

ITAC's Response to the Telecommunications Policy Review



August 2005

ITAC is the voice of the Canadian information and communications technology industry. Together with its affiliated organizations across the country, the association represents 1300 companies in the information and communications technology (ICT) industry in all sectors including telecommunications and Internet services, ICT consulting services, hardware, microelectronics, software and electronic content. ITAC's network of companies accounts for more than 70 per cent of the 566,000 jobs, \$130 billion in revenue, \$5.2 billion in R&D investment, \$20.7 billion in exports and \$11.5 billion in capital expenditure that the sector contributes annually to the Canadian economy.

OVERVIEW

i. The Information Technology Association of Canada (ITAC) is the voice of Canada's ICT industry. Together with affiliated organisations across the country, we represent 1300 companies in all sectors of the information and communication technology (ICT) industry. This network of companies accounts for more than 70 per cent of the 566,000 jobs, \$130 billion in revenue, \$5.2 billion in R&D investment, \$20.7 billion in exports and \$11.5 billion in capital expenditure that the sector contributes annually to the Canadian economy.

ii. This submission does not represent the views of any individual ITAC member, and indeed a number of them will be making their own submissions, but rather the collective views of Canada's ICT industry. ITAC's membership comprises an impressive range of enterprises, from small to large, that are key players in the increasingly interrelated Canadian telecommunication and information-technology sectors, including traditional and non-traditional service providers, and equipment, software and solution providers.¹

iii. Canada has long been a world leader in telecommunication. This is particularly important today because telecommunication and the ICT sector that it underpins are having an increasingly positive impact on personal, social and economic development. It is useful to stop and think how much our daily lives have been transformed by the widespread adoption of the internet, broadband and wireless over the last ten years. It is also useful to note, as does the Consultation Paper issued by the Telecommunications Policy Review Panel, that productivity in a modern economy is largely driven by investment in, and adoption of, ICT solutions.²

iv. The ICT industry expects to see more innovation in the next ten years than we have witnessed in the past ten years – with more impact on our lives and on our productivity. This means that deployment and adoption of advanced ICT solutions will be an even greater competitive differentiator than in the recent past.

v. This should be good news for Canada, in light of our advanced ICT capability and advanced telecom infrastructure. But there are instead troubling signs on the horizon. First, as noted in the Consultation Paper, Canada has been suffering a growing productivity gap, and resulting prosperity gap, compared to the United States and other advanced Western economies,³ and this appears to be correlated with a surprising gap in spending on ICT.

vi. At the same time, the global economy is undergoing an historic shift in knowledge work to developing economies such as India and China. While this can be a “win-win”

¹ See <http://www.itac.ca/Ourmembers/RegularMembers.asp>.

² See, for example, ITAC, *The Issue: ICT and Productivity*, March 2005, available at <http://www.itac.ca/Library/PositionStatements/05MarIssueICTandProductivity.pdf>.

³ See ITAC's presentation to the Standing Senate Committee on Banking, Trade and Commerce, May 2005, available at <http://www.itac.ca/Library/ITACSpeeches/05May11BAC.pdf>.

for both developing and developed economies, as the United Nations Committee on Trade and Development has pointed out,⁴ a focused national strategy will be required if Canada is to succeed in this emerging environment.

vii. Canada needs a wake-up call and a national strategy to ensure that we seize the opportunities, enhance our competitiveness and secure our future prosperity – much as countries like Ireland have been doing so successfully. In Canada's case, with our favourable ICT capability and under-spending on ICT, it will be logical to put two and two together and anchor a national strategy on aggressive deployment and use of innovative ICT solutions throughout our economy.

viii. ITAC is pleased that policy-makers are paying increasing attention to the need to step up our productivity. (See, for example, a June 21 speech by Finance Minister Goodale,⁵ and the June 2005 report of the Standing Senate Committee on Banking, Trade and Commerce.⁶) In the words of Industry Minister Emerson:

The application of information, computing and telecom technologies represents the most significant singly source of productivity and competitive improvement in the world today. Aggressive application of these general-purpose technologies will be essential if we are to elevate the competitive performance of the Canadian economy.⁷

ix. In ITAC's view, the number one priority for Canada today, and the number one priority for this review of telecommunication policy, is addressing the need for a national strategy to address this fundamental competitive challenge, failing which we will simply not have the means to adequately address our other national priorities.

x. Viewed in this light, the third area of the Panel's mandate, ICT adoption, is of overarching importance. The other two areas should be approached from this perspective as part of a national strategy for global competitive success based on world-leading adoption of innovative ICT solutions – namely, to make regulation smarter and to finish the job of rolling out access to broadband for all Canadians.

⁴ *Offshoring – At The Tipping Point?*, September 2004, available at

<http://www.unctad.org/Templates/webflyer.asp?docid=5436&intItemID=1465&lang=1>

⁵ Speech to the Economic Club of Toronto, June 21, 2005, available at

http://www.fin.gc.ca/news05/05-043_1e.html.

⁶ *Falling Behind: Answering the Wake-Up Call – What Can be Done to Improve Canada's Productivity Performance* (June 2005). Available at <http://www.parl.gc.ca/38/1/parlbus/commbus/senate/com-e/bank-e/rep-e/rep15jun05-e.htm>.

⁷ Speech to the BC Chamber of Commerce, May 27, 2005, available at

<http://www.ic.gc.ca/cmb/welcomeic.nsf/503cec39324f7372852564820068b211/85256a5d006b97208525700e0051b2b1!OpenDocument>.

ITAC's answers to the many questions posed by the Telecommunications Policy Review Panel are shown in the pages that follow. In a few cases we have merged two or more questions and answered them together; in other cases we have not provided an answer at this time but may at the next stage of the consultation process.

A. THE CHANGING TELECOMMUNICATION ENVIRONMENT

1. Forces Shaping the Future

A.1 Comment on the technological developments described above and provide your views on how telecommunication and ICT will change over the next ten years.

1. The application of science and technology is inherently disruptive and cyclical; the impact of each of the four technology waves of the last 50 years – driven by the silicon-based integrated circuit, the microprocessor, the personal computer and the internet – has been greater and more immediate than its predecessor. In 2004, an ITAC paper entitled *Technology and Innovation are Here to Stay* made the point that technology is a growing force that we need to understand better if Canada is to grow and prosper in a highly competitive global economy.⁴

2. It is important to emphasise that the extremely powerful transformational potential of the combination of telecom, internet protocol (IP), broadband and wireless has not yet been fully realised. While we may think we have a handle on what will happen in technology over the next three to five years, it is impossible to predict ten years out. What we can say with certainty is that the most important task is to make sure that Canada is in a position to respond effectively – and thrive – in the face of whatever comes our way.

A.2 Comment on the potential for different networks (i.e., wireline telephone and cable networks, terrestrial wireless, satellite and hybrid networks) to carry existing and new ICT applications. Provide any relevant information on the infrastructure costs, bandwidth, security, reliability and other features of such networks.

3. Each network type has inherent advantages and disadvantages, but all will offer increased bandwidth over the coming years. Based on what has been happening in recent years, ITAC expects that the network types are all likely to continue leapfrogging ahead of each other in the future.

A.3 Are "one pipe, multiple applications" networks likely to become the primary means for ICT applications to be provided to Canadians? If not, why not?

4. ITAC understands that the term "one pipe" has been used because the ideal is that the various services will interoperate so seamlessly and transparently that the public will see them as being provided through a single pipe. Nevertheless, the term is dangerous

if it causes policy makers or regulators to overlook the fact that those services will in reality be offered by competing providers, none of which will have a monopoly. It is also important to remember that the implementation of a seamless front will have involved a great deal of very expensive and onerous work behind the scene to perfect and mesh technologies and business processes.

