1. SCDI is an independent membership network that strengthens Scotland’s competitiveness by influencing Government policies to encourage sustainable economic prosperity. SCDI’s membership includes businesses, trades unions, local authorities, educational institutions, voluntary sector and faith groups.

Given Scotland has near 100% broadband coverage how can availability, speeds and uptake be improved across the country?

2. Broadband is an essential business enabler, crucial to the future of the Scottish economy, city-regions and the sustainability of rural communities.

3. Scotland, generally, has a competitive broadband network. The last decade has seen numerous advances in digital technology, and Scotland’s public and private sectors have worked together to deliver access to first-generation broadband. This has had a positive impact on the economy, public services and quality of life, most obviously in the Highlands and Islands. Services in some areas do not currently meet the needs of users, particularly businesses.

4. Competitor countries in Asia and Europe are now prioritising the roll-out of super-fast networks. These include Sweden, Finland, Norway, Canada, Australia, New Zealand, South Korea and Japan. There is a risk that Scotland will be left behind and companies, especially in our innovative and potentially world class digital media sector, will (re)locate elsewhere. With many future high-growth businesses likely to be virtual it is essential that Scotland has ICT infrastructure which encourages them to be founded and remain based here. As a country, Scotland has natural assets that make its quality-of-life very desirable and providing competitive digital infrastructure can, therefore, make it very attractive to businesses, internet-based workers and entrepreneurs.

5. The Scottish Government’s consultation Speak up for Rural Scotland refers to the flourishing culture of small business development in rural Scotland and research of these businesses has identified that broadband is a top priority. SCDI has advocated the concept of ‘Distributed Cities’ for rural areas in which digital connectivity for rural communities and businesses would underpin economic, educational, cultural, social and public service opportunities.

6. SCDI has been working very closely with Scotland’s Six Cities and with the Scottish Government on the cities agenda. In May, leaders from the cities signed a Shared Vision for Scotland’s Success. This said that “Scotland’s cities require investment in infrastructure to provide the environment in which investment and job creation can flourish, with improved connections between them and to external markets” and it called for “full roll-out of a superfast broadband network covering the whole country, including travel routes.” We hope that this will be progressed as part of the forthcoming Cities Strategy.

7. Private sector investment in superfast broadband is now taking place and a substantial number of businesses and households will benefit. However, estimates suggest it will only be commercially viable to extend coverage to two thirds of the UK population and, in view of the geography and lower population density in Scotland, it can be assumed that this percentage will be lower in Scotland. Rural and remote areas would be unlikely to be covered.

8. Scotland must maintain the competitiveness of its digital infrastructure and consider how other countries are developing their networks. SCDI is not aware of a country which has managed to secure the necessary investment for a national high-speed broadband network without public intervention.

9. SCDI believes that Scotland’s ambition should be full coverage of high-speed broadband, led by the market, with public funding for the areas where it will not deliver. The public interest and economic case for intervention to assist with the delivery of super-fast broadband and create a national network
are clear. As technology develops, Scotland must ensure that its infrastructure delivers on current technology and is ‘future-proofed’ as far as possible.

10. A deeper, integrated and accessible backbone network is absolutely critical to further improvements in availability and speeds, which can bring fibre optic backhaul within reach of all communities and businesses. This will be harder in rural and remote areas, such as the Highlands and (especially) Islands.

11. SCDI is concerned that the latest figures from Ofcom show that significantly fewer people in Scotland say they have broadband than the UK average and that this gap has widened in the last year. A lack of digital literacy could be a major cause of poverty in the future. It is essential therefore, that IT skills are taught in schools, using up-to-date equipment and well-trained teaching staff. Supporting young people to learn the effective use of computers should be regarded as a key life-skill and presents opportunities for electronic teaching materials, which allow for easy updating and cost effective replication. Efforts should be targeted on those areas with a very low uptake of broadband, and on groups such as the elderly, unemployed and people with disabilities.

**What is the best way to roll-out NGA across Scotland and what are the potential pitfalls?**

12. SCDI supports the Scottish Government’s priority of delivering the ambition of next generation broadband to all by 2020, with significant progress by 2015. A national superfast broadband network will ensure that areas of the country, especially the periphery, are not permanently economically disadvantaged. Higher broadband speeds are needed in rural, urban and suburban areas.

13. Broadband bandwidth demand has doubled every 21 months (Neilson’s Law). It can be reasonably assumed - as Scotland’s global competitors are assuming - that this will continue to hold true and should form the basis for planning over the medium term. It is important not to underestimate increasing demand. Experience with the roll-out of broadband has shown that if higher bandwidth is built, new services and applications for it will quickly follow, and that people will fully use them, spurring innovation and growth.

