

The Broadband Jigsaw

*Outcome of Next Generation Broadband Forum –
A Summary from one Perspective of a Consultative Process
Of approximately 150 people.*



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The Broadband Jigsaw - Summary

Outcome of Next Generation Broadband Forum

Broadband is a complex issue. Like anything new, the benefits of broadband need to be digested and understood to have a clear idea of the significance of it for the society and the economy.

In reality, rolling out broadband is not just a single challenge – it is multi-faceted, and touches on many different areas.

Rather than being something that can be resolved with a single large-scale solution, the problem of providing next-generation broadband is like putting together a jigsaw, which consists of many different parts, which will be assembled together over time, with the involvement and investment of many different groups in the private, public and civic sectors.

Broadband is an enabler for growth and development. It enables work, learning and play in a new way. It is becoming an essential utility, which we are beginning to take for granted, in the same way as water, electricity and sanitation.

There is no 'required' speed for broadband. Broadband needs to be as fast as possible. Expectations for speeds go as high as 1 Gbps for the longer-term and there is a broad aspiration that similar speeds should be achieved in rural and urban settings if possible. Quality as well as nominal speed is important.

Broadband can bring the following benefits to the economy and society - Competitiveness and Efficiency; Energy and the Environment; Social Cohesion and Integration; More flexible social and work structures.

A large amount of 'hard' infrastructure is already in place in Ireland - a number of national networks, owned by various parties, international fiber links, radiocommunications towers and so on.

However, there are major gaps which are preventing the best broadband possible being delivered to consumers in the short term. There are a number of distinct problems to be resolved to provide broadband to rural communities, to serve extra-urban areas and to bring higher speeds to suburban and urban areas. There is also a clear need to bring together the state broadband assets.

In the longer term, to get very high broadband speeds that are said to be necessary, it will be necessary to roll out a comprehensive fiber or mainly-fiber network with high speed wireless connections in the more outlying areas. The cost of doing this as a single project would be very large indeed. However, if there is good planning and clear standards, the actual construction work can be carried out as a series of jigsaw pieces, in conjunction with other building works over a longer period of time. A good plan will ensure that the entire jigsaw will emerge over a longer time period. It is important to bring together planners, developers, utility providers and suppliers to address this issue.

Major investment has already been made in broadband, and a lot of further investment will be required. The major concern should be to ensure that the existing investment is fully utilized, and that there is as great a value returned as possible as a result of future investment. Moreover, to be successful, broadband needs to move from being a special investment to being part of the ordinary planning and budgeting of any construction project, small or large.

The Broadband Jigsaw

Outcome of Next Generation Broadband Forum

Broadband is a complex issue. Like anything new, the benefits of broadband need to be digested and understood to have a clear idea of the significance of it for the society and the economy. Everyone at the consultative forum felt that broadband is valuable and important. It already touches on many parts of the economy and the society, and it will eventually play a role in the workings of every single part.

Everyone agrees that rolling out broadband entails major investment. However, it is difficult to gauge the amount of investment needed, and it is far from clear who should make the investment and how the infrastructure should be built.

In reality, rolling out broadband is not just a single challenge – it is multi-faceted, and touches on many different areas. The situations involved are as diverse as Ireland itself, ranging from large centre city office and apartment blocks to remote hillside schools and homes. There are many different technologies in use already to deliver broadband, each with their own benefits and disadvantages, and new technologies are still emerging.

Rather than being something that can be resolved with a single large-scale solution, the problem of providing next-generation broadband is like putting together a jigsaw, which consists of many different parts, which will be assembled together over time, with the involvement and investment of many different groups in the private, public and civic sectors.

For that reason, a forum of people involved and interested in the area were brought together to discuss the critical issues in a structured way. Their views are summarised here and brought together to provide a general view of the future for the development of the broadband jigsaw in Ireland.

What is the role of broadband?

Broadband is an enabler for growth and development. It enables work, learning and play in a new way. It is becoming an essential utility, which we are beginning to take for granted, in the same way as water, electricity and sanitation.

How is and will broadband be used?

Home Working

“Work is an action not a place.”

Many jobs can be done wholly or partly without actually attending at an office or going to a central depot everyday. This has the potential to greatly reduce expenses and improve the work experience for both employee and employer.

To do this, high speed links are required, to link into the company network. Ideally, the link would be fast enough to allow the files to be accessed from home as quickly as from the office. In practice, slower speeds can give acceptable results for many types of work. Quality (as opposed to raw speed) is likely to be a critical factor when working from home.

Doing Business

*“People will want to do business at home
E-transition – local authorities, bills, payments”*

‘Content – bus timetables - Local information’

Being able to simplify everyday business tasks was important for participants, especially in terms of their dealings with the government.

Keeping in Touch

Broadband will more and more be part of keeping in touch with family and friends.