5. It may be more helpful to think in terms of “one service, multiple networks and devices”, the key being that customers will have consistent services across all networks. Pipes will not be commodities but intelligent networks that provide valuable services, and investment decisions will have to reflect the fact that they will compete with each other on that basis. The decoupling of networks and services will result in a diversity of business models, because service providers will be able to offer packages of services riding on top of networks.

6. ITAC would also emphasise the increasing importance of mobility and multimedia technologies. Canadians will be offered, and will expect to receive, a full range of telecom services wherever they happen to be. IP already allows a person from, say, Ottawa to travel with his or her television and watch local Ottawa TV while in, say, Vancouver.

A.4 Are there likely to be multiple IP network providers offering service to the home, business and public sector? If so, how many and which types of network providers are likely to be providing service to each market? If not, which types of network providers are likely to serve each market and with which technologies?

7. There is likely to be a multiplicity of competing network providers carrying a still greater multiplicity of competing services to homes, businesses and the public sector. In an IP world, traditional market forces will force the provision of competing networks to carry the competing services.

A.5 Is the Canadian competitive environment in telecommunication likely to evolve into a form of duopoly (i.e, incumbent local exchange carriers (ILECs) versus cable companies)? If so, what would be the implications for the telecommunication and ICT markets? What would be the implications for the regulatory framework?

8. Given the foregoing, a duopoly seems most unlikely. However, it must be said that Canada’s array of facilities-based telcos and cablecos has been a great boon to this country, bringing a full range of telecom services to virtually all Canadians despite our challenging geography.

A.6 Is vigorous inter-regional competition by ILECs and cable companies likely? Please explain the basis for your views.

9. Yes, but this is ‘old think’. ‘Regional’ has little meaning in a world where, with IP telephony and wireless, a telecom service provider can compete wherever it chooses to

across the country and even around the globe. ITAC fully expects that vigorous competition, involving a variety of technological platforms, will get the job done.

A.7 Assuming a "one pipe, multiple applications" environment does evolve, describe the effect of this environment on the market position of existing service providers (e.g., ILECs, cable companies, wireless service providers, Internet Service Providers, et cetera) and any new entrants.

10. The competitive landscape is likely to feature several competing IP network providers, some with telco roots, some with cableco roots and some with satellite and wireless roots – especially those serving rural and remote areas. There will also be non-traditional players like the telecom arms of municipal and provincial electrical utilities, and non-traditional technologies such as IP over powerlines.

11. Furthermore, there is no technological barrier to the Ford Motor Company, which has announced its intention to build its own fibre network, deciding to lease some of its capacity to telecom service providers, or even of offering services directly to consumers. Or perhaps Wal-Mart, which is already said to be the world's largest non-carrier telecom enterprise, will identify ways to offer services directly to consumers via the company's telecom facilities.

12. Some companies will be integrators of a variety of a wide range of services carried over company-based networks (rather than technology-based networks). Others will choose to be niche players though they too will be able to offer a range of services. The point to remember is that the competitive environment will be much more dynamic. Fortunately, Canada is in a better position than most countries because we already have a multiplicity of networks and players in place to serve both individuals and businesses, and can claim to be a leader in broadband, IP and wireless.

A.8 Comment on the need for ongoing financing of advanced and legacy network infrastructure in Canada and on how such funding should be obtained by network providers in a "one pipe, multiple applications" environment. Since VoIP and other advanced ICT services may be provided separately from access networks, how should network infrastructure be financed in the future?

13. The size of the investment challenge is daunting, but market forces can be counted on to make the necessary financing available – provided government does not intervene in ways that impede potential revenue flows or otherwise distort the market.

A.9 Provide any other comments on the implications of IP and other new technologies for the Canadian telecommunication and ICT sector that the Panel should take into account in developing its recommendations.

14. As the basis of interoperability, the real importance of IP is that it effectively removes international borders (not to mention provincial, regional and territorial

boundaries) and enables the decoupling of infrastructure provision from service provision.

A.10 Comment on the development of wireless services in Canada over the next ten years and the implications for Canadian productivity, competitiveness and social benefits.

15. While it is impossible to predict ten years out, as noted above, we do know that wireless technologies have been shown to significantly enhance productivity – including in health-care and social-services settings. Wireless service in Canada is already very good, with the three national carriers reaching 93% of Canadians. With the availability of additional spectrum and capacity (both fixed and mobile), service providers will be able to offer additional value, leading to increased adoption and productivity.

A.11 Please add any comments on the evolution of telecommunication networks or the telecommunication industry structure over the next ten years that the Panel should take into account in developing its recommendations.

16. ITAC offers four comments here:

- IP will make everything ‘international’ eventually.
- Networks will have intelligence built into them, as stated above. One key focus of such intelligence will be security.
- Intellectual property protection will be increasingly important, as network providers will seek strong protections for the intelligence that they will have engineered into their networks.
- Mobility (not just cellular) will be a driving force in network provision in coming years, as users will expect services to be delivered to them seamlessly wherever they happen to be.

B. THE REGULATORY FRAMEWORK

1. Policy Objectives

B.1 Should the policy objectives set out in section 7 of the *Telecommunications Act* be changed? If so, what should they be?

17. When we read the nine objectives of the *Telecommunications Act* today, it is striking how anachronistic they appear – which is not surprising considering they are essentially pre-competition, pre-internet and pre-convergence:

- The first (“to facilitate the orderly development ...”) is the polar opposite of the sixth (“to foster increased reliance on market forces ...”).
- The second (“to render reliable and affordable telecommunications services ...”) and eighth (“to respond to the economic and social requirement ...”) largely overlap.
- The third (“to enhance the efficiency and competitiveness ...”), fourth (“to promote the ownership and control ...”) and fifth (“to promote the use of Canadian transmission facilities”) are largely irrelevant in today’s market.
- The need for the ninth (“to contribute to the protection of the privacy of persons”) has been superseded by PIPEDA.

18. In ITAC’s view, the objectives need to be replaced with a small number of very clear objectives that reflect an awareness that Canadian companies must have the ability to compete on the international stage. The market and consumer choice can be relied on to a much greater extent than in the past, and regulation – to the extent that it exists – should focus on promoting competition. We see the policy as including the following elements:

- Affirmation of the value of telecom to Canada’s social and economic development.
- Promotion of the availability and use of advanced telecom solutions in Canada.
- Promotion of investment and innovation in Canadian telecom.
- Reliance on market forces to achieve public-policy objectives.
- Regulation only when necessary, and in a manner that interferes least with market forces.

B.2 How detailed should the telecommunications policies set out in the *Telecommunications Act* be and, conversely, how much discretion should be left to regulators such as the CRTC and Industry Canada?

19. Today the industry needs a policy environment that is aimed strategically at achieving productivity and prosperity rather than managing and regulating an industry sector. Companies need to be free to conduct business as they see fit within a framework of laws of general application, a clear but limited set of telecom policies, and circumscribed regulatory oversight.

20. Regulatory objectives should certainly be simpler, more modern and more pertinent to today's dynamic environment. Consideration should be given to a single set of objectives that would apply both here and in spectrum management for wireless.⁸

2. Economic Regulation

21. ITAC commends the Panel on making distinctions between economic regulation, social regulation and technical regulation.

B.3 What should be the overall objectives of economic regulation?