14. The EU and UK have specific targets for speeds. The EU aspiration is for 100 Mbps for 50% and 30 Mbps for all by 2020. Highlands and Islands Enterprise’s target is in line with these. Some EU countries have even higher targets – Finland is proposing 100% 100Mbps by 2015. Scotland should seek to keep pace with its competitors. SCDI recommends that the Scottish Government should set a target which at least meets the EU and UK targets.

15. In establishing a Scottish target or targets for speed, it should be recognised, that as cloud computing develops and uploading increases, the current asymmetry between upload and download speeds may change dramatically. Minimum standards should, therefore, be the minimum and not the norm.

16. SCDI understands that, with the right strategy, investment and funding levels and state aid approvals, it should be possible to achieve virtually 100% coverage of businesses and homes in Scotland. This will almost certainly need to be a “mixed economy” approach, with fibre being deployed as close to the premises as possible for the vast majority. SCDI believes that delivery should be consistent, universal and take advantage of economies of scale. There will be an onus on industry to come forward with innovative solutions.

17. Highlands and Islands Enterprise is tendering for a next generation access programme and the South of Scotland Alliance is expected to do so soon. It is important that momentum on these is not lost waiting for a Scottish strategy.

18. SCDI believes that - in order to ensure economies of scale, universal coverage and future-proofing - the Scottish Government should develop a single tender for the rest of the country where the market is currently unable to deliver. It should procure for a private sector partner which would invest alongside the public sector in an ‘open access’ superfast broadband network which would enable competition between retail broadband providers and choice for consumers. Local authority and
business input into the delivery programme would provide information about local supply issues and demand. There is a need to map accurately Scotland’s existing telecoms infrastructure.

19. An ‘outside in’ strategy, in which the lowest commercially viable markets are addressed first, is most likely to support the Scottish Government’s target. This approach would reduce the risk of market distortion and encourage new thinking by the public and private sectors about market opportunities, partnerships and technologies. At the same time, private sector innovation, involving a variety of network deployment architectures and new business models, could extend coverage beyond the areas of Scotland that are currently forecast as commercially viable. This would release funding which, along with the new thinking developed, would reduce the need for public subsidy. On the other hand, there is a risk that if the Government adopts an ‘inside out’ approach of super-fast broadband extension that funding will be insufficient to achieve the Scottish Government’s target for coverage by 2020. It would not be commercially viable for the private sector to bridge this gap.

20. SCDI believes that the stability and reliability of fixed-line (fibre) should make it the preferred basis for superfast broadband provision. Point-to-point solutions, where possible, maximise the penetration of fibre and create a fixed fibre backbone extending to suitable hubs in communities. However, alternative technologies, such as mobile technologies, may potentially be less expensive and more suitable than fibre in certain areas. It is important that a mix of technologies should supported, including through the planning system.

21. The Scottish Government should support organisations and programmes dedicated to increasing internet literacy and usage in areas with limited broadband by supporting community hubs or libraries providing access to the internet and publicising work/life benefits. Higher demand will stimulate further roll-out of next generation broadband and ensure that the potential productivity, service delivery, efficiency and other benefits are fully realised.

22. Wireless connectivity through mobile broadband is now a major contributor to the way we connect to the internet. Scotland’s transport network, particularly trains, should be served by mobile signals and onboard wi-fi should rolled out, starting with intercity and commuter routes, in the next ScotRail franchise.

23. Scotland has the potential to develop and innovative and world class digital economy sector. With its renewable energy resources and cool, stable climate, next generation access can support green data centre development.

What is the best way for the Scottish Government/public sector to help fund NGA projects in Scotland and exploit the funding made available from the recent spending review and from UK and EU sources?

24. Public and private investment is clearly in short-supply at present. Funding of £68.8m has been secured by the Scottish Government from the UK Government. Of this, £10 million has been allocated to the Highlands and Islands for its pilot. The Scottish Government also plans to introduce a Next Generation Digital Fund. However, SCDI is concerned that this level of public funding will be insufficient to achieve the Scottish Government’s ambition. For example, it is estimated that at least £300 million will be required for coverage throughout the Highlands and Islands. Solutions for communities in hard to reach areas, however innovative, will be costly. It is not yet clear whether the funding which will be available will all be directed towards the supply side of next generation access or whether a proportion will be used for the demand side. If it is to be split, public funding for infrastructure roll-out will be less.