*‘VOIP’
‘social networks’
‘On line Services’
‘independent living for elderly’
‘Assistive technologies for the disabled’
‘Communications – web camera’
‘Social Networking’
‘Video Conference Call’
‘crèche monitoring’*

Entertainment

*‘Video production’

‘Live video broadcasting’

‘Video/TV streaming’

‘Home Entertainment’

‘Gaming’*

The Internet has changed the world of entertainment. iTunes, the online music store operated by Apple has become a major global player in music retailing. Downloading video (both legally and illegally) has become part of the entertainment mix for many people.

IPTV allows TV services to be delivered over the Internet. This allows video on demand services, where customers to choose what they want to view and when, rather than having to view what happens to be on at the time.

Online games bring a new dimension to traditional video games. They bring a social and international element.

Entertainment on the Internet is not just about consumption. The Internet is a critical tool for the production and sale of entertainment. A good broadband infrastructure will be critical to succeeding in these industries.

Benefits of Broadband

More flexible social and work structures

Broadband can open up new choices for people in terms of where they live and their lifestyle.

'Homeworking'

'Work is changing'

'Digital nomad'

'Youth'

'Education'

'Distance learning'

'Lifestyle choices working from home'

'Bridge urban/suburbs/rural divide'

This increase in flexibility will ultimately translate into greater economic flexibility and capacity.

Social Cohesion and Integration

Participants see broadband as a means to increase integration and social cohesion. It can help bridge the gap between rural and urban.

'Rural APPs/Benefits – home working (address long commutes), disability (more services at lower cost e.g. real time tele-health care)'

'NGB easier and cheaper in urban areas but rural service vital for social integration, economic prosperity and inward investment.'

On the other hand, there is a fear that a badly considered plan, or an unplanned situation could lead to a loss of cohesion. Participants were very concerned that rural areas would fall behind.

'SME needs hi speeds wherever they are. '

*'Big corporations / Government will pull in infrastructure
Policy needs to pull in SME's'*

'Rural needs = Urban needs (environmental and spatial benefits).'

'No one should be left behind'

'[There should be] No urban / rural split – similar capacity, same entry level'

'Danger of cherry picking'

The gap is not just about access, it is also about knowledge and capability to exploit the new possibilities.

'Adoption needs availability but also TRAINING (not just for poorer areas) and affordability and ease of use.'

Energy and the Environment

Broadband and the Internet have a major role to play in tracking and managing the way we use and conserve energy and natural resources. .

"IT and energy (ET) [for energy efficiency]"

"Carbon footprints online"

"Tracking and Converging [environmental information about] water waste, energy "

The Internet also provides a practical way to drive down the requirement for travel in national and international commerce. Carbon taxes and other restrictions will make this essential

'Carbon taxes – will drive remote working high quality conferencing and bandwidth'

Competitiveness and Efficiency

Broadband and Internet access will be essential for *"trade competitiveness"*

"Overall – our 'Ireland Inc's' competitiveness must be the driver – nationally and regionally."

"Important motor for jobs/growth"

Broadband is a critical part of building a *'Leading knowledge economy'* and to become a *'Global trading centre'*. It has to be part of a *'Holistic approach'* to these areas.

Broadband is critical to allow *'Mobility – any application or service any where home and abroad'*. This sort of mobility is becoming an accepted part of business life.

Being able to use the latest software will also depend on a good broadband connection in the future, as software becomes Internet-based *'Software as a service'* becomes more common. The service and application will be predominantly based in countries where broadband infrastructure is inexpensive.

What sort of broadband do we need?

How Fast?

'Enough bandwidth to support innovation'

In overall terms, broadband needs to be as fast as possible. Expectations for speeds go as high as 1 Gbps for the longer-term and there is a broad aspiration that similar speeds should be achieved in rural and urban settings if possible.

Participants are realistic that these speeds are not realistic in the next five years, especially in rural areas. However, some level of broadband is needed in all parts of Ireland in this time.

What about quality?

For participants, quality as well as nominal speed is important. Participants seemed frustrated that speed promises sometimes needed to be taken with a pinch of salt. This is an issue that needs to be considered as a new strategy is rolled out.

'The race is price. The race should be Ubiquity and Quality'

'Speed is not the major issue. Quality of service is important'

'Up/Down Symmetry'

'The race is price. The race should be Ubiquity and Quality'

'Move towards symmetric service'

'Standardize what we mean by that e.g. VOIP (voice over IP), Stamp, means <150ms latency, < 30 ms jitter. The focus should be on applications – not speeds – thus you will be able to do with it is the key issue.'

'Speed should be on demand, driven, not preset, symmetrical / un-contended, supply to new conferencing and VOIP'

'3G is not broadband. Ubiquity – they have coverage but is it quality?'

*'Contention\10 mbs
Committed rate
1 mbps bare minimum'*

There was also view that broadband should be available on demand, wherever you are.

'Broadband wherever you are – 'roaming''

Bringing together the pieces of the Broadband Jigsaw

A large amount of 'hard' infrastructure is already in place in Ireland - a number of national networks, owned by various parties, international fiber links, radiocommunications towers and so on.