22. ITAC is encouraged by signs that Canada is moving away from traditional economic regulation – even if there is still a role for economic regulation in some areas, such as basic local services. In the past, regulation of price and quality was put in place as a substitute for competition at a time when telecom was considered to be a natural monopoly. In a world of extremely dynamic market forces, there is no need for economic regulation beyond that applying generally across the economy – except in the transition to competitive market outcomes in those sectors of the telecom industry where it is required.

B.4 Are the two main principles of economic regulation set out in the *Telecommunications Act*, namely "just and reasonable rates" and "no unjust discrimination", still appropriate? If yes, should they be further clarified in legislation or in other statements of regulatory policy? If not, how should they be modified or replaced?

23. These terms will have no meaning where market forces operate in a competitive and forborne market, with two caveats that will apply to a narrowing set of circumstances:

⁸ See discussion of objectives in Industry Canada, *Consultation on a Renewed Spectrum Policy Framework for Canada and Continued Advancements in Spectrum Management*, May 2005 – available at [http://strategis.ic.gc.ca/epic/internet/insmt-gst.nsf/vwapj/spfconsultation2005-e.pdf/\\$FILE/spfconsultation2005-e.pdf](http://strategis.ic.gc.ca/epic/internet/insmt-gst.nsf/vwapj/spfconsultation2005-e.pdf/$FILE/spfconsultation2005-e.pdf).

- The way the market is going, companies will have to run over the facilities of others in order to reach customers; there will need to be the possibility of redress if they are unjustly impeded in efforts to do so.
- To the extent that regulation continues to influence the flow of funds to service providers, there must be a right to a fair return.

24. The two terms may continue to have a role for some time in some areas, such as basic local services, interconnection and unbundled facilities.

B.5 Is the regulatory framework developed by the CRTC appropriate in areas of economic regulation such as protection of retail customers, prevention of anti-competitive practices, prevention of undue price discrimination, and availability and quality of service? If not, what changes should be made? Should other areas be subject to economic regulation?

25. Much of the world is moving away from economic regulation in telecom, and Canada should be among the leaders in adopting a regulatory model that reflects the new competitive landscape and tends towards reliance on competition laws that apply across the economy. To the extent possible, companies should not be subject to double regulatory jeopardy – that is, regulation by both the CRTC and the Competition Bureau. As noted above, Canada has a very strong telecom market and oversight will be increasingly better suited to the Competition Bureau. That said, regulation of many complex technical matters will best reside with the CRTC, and the CRTC should retain responsibility over interconnection, access and social issues.

B.6 Should economic regulation ever be re-imposed on carriers or services that have been deregulated? If so, what principles and tests should be used to come to such a determination?

[and]

B.7 If economic regulation of telecommunications markets remains necessary, what form should it take? Is the present mix of price cap regulation, service-specific cost-plus-markup regulation, and other CRTC approaches appropriate? Would other regulatory mechanisms be preferable?

26. The marketplace is rapidly evolving to the point where price-cap and markup regulation will soon serve no useful purpose. Canadian regulators must recognise this, put in place a modern regulatory framework, and prepare a transition plan of decreasing regulation. In the end, the telecom sector should be governed by the same laws and regulations that apply to other industries, e.g., laws against anti-competitive behaviour. ITAC considers it highly unlikely that we would ever have to go backwards because of a severe and permanent market failure, but any regulation in that event must be as light as possible under the circumstances.

B.8 If a service is sufficiently competitive at the retail level (i.e., in the market for end users) to warrant deregulation, is there a continuing need to regulate the wholesale services and facilities underlying the service? If so, under what circumstances would such regulation be required, and what form should it take?

[and]

B.9 If a service is not sufficiently competitive at the retail level to warrant deregulation, to what extent can regulation of the underlying wholesale services and facilities be relied upon as a substitute for direct regulation of the retail service?

27. A move to regulate wholesale prices will distort the market, just as regulation of retail does. Broadband is a huge success because it is a competitive market that has been left unregulated at the retail level, and regulated lightly at the wholesale level despite constant pressure to do otherwise. Experience with unbundled local loops and UNEP tariffs in the US has shown that regulatory intervention at the wholesale level to create competition in the retail market has been a failure, has distorted the market and has harmed investment and innovation.

B.10 When should telecommunications markets be subject to *ex ante* and when to *ex post* regulatory intervention? What criteria should be used to determine the choice of method of regulation?

28. Because *ex post* regulation interferes less with market forces, there should be a tendency in that direction, taking into consideration the nature of competition in specific market segments.

B.11 Are changes required to the present regulatory regime to provide economic incentives for ILECs, cable companies, wireless service providers and others to expand, upgrade and maintain the capabilities of Canada's basic access networks? If so, what specific changes should be introduced?

29. Regulation should not discourage investment in infrastructure, i.e., there needs to be the prospect of an economic return, and even above-normal profits, to a company incurring substantial economic risk in investing to upgrade its infrastructure. Service providers must find their own flows of funds, and it is difficult enough for them to identify the right business model without also having to deal with unnecessary regulation.

B.12 Should the ILECs continue to be required to provide their regulated services to any potential customer on demand? If so, is a new regulatory framework required to finance this obligation to serve?

30. There should not be an obligation to serve that is imposed only on the ILECs. Rather, consideration should be given to an incentive-based regime, funded out of

general tax revenues, that is designed to encourage any service provider to provide service where it is needed.

B.13 Are changes required to the contribution regime or other aspects of the regulatory framework that subsidize delivery of telecommunication services in high-cost areas?

31. ITAC believes that an open marketplace will provide the vast majority of Canadians with access to telecom facilities and services at reasonable cost. Canada should continue in the mindset of reducing and focusing subsidies in services. To the extent that subsidies continue in some form, they should be funded out of general tax revenues, in recognition of the fact that delivery of telecommunication services in high-cost areas has a value across all of Canadian society.

3. Technical Regulation

32. ITAC would not want to see a movement into technical regulation that would have the effect of undoing the benefits of a decrease in economic regulation.

Rights-of-way, Support Structures and Inside Wire

B.14 Should section 43 of the *Telecommunications Act* be amended to provide the CRTC with greater jurisdiction over access to rights-of-way and support structures by Canadian carriers?

33. ITAC does not propose major changes to the current regulatory regime in this area, which works reasonably well under the circumstances. However, the CRTC should be given jurisdiction over hydro poles.

B.15 Should the CRTC be granted powers to order access to multi-unit buildings for the purpose of installing or providing access to in-building wire? If so, please describe the nature and extent of such a power, including proposed legislative wording. If not, please explain whether the current situation is acceptable or whether an alternative approach would be preferable.

34. The current regulatory regime in this area works reasonably well under the circumstances. However, because it may be challenged in court, the CRTC should be given explicit powers to regulate building access.

B.16 Should any other changes be made to the regulatory framework governing access to rights-of-way and support structures?

35. ITAC does not propose any changes to the current regulatory regime in this area, which works reasonably well under the circumstances.

Network Interconnection and Access to Facilities of Dominant Carriers

B.17 Should any changes be made to the regulatory framework for interconnection?

36. The regulatory framework should encourage companies, as private parties, to negotiate interconnection arrangements without needing regulatory approval – failing which the regulator could step in to resolve disputes.

B.18 Is CISC an efficient mechanism for developing interconnection standards? Should any changes be made to CISC's mandate and process?