25. Scotland must continue to make a robust case for funding from all sources.

26. The Scottish Government should invest alongside a private sector partner. They should work together to identify future demand so that investment can be accelerated and prioritised, and also jointly invest in stimulating take-up.
27. The European Regional Development Fund and European Social Fund are potential sources of funding, and may unlock opportunities to apply for European Investment Bank funding. It will be important to influence and maximise opportunities from the post-2014 programmes of European funding.

28. It has been demonstrated that the higher the investment made in a technology, the lower the unit costs. In relation to broadband, this suggests that more extensive initial rollout will therefore increase the overall efficiency.

29. Public funding, definition of market standards and options, and supportive regulation and good practice are all important. With EU funding, procurement must comply with EU guidelines on broadband in under-served areas.

30. There may be opportunities for co-operation on ICT infrastructure investment for the public sector to benefit private consumers, but the procurement of broadband by the public sector has tended to specify around its needs, rather than seek to encourage more creativity and stimulate economic development.

31. SCDI recognises the demand for community solutions which address specific problems, but there is a risk that these fix problems in the short-term utilising dead-end technologies with no upgrade path and no cost-effective backhaul. As previously highlighted, large scale roll-out projects offer economies of scale and, ultimately, best value for the public purse and for the consumer.

**Can the Scottish Government achieve the objectives in its Digital Ambition Strategy?**

32. SCDI welcomed the objectives in the Digital Ambition Strategy, but there was a significant lack of detail, including on how these would be achieved. SCDI believes that access to internationally competitive super-fast broadband for businesses and society would support the delivery of a number of priorities:

- **Productivity and rebalancing the economy** – ICT can contribute significantly to higher productivity, exporting by SMEs and inward investment. Next generation broadband would be expected to have an especially large impact on the services sector as it enables fragmentation of production and international trade in services that were not previously tradable or contestable. Large-scale adoption of new work styles will deliver increased output, improve efficiencies and make better use of corporate assets such as expensive office space. If Scotland closed the gap with UK best practice in ICT exploitation this could boost its economy by £2.8bn in the next 5-7 years.

- **Skills development and utilisation** – Next generation broadband would increase flexible delivery of and widen access to higher and further education, offering significant benefits for skills development and attainment, and ensuring graduates are equipped with the ICT skills which they need. Remote and agile working can enable people who are not presently working to enter back into work - helping to address the challenge of an ageing workforce – and create higher employee job satisfaction from greater work/life balance.

- **Social inclusion and social mobility** – Those with fast and reliable access to the Internet enjoy access to a wide range of economic, social, and educational opportunities – and to the information to enable them to make use of those opportunities – not available to those without such access. Those denied these opportunities will be disenfranchised and this will reinforce social exclusion. In the twenty-first century, ensuring universal access to the internet will be as important as ensuring universal literacy.

- **Climate change** – The Smart 2020 report published by the Global e-Sustainability Initiative found that smarter use of ICT solutions could reduce global CO2 emissions by up to 15% by 2020, for example by a much wider use of video interaction for meetings. Smart electricity meters and smart grids enabled by digital technologies, will have critical roles in meeting the UK's climate change, renewable energy and energy efficiency commitments.

- **Public service delivery** – Use of technology and information sharing across public agencies would enable more personalised, effective and efficient services, through greater citizen self-
service, assisted service and remote services. The opportunities may often be greatest in rural areas e.g. eHealth. The Review of ICT Infrastructure in the Public Sector in Scotland by John McClelland for the Scottish Government found, “it would be highly unlikely that the vision described earlier…for a “digital public sector” could be realised without progression to effective and efficient next-generation broadband.”

- **Public sector efficiency** – The Scottish Government has set stretching efficiency targets in the recent Spending Review. Using technology to remotely deliver services would significantly reduce costs. Mobile and agile working is very limited across the public sector today. Enabling employees to work flexibly and remotely could provide significant savings in property and improvements in productivity that will help achieve the efficiency targets and free up resources to redeploy into priority frontline services. Many commercial organisations report having achieved 10 – 15% productivity improvements.

What lessons can be learned from other parts of the UK in terms of digital infrastructure investment?

33. Projects in Northern Ireland and Cornwall offer good examples of private-public partnerships on next generation broadband which have successfully drawn in funding from both, including from a range of European sources. In Cornwall, investment in broadband has created and safeguarded jobs and attracted new businesses to a largely rural area, and between 80-90% of businesses and homes will have access to superfast broadband by 2014.

34. Scotland should seek to lead and not play catch-up with the rest of the UK.