

Engaging End-Users in Telecommunication as Complementary Assets: creating more spaces at the policy table

In recent years, governments and telecommunication companies across the world have poured billions of taxpayer and shareholder dollars into establishing national broadband networks in the light of promises of spectacular returns on investment.¹ For example, it has been estimated that the \$NZ1.5 billion ultra-fast broadband (UFB) network will account for a 7.2% increase in New Zealand's GDP by 2026, assuming the roll-out is achieved by 2014 (Berl Economics, 2010, 8). Although that roll-out date now appears unlikely, even half the projected growth would indicate significant benefit from the UFB to the economy. Access Economics in Australia gives more a modest GDP growth projection of 1.1% as a direct consequence of next-generation

telecommunication infrastructure (Martin, 2010), involving a \$A40 billion investment in Australia's national broadband network (NBN), of which taxpayers will contribute at least half (Given, 2010, 540). Similarly, the World Bank estimates the economic impact of broadband on high-income economies at 1.2% growth in GDP (Quiang, 2009).

However, many question the methodologies and assumptions that inform extrapolations of growth that frequently accompany calls for major government investment in national broadband infrastructure (Kenny and Kenny, 2011; Howell and Grimes, 2010; Martin, 2010). For example, Howell and Grimes observe

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that most projections are derived from 'extremely limited qualitative and case study analyses rather than quantitative research' (2010, 128), further noting that the economic gains derived from more widespread deployment of existing ADSL broadband technology are rarely tested. The failure to differentiate the growth curve gains from current broadband delivery roll-out across time and those projected from installing fiber-optic systems to the home may lead to distortion of the true benefits. Across the Tasman, Martin (2010) is critical of the lack of cost-benefit analysis associated with the NBN, the Australian version of New Zealand's UFB. Reflecting Howell and Grimes' concerns, Kenny and Kenny (2011) identify a tendency of super-

and Grimes consider the emergence of a potential broadband paradox stimulated by research 'championed by supply-side interests' (p.133), and they suggest the need for more attention to be given to focused quantitative studies based on actual and projected demand for faster broadband services as well as the applications that drive them. The suggestion has merit and the paucity of demand-side research is a justifiable concern; but critics echo the response voiced by a former Australian communications minister when questioned about the lack of cost-benefit analysis for the NBN: 'you're dealing with things that are inherently unpredictable [and] the kind of traditional CBA that is done for a rail line ... would only tell

have the power to complement the delivery of existing public and private goods and services, not singularly transform them as if operating in a sociopolitical vacuum. Ellul, moreover, extends the definition of technology and criticism of its reductionism to all scientific methodologies, including economics (Ellul, 1964, 163). Unfortunately, even sophisticated multivariate econometric models have questionable forecasting records (McNown, 1986; Stekler, 2010). How, then, are decisions concerning significant public investment involving considerable sums of taxpayer dollars to be evaluated? Increasingly, triangulation methods, including multiple data-collecting methods from qualitative, quantitative and critical traditions, are emerging as ways of overcoming individual bias and the limited scope of inquiry from which any single approach suffers.

The analysis of the computer and ICT paradox within individual companies and outcomes may provide possible answers, with application as well to other public policy challenges. Brynjolfsson and Hitt observe that the gains in productivity and output of computerisation are significantly greater (by a factor of five or more in point estimates above computer capital costs) over long periods for firms that make complementary investments in organisational capital, such as new work systems, changes in business processes and organisational structure, and new means of interaction between suppliers and customers (Brynjolfsson and Hitt, 2003, 793; see also Teece, 1986). In other words, the combination of investment in technology, capital and labour over time and their subsequent interaction manifest economic gains in the data and reduce the productivity paradox. Furthermore, citing the example of Wal-Mart's efficiencies derived from its new computerised supply chain management, they note that capital investment in intangible, complementary assets alongside tangible physical ones results in a spillover of benefits to not only consumers but also competitors who imitated the innovation (p.805). Although the research is limited to company productivity, the findings are instructive for policy makers and governments

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fast broadband proponents to conflate the benefits of all technological development 'from biotechnology to containerized transport', which may be associated with any internet service delivery (p.6). Furthermore, they observe a similar conflation and boosterism associated with projected benefits from ICT deployment in the comments of US Federal Reserve chairman Alan Greenspan and journalist Thomas Friedman, benefits which failed to materialise (p.5).

Stating what is known as the computer paradox, in 1987 Nobel laureate economist Robert Solow observed, 'we are seeing computers everywhere but in the productivity statistics' (Brynjolfsson, 1993, 1). Solow's statement challenged utopian expectations of economic growth informed by assumptions of the singularly transformative power of ICTs. Arguably, his concerns over an inflated valuation of ICT were realised in the 'dot-com' bubble burst of 2000 and the ensuing fall-out from overvalued ICT stocks. Howell

you exactly what the assumptions and prejudices were of the people drafting the initial terms of reference' (ABC Insiders, 2009). Broadly speaking, that is, how do you project demand for advanced applications yet to be developed that will run on technologies yet to be widely rolled out?