37. CISC is a useful mechanism, and will continue to be so as long as there are technical questions to be resolved.

Spectrum**B.19 What steps, if any, should be taken to enhance the effectiveness of Canada's participation in international spectrum and standards organisations?**

[and]

B.20 Given the inevitable implications for Canada, should the Federal Government and industry groups participate more in the United States' spectrum and standards policy and regulatory processes?

38. In industry-government discussions around lawful access to electronic communications, ITAC and others have proposed a reliance on international standards (i.e., US or EU standards in this case). If a standards-based approach were to be adopted, Canadian telecom equipment manufacturers and carriers of all types would have a strong interest in being involved in standards development.

39. The Canadian industry would also have a strong interest in seeing changes to national and international spectrum policies that reflect recent technological developments. As a result of newer technologies, there is reason for government agencies to look into releasing currently unlicensed spectrum for use, and permitting the reuse of spectrum.

B.21 Should regulation of spectrum, technical standards, interconnection, numbering and other technical matters be unified under a single regulatory authority? If so, which authority, and under what conditions?

40. ITAC's view is that while this may sound logical, the current arrangement is not broken – so doesn't need to be fixed.

Telecommunication Equipment

B.22 Should regulation of telecommunication equipment and devices be consolidated under one regulatory authority? If so, which authority should be granted jurisdiction over this aspect of technical regulation and why?

41. The current regulatory regime in this area works well, and ITAC does not propose that it be altered.

B.23 Does TAPAC still serve a useful role? If so, should any changes be made in its mandate or process?

42. Rather than a reliance on Canadian initiatives such as TAPAC, there should be a concerted move towards the use of continental standardisation mechanisms, as per the Security and Prosperity Partnership agreement among Canada, the United States and Mexico.

Numbering

B.25 Should the regulatory framework for numbering be changed? If so, how and by whom should telephone numbers be administered?

43. ITAC does not propose any changes to the current regulatory regime in this area, which works reasonably well under the circumstances.

B.26 Over the next ten years, is there likely to be a new method of assigning addresses to telecommunication devices which would replace traditional numbering? If so, what might that method be, who should administer it, and how?

44. As a change over the next ten years seems unlikely, assignment of addresses to telecommunication devices is not the most pressing issue for the Panel to consider.

4. Social Regulation

ITAC would not want to see a movement into social regulation that would have the effect of undoing the benefits of a decrease in economic regulation.

B.27 What policies should be adopted to ensure the maintenance of basic telecommunication services to remote areas? Are additional policies needed to ensure affordability?

[and]

B.28 Should additional measures be taken to ensure provision of services for the full range of Canadian consumers, including disabled consumers, that are suitable in terms of price, quality of service and selection? If so, how should these be funded?

45. As technology continues to evolve, an increasing diversity of telecom services will become available to residents of all parts of Canada and to people with special needs. Competition and private investment will work to best ensure the levels and kinds of access to services that people need and want, including those that come to be seen as essential. Public funds can play an important role in stimulating investment in research and development of further technological improvements.

46. Regulatory intervention is likely to be unnecessary, with requirements met by the private sector within a competitive environment, but any government measures to address gaps should be done in a manner that is least disruptive to the operation of the market. Social regulation can play a role in redressing the situation where market outcomes fail to deliver access to essential services to those that require it, so long as the regulatory requirements are made to apply to all telecom service providers.

B.29 Are other measures required to protect consumers in light of technology and industry changes to deal with quality of service, fair contract conditions, effective redress and access to accurate and comparable marketplace information?

[and]

B.30 What should be the roles of the CRTC, Industry Canada, the Competition Bureau and consumer protection agencies in dealing with consumer protection and other social regulation issues?

47. ITAC would prefer to see such matters dealt with by the Competition Bureau and the Office of Consumer Affairs – though they may need to be allocated additional resources to deal with added responsibilities. Social issues, such as 911, would continue to be dealt with by the CRTC.

B.31 Are changes required to the regulatory approach to protection of privacy in relation to telecommunication services, as it is currently administered by the CRTC and the Privacy Commissioner?

48. ITAC recommends that responsibility be moved to the Office of the Privacy Commissioner. It is questionable public policy to have two overlapping laws – one applied generally and the other to a particular sector. There should be just one – PIPEDA.

B.32 Are other changes in the Canadian telecommunication policy and regulatory framework warranted in order to protect the interests of Canadian consumers?

49. The administrative changes proposed by ITAC are not intended to affect the level of protection of the interests of Canadian consumers. Instead, they are designed to modernise the regulatory model in Canada to reflect the new competitive landscape.

C. REGULATORY INSTITUTIONS

50. ITAC envisages a transition towards less and less regulation in the telecom market. We therefore see no need for a substantial overhaul of sector-specific regulatory institutions.

1. The Government Role in Telecommunication Markets

C.1 Is the allocation of governance and operational functions outlined above (i.e., policy development and law making, regulation, and network operation and service provision) appropriate for Canada? If so, is it being properly applied under the current regulatory framework? If not, please describe the preferred allocation of functions.

[and]

C.4 How should policy-making powers be distributed among federal government institutions?

[and]

C.10 How should rule-making powers for the telecommunication sector be distributed among federal government institutions?

51. In ITAC's view, the key to economic regulation in the telecom sector is a transition towards a reliance on market forces alone, subject to rules that apply generally across the economy. (Please see responses to B.5, B.7, B.30 and B.31 regarding the roles the Competition Bureau and the Privacy Commissioner should play in a modernised regulatory framework for telecommunication.) However, it may be necessary to maintain a sector-specific approach to social and technical regulation for at least the foreseeable future – even if it is sometimes difficult to separate economic, social and technical regulation.

C.2 Should general competition law principles have a role in the regulation of the telecommunication sector? If so, to what extent should the provisions of the Competition Act apply and to what extent should sector specific regulation continue to be applied?

[and]

C.3 Taking into account the experience of other jurisdictions, what is the best regulatory framework for the application of competition law principles to the telecommunication sector?

52. The principles of competition law should apply to the telecom sector to the same degree, and in the same way, as they apply to other sectors, subject to comments

above (see B.3, B.4) regarding the need to complete the transition. There also needs to be a recognition that in some cases, especially when considering how best to service remote and small areas, it may be preferable for competing telecom companies to explore collaborative approaches; they should be free to do so in such circumstances.

Policy making

C.5 Should steps be taken to make Canadian telecommunication policy more explicit, transparent and accessible? If so, how? Alternatively, is it better to retain the flexible and *ad hoc* policy-making mechanisms currently in place.

[and]

C.7 Should the Government take measures to encourage independent telecommunication policy research and analysis in Canada? If so, what measures would be appropriate?

[and]

C.8 Should there be mandatory periodic reviews of Canadian telecommunication policy and regulation? If so, by whom, how often and how should such reviews be conducted?

[and]

C.9 Should there be any other changes to the telecommunication policy-making process in Canada?

53. ITAC envisages less regulation in the future, so we don't see a need for major institutional change, although the respective roles of the Competition Bureau and the CRTC will need to be clarified. There should, however, be a general move towards greater clarity in the regulatory treatment of existing technologies, and a regular review of telecom policy and regulation (every five years) to ensure that the regime is able to deal with new technologies. A body similar to this Panel should conduct the reviews, and should have the authority to fund research that is deemed necessary to complement other sources.

C.6 Should the federal Cabinet retain both the power to issue policy directions to the CRTC and the power to review CRTC decisions? Should changes be made to either power?

54. ITAC is of the view that Cabinet should retain both powers, which we see as being sufficient.

Authorisation

C.12 Are there problems with the current authorisation regime? If so, please provide suggestions on whether and how it would be possible to reduce the number and type of authorisations required to enter telecommunication businesses and expand telecommunication infrastructure.

