initiatives are already underway and these should encourage general widespread awareness and take-up throughout the country.

However they will have limited success in locating new companies who are intensive users of telecommunications into many areas of the country. The viability of these companies is determined by the cost of telecommunications access.

- The barrier to the growth of e-commerce providing firms outside of Dublin is primarily structural rather than educational. Barriers comprise the cost of telecommunications, availability of dark fibre, low level of IT support services outside of the main cities and hence investment and funding credibility for new ventures. This situation is likely to continue until ecommerce "flag-ship" projects are established by IDA Ireland in say the BMW region.

- Specific educational initiatives are less important than the emergence of relevance and meaningful IT services/applications which are needed in the day-to-day work and home environment.

- Access, content, literacy, pedagogy and community may not be enough to ameliorate the "digital divide" in Ireland. Giving people access to technology is important, but it’s just one of many issues that need to be considered. Schools, libraries, and community centres are taking that first step in getting wired, but they must also consider the needs of the learners, the teachers, and the communities that support them.

## Legislation & Regulation

- The Telecommunications (Infrastructure) Bill should be progressed to assist the roll out of infrastructure nation-wide, particularly FWPMA/FWA, UMTS and DTT.

- Consideration needs to be given to empowering the local authorities to streamline processes and assist the infrastructure roll out. As the current regulatory framework was created for an era of state owned utilities.

- The ODTR should consider licensing MMDS for the provision of interactive services and allow FWPMA/FWA operators to engage in secondary allocations of unused spectrum. This should result in earlier competitive service provision in rural areas.

- Central co-ordination of assets suitable for collocation, which are owned by the state and its agencies, e.g. masts, rooftops and way-leaves.