Arguably, the narrowly defined economic parameters that inform both supply- and demand-side approaches suffer from a philosophical shortcoming. Known as technological determinism (see Carey in Munson and Warren, 1997, pp.316-21; Ellul, 1964), the monolithic notion that any technology, or basket of technologies, has the uniform capacity to transform society is problematic. Technologies alone create neither utopian nor dystopian futures. Technological determinism ignores the social, cultural, commercial and political contexts in which technical innovations evolve and operate (Carey in Munson and Warren, 317). In other words, digital technologies

considering large-scale public investments and programmes, in terms of both choice and process: competitive advantage can be maintained if companies are willing to suspend silo-building mindsets and a singular focus on achieving short-term economic efficiencies.

Closely associated with the concept of valuing intangible complementary assets is Chesbrough's (2003) notion of open innovation, which describes the 'pooling of knowledge for innovative purposes where the contributors have access to the inputs of others and cannot exert exclusive rights over the resultant innovation' (Chesbrough and Appleyard, 2007, 60). Significantly for policy makers, renewed concepts of openness involve a reconsideration of the processes that both create and capture value, which approximate 'public good' characteristics in that consumption by one does not require exclusion of another (ibid.). Similarly, as in networks, each connected node adds value to the overall system. Chesbrough and Appleyard cite the examples of social networking websites, the Linux operating system and Google as manifestations of the open innovation paradigm, popularised by Linus's law: 'Given enough eyeballs, all bugs are shallow' (i.e., easy to fix).

Arguably, modern democracies such as New Zealand have a vast array of potential complementary assets in their consumers and citizens. However, much of the value is dormant until organised and mobilised through serious government engagement, including investment to leverage and complement capital set aside for material technologies. Thus, complementary assets may take the form of both expert and lay citizen panels. Mintrom (2011) lays out the case for the former in his analysis of former Treasury secretary Graham Scott's report *Improving the Quality and Value of Policy Advice* (2010). He identifies a disjunction between the world views of expert policy advisers and political ministers, and the need to incorporate Mark Moore's notion of public value, which considers the perception and desires of citizens and their representatives, when evaluating policy. One way this can be achieved is by public managers establishing

institutions which build broad support for policy change by bringing together interested groups from different sectors of society to leverage knowledge and skills. Mintrom cites examples such as the Brookings Institution, the American Enterprise Institute, and, locally, the New Zealand Institute when it was led by David Skilling as successful examples of organisations that build public value into the policy process.

Such institutions harness the complementary assets described above, but limit the concept to gatherings of technocrats and special interest groups translating policy advice into user-friendly language for politicians and citizens.

In an age of convergence of terms as well as technologies, it may be tempting to consider the 'consumer-citizen' as a descriptor to define end users.

It appears as a sophisticated version of Grunig's two-way asymmetrical model of public relations which emphasises research on and persuasion of target groups, which is practiced by most major corporations (Grunig, 1992). However, an extension of the concept of complementary assets may take a form approaching Grunig's two-way symmetrical model, which emphasises mutual communication and engagement between an organisation and its publics. A more inclusive definition of complementary assets involves a measure of boundary-spanning, considered deliberation of all arguments, and interaction as articulated in literature pertaining to deliberative democracy (see Cohen, 1989; Fiskin, 2011). Arguably, consultative-participative processes that tap into both scientific expertise and community knowledge add public value and provide an economic benefit as complementary assets.

Consumers and citizens at the end of the line Digital strategies of governments, councils and communities emerge from

the blurring of previously distinct media technologies and industries: computers, telecommunications, and broadcasting and print media (Barr, 2000, 25). The phenomenon described as convergence of content and carriage is the driving force of so-called digital societies.

At the end of the mix of new and not-so-new technologies is the end user, now commonly called the consumer. However, regulatory and social advocacy agencies tasked with overseeing the safe and equitable distribution of digital services are revisiting how they frame the end user. For example, in a restructuring in December 2009 the Australian Communications and

Media Authority (ACMA), Australia's national regulator for broadcasting, the internet, radio communications and telecommunications, created a Content, Consumer and Citizen Division representing a 'convergent grouping of ACMA "social" regulation functions' – specifically, the ACMA stated, recognising 'a new weighting to the role of the citizen' as a key driver (2009). In an age of convergence of terms as well as technologies, it may be tempting to consider the 'consumer-citizen' as a descriptor to define end users.