55. There should be a minimum of authorisations if Canada is to have the benefit of competition and expanded infrastructure provided by as many players as possible.

Enforcement

C.13 Taking into account the status of Bill C-37 (which would give the CRTC power to levy fines or 'administrative monetary penalties'), please comment on the need to change the enforcement powers of Canada's telecommunication regulators, the CRTC and Industry Canada.

56. The regulatory framework will have to incorporate sufficient deterrence mechanisms, and Bill C-37 is a model to consider.

C.14 Should the enforcement function be separated from the rule-making function (e.g., assigned to different institutions - or to independent offices within the same institutions)?

57. While ITAC does not suggest that separate institutions be created, we believe that steps should be taken to ensure due process and appropriate checks and balances.

Dispute Resolution

C.16 Should a separate institution or an independent office within an institution be established for dispute resolution and, if so, what should be the extent of its powers?

[and]

C.17 If the CRTC retains its dispute resolution powers, should it be granted the power to award damages? Alternatively, should the court's powers to award damages in telecommunication disputes be increased (e.g., punitive damages) to ensure litigation can be an effective alternative to detailed regulation?

[and]

C.18 What measures should be taken to clarify the jurisdiction of the various institutions with dispute resolution powers in the area of telecommunication?

[and]

C.19 What measures should be taken to simplify and expedite the process for dispute resolution at the CRTC or at Industry Canada?

[and]

C.20 Should the current dispute resolution regime for telecommunications matters be modified in any other way? If so, how?

58. ITAC is in favour of alternative dispute resolution mechanisms in the regulatory framework. Indeed, the framework should provide incentives for private parties to negotiate disputes first, failing which resort could be had to the alternative mechanisms. In this regard, the CRTC should also be encouraged and given the ability to delegate the dispute resolution function to arbitrators, where appropriate, in order to streamline and expedite the process. The expedited hearing process already used by the CRTC has proved helpful in certain circumstances, as has that employed in the transportation sector.

2. The Implications of Convergence

C.22 Please provide comments on the nature and extent of convergence as a technological and industry trend and propose any changes to Canadian telecommunication regulatory framework that should be made to ensure this framework can cope adequately with technological changes.

59. ITAC suggests that both telecom and broadcasting sides of the CRTC be involved in decisions on certain matters where appropriate, keeping in mind the growing convergence between the sectors. Also, while the Panel is charged with looking into telecom, not broadcasting, we note that changes in both technology and the marketplace suggest that a review of broadcasting policy will be required in the near future. As noted above, new internet technologies already allow mobile reception of local TV, and an increasing number of converged devices can be expected to become available in the near future – all demanding more flexible regulatory mechanisms.

3. Enhancing Regulatory Efficiency and Effectiveness

C.24 What steps, if any, should be taken to improve the efficiency and timeliness of CRTC and Industry Canada regulatory processes? Please identify specific measures which should apply to each type of regulatory process, such as tariff applications, carrier disputes, spectrum-related regulation, customer complaints, etc.

[and]

C.25 Should the issue of regulatory efficiency and timeliness be left to the internal management of the regulators, or should specific rules be set out in telecom policy or laws? If the latter, what should those rules be?

60. While ITAC does see the importance of a movement out of regulation within the Panel's timeframe, it is also clear that there will be a transitional period during which remaining regulation will have to be conducted with great sensitivity to the dynamic realities of the marketplace. The CRTC is to be commended for its move towards much quicker response times in recent months. ITAC would suggest that consideration be given to a date-centred approach in formal proceedings, though we would not want to see bad decisions, such a default to 'No', in the face of a hard deadline imposed by legislation or regulation.

C.26 Should structural or operation changes be made in the CRTC to improve the effectiveness and efficiency of its regulatory process? For example, would a reduction in the number of Commissioners at the CRTC help to streamline regulatory decision-making? Should there be changes in the appointment process for CRTC Commissioners? Should the CRTC's policy and rule-making functions be separated from its enforcement and dispute-resolution functions?

61. ITAC suggests that consideration be given to specialised telecom and broadcasting panels that would have responsibility for determining telecom and broadcasting issues, respectively. In cases that raise issues with implications for both the telecom and broadcasting sectors, mixed Commissioner panels could be constituted. In addition, Commissioners should be encouraged to sign their names to their decisions in order to increase transparency.

C.27 Would the outsourcing of specific tasks by the CRTC (e.g., alternative dispute resolution) or Industry Canada (e.g., spectrum monitoring and management) improve efficiency? If so, which tasks should be outsourced? How would the outsourced tasks be funded?

[and]

C.28 Do the current circumstances of telecommunications regulation warrant different approaches to employing human resources to more effectively regulate the industry? Should the CRTC budget be increased? Should it be treated like a special operating agency, and thus separate from Canadian Public Service Commission policies?

62. There is no question that the CRTC should have resources it needs to do its job, though its resource requirements can be expected to decrease as its responsibilities are scaled back. Outsourcing may be an effective way to build flexibility into the system during the scale-back period. ITAC would agree with the notion that alternative dispute resolution, as discussed above, is one example of a task that might usefully be outsourced. As for separation from the Canadian Public Service Commission, ITAC would suggest that consideration be given to making the CRTC a special operating agency (the creation of the CCRA being a good recent model).

C.29 Do the CRTC and Industry Canada require further legal powers to regulate more effectively? If so, what specific powers should be granted?

63. In ITAC's view, the regulators do not require further legal powers beyond the deterrence mechanisms mentioned above (see answer to C.13).

D. CANADA'S CONNECTIVITY AGENDA

D.1 What is the current status of access to broadband and advanced ICTs in Canada? Is this situation likely to improve or deteriorate with the introduction of new technologies? Specifically what emerging technologies will increase or decrease the gap experienced by unserved and underserved communities, and in what time frame?

64. Canada has an enviable record in access to broadband and advanced ICT, though Korea and other countries have edged ahead of us. (All have population densities that are orders of magnitude higher than ours.) Still, access to broadband is so key to social and economic development that it is imperative that we finish the job of providing access to all Canadians. With the progress that has been made to date, and the availability of advanced technologies such as Ka-band satellite, wireless mesh and wi-max, the cost of finishing the job should be reasonable.

D.2 Is government or regulatory intervention required to expand Canada's telecommunication network connectivity – or should this be left to the market? Given the level of competition in the broadband access market, as well as the fact that new access and IP technologies are reducing costs for consumers and improving the business case for service providers, is government or regulatory intervention still required?

65. Government must be careful to distinguish between access and uptake, so that a lack of uptake of advanced services by consumers is not misinterpreted as a lack of choice and a reason for government to step in. Government has a role only when the market has not responded in the face of clear consumer demand. If problems are identified, ITAC strongly recommends that government explore infrastructure-funding mechanisms rather than regulatory mechanisms, which act as disincentives to private-sector initiatives.

D.3 If government or regulatory intervention is warranted, why, and in what types of markets is it required (e.g., what specific types of remote, rural, lower income, aboriginal communities or communities within some proximity to urban centres that are currently still unserved)? What types of social and economic benefits justify such methods?

[and]

D.4 How effective have Federal Government initiatives been to date in improving access to broadband for communities, businesses, citizens and public institutions?