Broadband for the next five years

There are real practical limits on how much more 'hard' infrastructure we can simply build in the short-term. It is hard to justify the spend in many instances, and even where we can justify it, it is simply hard to get the money. Even when the money is available, it takes a long time to actually roll things out and make a difference for end users.

At the same time, there are successful but localized initiatives all over the country to roll out broadband, even in some of the most remote locations.

Equally, there is a small but reasonably sector of newer telephone companies who are able to provide broadband to many areas that eircom is not serving.

New developments in wireless technology are opening up new possibilities.

'Below 10 mb/s (average) will be delivered ubiquitously by mobile wireless technologies such as LTE and LTE-4'

'Broadband below 10 mb/s (average) will be delivered ubiquitously by mobile broadband technologies. 50 mb/s LTE advanced'

This is the jigsaw of broadband supply in Ireland. What is needed is to get all this infrastructure, all these players and the knowledge and initiative that has developed at local level to work together on a more national level. Participants expressed concern that this would not happen.

There are a number of distinct problems to be resolved. Some may seem more pressing than others, but all of them are extremely important. Coordination and planning will pay dividends in all of them.

1. Providing broadband to rural communities - The rural communities are the hardest to serve. Experience so far is that localized initiatives seem to have had good success in delivering in these areas. We need to bring the people involved together and share the knowledge of how to do this. This is likely to involve local authorities, backbone providers, and cooperatives directly representing the local community groups.

2. Serving extra-urban areas - Spread out urban development is a significant part of the Irish housing stock. The people involved in this sector need to work together to provide the best possible solution. This is likely to involve larger-scale wireless telco's such as Digiweb, Irish Broadband and Clearwire as well as consumer representatives.

3. Outer Suburban and Urban services - There is a perception that access will evolve in these areas without much planning or intervention. However, there are many practical problems to be resolved, and these should be addressed between the backbone providers, the service providers and the various local authorities to get the best possible solution for consumers.

4. Bringing together the State Assets for Broadband infrastructure - The various state-controlled interests that own telecomms infrastructure need to be brought together and they need to consider how best to pool and manage their assets in the public interest. This is likely to involve the obvious parties, such as NRA, RPA, ESB and Irish Rail, but it should also involve the many smaller parties, such as the Dublin Councils, HEAnet which runs the university network and potentially many others who have assets and/or expertise. Some 'catalyst' needs to be found to bring these assets together in a coherent way.

The most urgent need to coordinate these state resources appears to be to provide economically priced 'backbone' services to rural communities (and possibly extra-urban areas) in order to facilitate local broadband schemes.

Long-term - Broadband for the next twenty years and further

Participants in the forum believed that high speeds were critical.

'2020 - Top 10 – Fibre - World leader'

'Real horizon for progress is approx. 2015. Demand is going to grow, big change for ubiquity, new forces – people want to do business from home, and technology progress will be substantial. '

'We should not compare to EU regions. We should be leapfrogging the EU regions where we can'

To get very high broadband speeds, it will be necessary to roll out what will in many ways be a new jigsaw - a comprehensive fiber or mainly-fiber network with high

speed wireless connections in the more outlying areas. The cost of doing this as a single project would be very large indeed. If there is good planning and clear standards, however, the actual construction work can be carried out as a series of jigsaw pieces, in conjunction with other building works over a longer period of time. A good plan will ensure that the entire jigsaw will emerge over 20 or 30 years. As particular needs arise, or as investment becomes available, areas where there is a critical need can be given priority.

Forum participants had concerns that the roll-out of broadband would be hampered by a lack of planning, or an uncoordinated planning approach. Proper planning needs to be part of the work.

'Do we have the regulatory and policy framework to enable NGB rollout – no – THE focus for progress – planning – building regions.'

'Planning permission is a major constraint for wireless Technology roll-out'

'Building Regulations. – structured cabling in all new building and access roads'

*'Consider regulatory model like NRA
All agree some government involvement needed – how much?'*

'Require joined up thinking across all departments.'

'Don't let market sort it out'

'Use existing state infrastructure.'

It is important to bring together planners, developers, utility providers and suppliers to address this issue. Between themselves and a body like NSAI (National Standards Authority of Ireland), they need to develop standards for the ducting of new developments.

There is also a need to consider targets for the provision of broadband along roads as they are laid and refurbished. All utility providers (ESB, Gas, eircom, local authorities for water, drainage, traffic lights) would need to be part of this discussion.

Conclusions

Major investment has already been made in broadband, and a lot of further investment will be required. The major concern should be to ensure that the existing investment is fully utilized, and that there is as great a value returned as possible as a result of future investment. Moreover, to be successful, broadband needs to move from being a special investment to being part of the ordinary planning and budgeting of any construction project, small or large.

In the short term, the telco's, community groups and state interests need to come together to provide a viable solutions to local needs.

To provide a solution for the medium- and long-term, the various construction and utility interests can work together to build the network which will provide the highest broadband speeds over the longer term.

The government (together with other stakeholders) needs to have an overview of the whole jigsaw, so that it can better understand where to intervene, and where to allow the market to take its course, thus ensuring that limited funds are focused to maximum effect.

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