66. Since the days of the National Broadband Task Force, substantial progress has been made by private-sector, federal and provincial initiatives to improve broadband access. Examples include the federal government's BRAND initiative, NetWork BC

(involving Telus and the provincial government), Alberta SuperNet (involving Bell West and the province), SaskTel's CommunityNet project, Project Chapleau in northern Ontario (launched recently by Bell Canada and Nortel) and the National First Nations Network (designed by Telesat).

D.5 What specific policies and/or fiscal and/or regulatory measures are needed to provide affordable broadband access to all communities? Given the political challenges of obtaining government budget allocations for expansion of telecommunication network connectivity, what other government or regulatory funding initiatives should be considered? For example, should there be a tax subsidy mechanism? An auctions based mechanism? Should services be subsidized through the CRTC's contribution regime? If so, what would be the extent to which the mechanisms are applied and/or the appropriate level and conditions of subsidy?

67. Current access levels in Canada are impressive, and government deserves a great deal of credit for its role. But it should now be looking at how to finish the job and step out of the way, rather than impose a regressive industry-based tax to fund broadband (e.g., through the use of "contribution"). Satellite, cable over phone wires, and internet over powerlines are all newer technologies that will help decrease the gaps that do exist; costs will be less onerous, and public funding can be limited to topping up to make the business case work on an accelerated basis in some instances.

D.6 Should consideration be given to expanding the definition of universal service for regulatory purposes, to include specific broadband connectivity? If so, should other services be added to the definition of regulated universal services? What is "an appropriate level of access to modern telecommunications services" for all Canadians?

68. In ITAC's view, there is no need to tinker with definitions or look for new mechanisms to accomplish this, especially as the direction should be towards eventual removal of universal-service obligations as additional competing services and additional market-driven means of access become available to all Canadians. As ITAC stated in a submission to the CRTC in 1999:

Fundamentally, ITAC believes that service providers should not be encumbered with social and administrative functions that are properly the function of government. Subsidies to ensure access should be administered by government, and paid from general tax revenues rather than the revenues of service providers. [...]

ITAC believes that use of broad-based tax revenues as the funding base for subsidies most equitably reflects a recognition that society as a whole

[...] benefits from universal access to basic telecom services, including the internet.⁸

D.7 If policy, fiscal or regulatory changes are required to achieve the goal of expanding the level of advanced access (e.g., broadband to every community), what is the net cost to achieve this goal (i.e., what is the difference between the expected costs and the revenues which would be expected to be generated from the services)?

[and]

D.9 If policy, fiscal or regulatory changes are required, in what time frame and in what manner should the government achieve this goal?

69. The deployment of broadband infrastructure in rural and remote communities has lagged – in part because installation of the necessary facilities has been very expensive and the potential return on investment uncertain. As noted above (D.5), newer technologies will help considerably. A recent study done for Bell Canada suggests that the cost of subsidising most of the Canadian households that cannot currently receive broadband via traditional means may be eliminated altogether if sufficient time (i.e., five or six years) is allowed for known technologies (e.g., wi-max) to be built out.⁹ In addition, the roll-out of Ka-band service via satellite can be expected to carry broadband to remote communities at rates that should not require subsidy.

D.8 What should be the roles of the various stakeholders – the private sector, CRTC, federal and provincial governments, non-profit organizations, and communities themselves – in bridging Canada's broadband divide?

70. As noted above, ITAC sees bridging the digital divide as a societal responsibility that should be funded by government rather than by the telecom carriers and their customers. The private sector will of course work with public-sector partners to build the necessary facilities, and will provide a wide range of services via those facilities. It is not clear to ITAC what the CRTC's role might be – if indeed there is one.

D.10 To what extent will the provision of an advanced telecommunication infrastructure drive the adoption of advanced information and communication services by Canadian consumers and businesses? Is there a role for government to play in the adoption of these services and technologies?

71. ITAC sees a number of important roles for government:

- Government needs to ensure funding for the application of ICT to education, health-care and environmental initiatives across Canada.

⁹ *Review of Contribution Collection Mechanism and Related Issues* (Telecom Public Notice CRTC 99-6), November 1999, available at <http://www.itac.ca/Library/PolicyandAdvocacy/InformationInfrastructure/99Nov25CRTC.pdf>

- Government will continue to be an important player in educational and promotional efforts to show Canadians how they might benefit from the use of ICT in their own activities.
- Government must continue to deploy ICT to extend the reach of its programs and services to Canadians.
- There is an important need for government to promote ICT adoption by Canada's business and public sectors (as explained further in section E, below).

E. MAKING THE MOST OF TECHNOLOGY

E.1 What is the relationship between investment in ICT and productivity? In particular, in what industries does investment in ICT increase productivity? Under what circumstances does this occur? Can there be negative consequences for productivity as a result of increased investment in and reliance on ICT?

72. Starting with a 1997 study conducted for ITAC and Industry Canada,¹⁰ there has been increasingly broad acceptance that investment in ICT is a horizontal enabler that increases productivity in sectors across the entire Canadian economy – finance, automotive, retail, forestry, etc. (See also the recent ITAC paper, *The Issue: ICT and Productivity*.¹¹) In individual instances where results have been less positive, failings have been a result of organisations not retraining staff or amending business processes to suit the new technologies.

E.2 Does the relationship between ICT and productivity justify a Government policy supporting increased ICT investment? If so, what government measures would be appropriate?

73. Given the importance of ICT adoption to Canada's competitiveness and prosperity, the government should develop a national strategy with a set of objectives and specific actions to drive ICT investment and adoption by the public sector, businesses and individuals across the entire economy. In ITAC's view, such a strategy should be the responsibility of a special committee chaired by the Minister of Industry, with high-level engagement and support within both Cabinet and the Prime Minister's Office. (See E.8 and E.9, below.)

E.3 Are Canadian businesses and governments under-investing in ICT? On what basis can the Canadian level of ICT investment be assessed to determine if it is appropriate? Is ICT investment by the United States the appropriate comparison point? If not, which jurisdictions should Canada use as a benchmark (e.g., European Union, G7, OECD)?

74. Research has shown that more than half of Canada's 'productivity gap' with the US is attributable to a lack of investment in ICT.¹² It is clear then that we are lagging our most important competitor – and our most appropriate comparison point given the degree of economic integration. However, Canada should also target the other lead countries where ICT is enhancing competitiveness, and not focus on deployment or

¹⁰ Conference Board of Canada, *Jobs in the Knowledge-Based Economy: Information Technology and the Impact on Employment*, May 1997, available in summary form at <http://www.itac.ca/Library/PolicyandAdvocacy/InformationInfrastructure/07MayJob.pdf>.

¹¹ *The Issue: ICT and Productivity*, March 2005, available at <http://www.itac.ca/Library/PositionStatements/05MarIssueICTandProductivity.pdf>.

¹² Melvyn Fuss and Leonard Waverman, *Canada's Productivity Dilemma: The Role of Computers and Telecom*, August 1, 2005.

penetration statistics. In terms of the ICT sector itself, as opposed to the role of ICT in the broad economy, various Asian countries are more likely to be the benchmark. (See also ITAC's presentation to the Standing Senate Committee on Banking, Trade and Commerce in May 2005.¹³)

75. While Canada has trailed the US in telecom investment, Canada's investment per capita was higher than the OECD average in 2002 and 2003. The most recent international data show the US at \$145 per capita, Canada at \$132 per capita and the OECD average at \$112.99 per capita (all figures in US dollars).¹⁴

1. Investment by Telecommunication and other ICT Companies

E.4 Is Canada 'under-investing' in telecommunication or are other countries just 'over-investing'?

76. Comparative productivity statistics suggest that Canada is not adopting ICT to the extent that it should, given the quality of the infrastructure and services that are available. Increased customer uptake of services will spur further investment in telecom infrastructure.

E.5 How much impact have the foreign investment restrictions had on overall Canadian telecommunication investment?

77. Though Canadian telecom companies are able to raise capital abroad, such capital is more expensive for them because of the restrictions on foreign investment. The fact that companies have to pay more for financing means that they have less to invest in upgrading their infrastructure and service offerings.

E.6 Should the foreign investment restrictions be removed? What would be the implications of this for future telecommunication investment as well as ICT investment as a whole? What other effects would the removal of such restrictions have?

78. While increased access to capital should be encouraged, the financial picture will not change with a simple loosening of restrictions of foreign investment. There will also need to be other measures to make deployment more attractive to investors – both domestic and foreign.

E.7 Would partial removal of the foreign investment restrictions (e.g., for new entrants only) address possible concerns about foreign control of most or all of Canadian telecommunication? Are there any additional measures that the Government could take to mitigate any undesirable effects?

¹³ Available at <http://www.itac.ca/Library/ITACSpeeches/05May11BAC.pdf>.

¹⁴ OECD, DSTI/ICCP/TISP(2004)12/CHAP4, Table 4.20.

79. ITAC is of the view that the rules should apply equally to all competitors, both incumbents and new entrants. We would stress, however, that this set of issues should not be seen as being of especially high priority, as there are a number of actions in other areas that need more pressing attention. (ITAC would refer the Panel to our brief, *The Impact of Foreign Investment Restrictions*.¹⁵)

2. ICT in Business

E.8 Is Canadian business under investing in ICT? If so, what might be the reason for this and what measures could the Federal Government take to encourage greater levels of ICT investment?

88. According to a study for the US Chamber of Commerce, “Investment in ICT may account for as much as 75% of overall labour productivity in the US since 1995.”¹⁶ It has been clear for some time that Canada must improve its national productivity performance – preferably, given the well-established link between ICT investment and productivity growth,¹⁷ by deploying ICT to make each working hour more productive rather than by increasing the number of hours that each Canadian works.

89. According to one study, 56% of the Canada-US productivity gap in 2003 can be attributed to ICT.¹⁸ Yet Canadian companies have been under-investing – just 42% of what US companies invested in ICT per worker in 2003.¹⁹ ITAC believes that this dramatic under-investment in the face of major shifts in the competitive landscape accounts for a significant part of the growing gap between Canadian and US productivity. We have just launched a study to identify why the gap exists, and will be happy to share the results, which are expected by October, with the Panel.

90. Looking beyond the US, ITAC’s recent publication, *Incentives for ICT Adoption: Canada and Major Competitors*, illustrates how countries that are serious about promoting the use of ICT to improve productivity and overall economic performance have used a broad array of incentives to spur the use of technology.²⁰ Examples of incentives deployed by other countries include the following:

¹⁵ *The Impact of Foreign Investment Restrictions*, February 2003, available at <http://www.itac.ca/Library/PolicyandAdvocacy/InformationInfrastructure/ITAC-ImpactofForeignInvestmentRestrictions.htm>.

¹⁶ *Sending the Right Signals: Promoting Competition Through Telecommunications Reform*, September 2004.

¹⁷ See, for example, ITAC’s *The Issue: ICT and Productivity*, March 2005, available at <http://www.itac.ca/Library/PositionStatements/05MarIssueICTandProductivity.pdf>.

¹⁸ Melvyn Fuss and Leonard Waverman, *Canada’s Productivity Dilemma: The Role of Computers and Telecom*, August 1, 2005.

¹⁹ Centre for Studies of Living Standards, based on data from Statistics Canada and US Bureau of Economic Analysis, see <http://www.itac.ca/Library/ITACNewsRelease/NR-05July26.htm>.

²⁰ Jacek Warda, *Incentives for ICT Adoption: Canada and Major Competitors*, July 2005, available at <http://www.itac.ca/Library/ITACNewsRelease/NR-05July18.htm>.

- In Japan, tax incentives introduced in 2003 were designed to stimulate investment by Japanese companies in ICT machinery and software. Firms investing in ICT have the option of either a 10% tax credit or a special depreciation allowance that is equivalent to 50% of the acquisition cost of technology.
- In Spain, small companies receive a tax credit of 10% of the costs incurred for the acquisition of equipment to enable internet access, design websites and deliver e-commerce.
- In the UK, a short-term measure was introduced to allow a 100% first-year allowance for capital expenditure on ICT acquisitions incurred by a small business from April 1, 2000 to March 31, 2004.

91. The ITAC paper notes that Canada lags its OECD competitors in the provision of incentives for activities that assimilate technology adoption. Even more alarming is the rapid rate that emerging economies, such as Korea, India and China, have instituted measures to spur adoption. China, for example, deploys a range of measures including depreciation schemes, investment allowances and allowances for technological innovation. Korea offers a tax credit for acquisition of machinery and equipment by small companies. It also offers a 7% tax credit specifically for productivity enhancing facilities.

92. As stated above (see E.2), ITAC is of the view that the government should develop a national strategy to address this general issue, with objectives that include the following:

- Refocusing government regulation from policing to stepping up adoption.
- Removing tax barriers to investment in ICT. Capital taxes should be eliminated altogether, and capital-cost allowance needs to be improved to reflect the rapidly changing rates of depreciation of ICT equipment. Any new approach should go beyond the concept of 'useful life', as the US, the UK and Japan have already done.
- Introducing incentives for investment in ICT. Incentives are needed especially to encourage small and medium-sized businesses to deploy productivity-enhancing tools such as ICT.
- Identifying and achieving best practices in government-procurement policies and procedures to induce investment.
- Introducing tax or other incentives for corporate training and education to address the need for the skills to use technology effectively – especially among small and medium-sized businesses. France, Austria, the Netherlands and Korea all already offer tax credits for training in ICT use.

- The government should actively seek and adopt innovative ICT solutions in health-care, national security (including border and customs operations²¹) and environmental protection.

E.9 The Federal Government's research and development tax credit program has been an important element in the Government's efforts to encourage research and development in the ICT industry. How well is this program working? Should changes be made to this or other tax measures to improve the competitiveness of Canada's ICT research and development capabilities?

93. As we have argued above, ITAC believes that Canada's first priority is to encourage the adoption – across the Canadian economy – of the innovative products of ICT research and development, wherever it occurs in the world. But it is also important to Canada's long-term economic prospects that as much as possible of that global R&D work be done in Canada, without limiting the ability of Canadian companies to import innovation.

94. In fact, Canada's ICT industry has an enviable record in R&D compared to other sectors, in that our industry represents 5% of the economy but more than 40% of the R&D done by the private sector in Canada – more than double that of any other sector. We know that the SR&ED tax credit contributes significantly to the level of private-sector R&D in Canada. Nevertheless, there is room for additional investment, provided the necessary amendments are made to the tax structure. ITAC's recommendations in this area can be found in *Extending Access to SR&ED Tax Credits: An International Comparative Analysis*²² and *Investing in Prosperity: ITAC Pre-Budget Brief to the Commons Standing Committee on Finance*.²³

95. ITAC would emphasise that a vibrant and sustainable R&D-based industry in Canada has innumerable spin-off benefits for the national economy. Capabilities maintained and fostered in Canada are available to supply technological and management expertise to the ecosystem of emerging ICT companies and to governments and companies in the broader private sector that are looking to benefit from the application of ICT to their own operations. Furthermore, the quality of teaching

²¹ See, for example, Coalition for Secure and Trade-Efficient Borders, *Rethinking our Borders: A New North American Partnership*, July 2005, available at http://www.cme-mec.ca/pdf/Coalition_Report0705_Final.pdf

²² *Extending Access to SR&ED Tax Credits: An International Comparative Analysis*, December 2003, available at <http://www.itac.ca/Library/PolicyandAdvocacy/FinanceandTaxation/pdf/03Dec5SREDTaxCredits.pdf>.

²³ *Investing in Prosperity: ITAC Pre-Budget Brief to the Commons Standing Committee on Finance*, November 2004, available at <http://www.itac.ca/Library/PolicyandAdvocacy/FinanceandTaxation/pdf/04NovPre-budgetBrief.pdf>.

and mentoring available in Canada is enhanced, as are opportunities for cooperation among industry, government and universities.

E.10 Should other Federal Government incentive programs be developed to improve the level or quality of Canadian ICT research and development and manufacturing?

96. Yes. While Canada's e-government initiatives have been very positive, there is room for more deployment of ICT in health-care and other areas. Canada also needs to do better in balancing industrial R&D activity with university R&D. The public sector funds 25% of all R&D in Canada, more than half of which goes to universities and their research institutes and just 5.3% directly supports industrial R&D.²⁴ Only a portion of that 5.3% goes to the ICT sector, despite the central role of ICT in R&D efforts and the importance of industrial R&D in the national economy.

3. ICT in Government

E.11 What role, if any, should the Federal Government play as a model user of ICT? Assuming Federal Government has such a role, what measures should it take to improve the manner in which it uses ICT?

97. The federal government is already recognised as a world leader in government online. ITAC is confident that the government is not resting on its laurels but is planning to offer additional functions online. We hope that this will involve further meshing of online service offerings with those of provincial, territorial and even municipal governments.

E.12 How could government procurement policies be better co-ordinated or otherwise changed to improve the competitiveness of our ICT research and development and manufacturing capacity?

98. In keeping with the general need for more ICT in organisations across the economy, the federal government should take an enterprise-wide approach and work aggressively to identify additional areas of its operations where ICT could be applied. The government should also return to its practice of contracting companies to do projects rather than just supply workers. This would increase the level of ICT in government operations while at the same time enhancing the project-management capabilities of the contracting companies, rendering them better able to compete internationally.

99. ITAC has been working with government to develop programs to improve government procurement of ICT in other ways, and hopes to be able to provide details later this year. Certainly the focus should be on value for money, reflecting Canadian quality and customer commitment rather than simply a view of ICT as a commodity.

²⁴ Statistics Canada, *Working Paper: Estimates of Canadian R&D Expenditures 1993-2004*, December 2004, available at <http://www.statcan.ca/english/research/88F0006XIE/88F0006XIE2004020.pdf>.

E.13 What policies or regulatory changes should be adopted to improve the efficiency and competitiveness of Canadian ICT for the delivery of government, health, education and other public services?

100. Given the quality of Canada's infrastructure, the nature of our health-care system, its size and scope and its central place in government budgets, the deployment of ICT in health-care to a significantly greater extent (including ehealth and telehealth) must be a priority for government at all levels. The same is true generally of education and other public services, if to lesser degrees.

101. In addition, work on the Economic Union Agreement should be accelerated to the extent that Canadian companies are fettered in their ability to compete for provincial government contracts across the country.

E.14 Are changes necessary in government policies in areas such as immigration, education and health, to improve Canadian competitiveness in the ICT area? If so, how should these policies be changed?

102. There are only two ways to generate new talent – post-secondary education and immigration – and Canada needs to do better in both areas, perhaps through an aggressive national skills strategy that would identify measures to address areas of concern. There appears to be a low – and declining – rate of enrolment in computer studies and engineering programs at Canadian colleges and universities. Canada also attracts a relatively small share of international students. Perhaps Canada would be more attractive if foreign students had the opportunity to work while studying in Canada. Canada must also look at measures, such as accelerated recognition of qualifications, that improve the mobility of skilled personnel overseas, and to amending the personal tax regime to be more competitive with those of other countries.

103. Countries must invest in science and education if they are to lead in an economy driven by science and technology. The \$13 billion invested in Canadian scientific research from 1998 to 2005 is certainly a leadership investment, but the level must be maintained if Canada is to build competitive 21st-century opportunities and enterprises and skilled high-paying jobs for our people. In fact, government would be wise to increase this investment, as investment in research helps to educate and attract the next generation of highly qualified people who will contribute Canadian knowledge to advancements in ICT, biotechnology, aerospace, genomics, nano-technology and other advanced disciplines.

4. ICT in the Home**E.15 How can consumer concerns about privacy, network dependability, security and fraud be addressed to facilitate the adoption of ICT?**

104. A recent OECD survey identified the two main drivers supporting the development of an ICT 'culture of security' at the national level of member countries as e-government applications and services, and protection of national critical infrastructure.²⁵ ITAC supports such a focus on government operations in Canada, and would acknowledge the meaningful steps that Industry Canada has taken in the consumer area as well; work has been consultative, has been coordinated with international efforts, and has tended away from heavy-handed approaches. ITAC and Industry Canada have discussed the idea of convening a Trust and Confidence Summit in the coming months, with its output flowing into the deliberations of the national competitiveness council that is being considered by the Minister of Industry.

E.16 What measures, if any, should the Federal Government take to increase the usage of the Internet and adoption of ICT by consumers?

105. As there is no indication of a problem in this area, ITAC sees no need for the government to intervene. Internet connectivity rates in Canada are high, both absolutely and in international terms; if usage for commerce or other interactive purposes is lagging that of simple browsing, that can be expected to change as additional services are made available by competitors in the marketplace.

²⁵ *Draft Report on the Promotion of a Culture of Security for Information Systems and Networks in OECD Countries*, May 2005.

F. Other Issues**F.1 What other issues should the Panel take into account in making its recommendations? Please provide specific facts, analysis and suggestions that you think are relevant to the Panel's recommendations?**

106. Public Safety and Emergency Preparedness Canada (PSEPC) is currently proposing amendments to Canada's lawful-access regime that would prevent the introduction of new telecom services into the Canadian market until they have been deemed by government to offer sufficient intercept capability. The ICT industry is working to identify an alternative that would not hamstring Canadian companies competing with foreign companies operating without similar constraints – but has not been encouraged by recent discussions with PSEPC.

G. IMPLEMENTATION**G.1 What specific legal or other provisions should be proposed by the Panel to implement the changes discussed in this document?**

107. The *Telecommunications Act* and the *Radiocommunication Act* both need to be reviewed, and the *Competition Act* and consumer protection laws may need to be amended to accommodate additional responsibilities, as discussed above.

G.2 Should Canadian telecommunication laws be consolidated into a single law? Could this improve clarity and consistency of enforcement? If so, how?

108. Mirroring technological convergence, consideration might be given to rationalising the *Telecommunications Act* and the *Radiocommunication Act*.

G.6 Given the wide range of possible changes that could be made in Canadian telecommunication policy and regulation, what should be the priorities for the Panel's areas of study and recommendation?

[and]

G.7 Assuming the Panel recommends a phased approach to the implementation of any proposed changes, which areas should be addressed first and what sort of timeline would be appropriate?

109. The importance of ICT is not technology but productivity, competitiveness and prosperity. The top priority of the Telecommunications Policy Review Panel should be to tackle the greatest challenge facing Canada – determining how best to compete in a shifting global economy by increasing the use of ICT in business and public services.