However, critics of a designation that conflates the two concepts argue that the foci and priorities of one are antagonistic to the other. For example, the atomistic calculus associated with notions of researching consumer needs and market segments sets the very parameters which prohibit policy attention to broader issues of public interest associated with citizenship, such as equitable, affordable access across the community. Livingstone (2008) draws on communication and broadcasting policy deliberation in the

Table 1: Consumer and citizen interests

Consumer interest	Citizen interest
Wants	Needs
Individual level	Social level
Private benefits	Public/social benefits
Language of choice	Language of rights (inclusion)
Short-term focus	Long-term focus
Regulate against detriment	Regulate for public interest
Plan to roll back regulation	Continued regulation to correct market failure

Source: Livingston (2008)

United Kingdom that, particularly in the earlier stages of addressing public policy issues associated with convergence, differentiates between the characteristics of consumer and citizen interest, as shown in Table 1. However, she observes that later positions by politicians and regulating bodies divide citizen and economic priorities, relying on the market to address most concerns. Taking another perspective, both consumer and citizen interest characteristics are captured and valued in an expansive definition of intangible complementary assets.

As a corollary, education programmes and initiatives that encourage end users to engage with issues as engaged stakeholders in policy processes rather than as passive consumers are likely to stimulate an increased sense of ownership and participation in outcomes that benefit the whole community.

Overcoming complexity

Once an all-encompassing appreciation of end users is developed, the challenge is to motivate and facilitate their involvement in policy discussions. There is no denying the baffling array of terms and concepts that define telecommunication and ICT discourse. ICT represents the contested territory of many disciplines, including engineering, physics, electronics, economics, law and public bureaucracy. Collective interests morph into the complex conceptual terrain associated with network electronics, econometrics and competition law characterised by converged technologies, industries and markets.

Despite the technocratic complexity, issues of access and participation for

end users as individuals and members of a collective polity are relatively simple: issues such as availability, affordability, safety and reliability. Consumers work through these and similar issues in purchasing activities every day. However, at a policy level, where the outcomes relate to significant community investment in terms of finance, time, risk and other consequences, the picture is more complex and holistic. An appreciation of the interrelationships among a number of interconnected technical, social, economic, legal and political issues is required.

Mnemonics such as acrostics break down complex constructs into concepts that are more easily committed to memory. Using the first letter of related concepts to form an easily recognisable word or phrase aids both retention and reflection. Once memorised, it is easier to reflect on the holistic functions which characterise constructs that involve the dynamic interaction of networked commercial, technological, political and cultural elements. A simple example of an acrostic that could be used to define community ICT policy considerations and encourage broader community participation is FIT FOR US. This acrostic is based on a presentation prepared for the Small Enterprise Telecommunications Centre Limited (SETEL) of Australia, a national research and advocacy group for small businesses (Bourk, 2003). Arguably, despite changes in technologies and industry structures the guiding principles maintain their relevance. The community desires affordable interconnected digital services that are 'fit for us':

- Flexible

- Interconnectivity
- Transparency
- Fast communications
- Ownership and control
- Reliable
- Ubiquitous
- Security / Privacy

Flexibility conveys the idea that the diverse telecommunication needs of a community with varying levels of digital literacy are met by services packaged to their specific requirements.

Interconnectivity describes the ability to use one or more service providers seamlessly without the requirement to purchase new equipment and learn complicated software processes linked to network access.

Transparency describes product, pricing and policy data that is accessible, comparable and accountable across service providers and policy makers in advertising and other communication literature.

Fast communications: admittedly, fast communications is a relative concept, but the community should feel that access to the internet, and other telecommunication services, such as call centres, is neither slow nor inefficient. Most end users are pragmatic. They aren't interested in technical discussions about bandwidth or debates surrounding digital divides; they just want the ability to receive valued content and communicate with key publics when and where they want in the most efficient and effective way.

Ownership and control: community and business groups want to 'own' their services. I am not referring simply to possessing the wires, computers and telephones. Ownership of a service carries with it the sense of control over an essential 'set of tools' to engage in processes of transaction, education and communication.

Reliable: continuous, reliable telecommunication service is perhaps the major expectation that businesses have of carriers. When a service fails, businesses are disadvantaged in at least two ways: first, the direct loss of communication and business transaction opportunities, which can only

be calculated on a case-by-case basis; second, the damage to their own reputations for reliability caused by misunderstandings and misgivings of their customers as a flow-on effect from outages. Governments and councils investing in significant telecommunication infrastructure should monitor that capital expenditure levels are maintained to ensure services to the community are future-proofed.

Ubiquitous: the community wants ubiquitous access to services. Within reason, geography should not be a significant barrier to accessing any telecommunication service required by a business.

Finally, in terms of *Security/Privacy*, the ability to select and exchange information with as many or as few as desired is emerging as a major concern for end users. Network security standards are an issue of national significance and must be monitored by government regulatory bodies.

Discussion around the concepts described by acrostics such as FIT FOR US is predicated on a conscious effort being given to understanding the interrelationships between two or more variables. In other words, an element such as transparency cannot be addressed fully without issues of ownership and control also. For example, attempts to make material more transparent by reducing technical jargon or simplifying pricing plans may facilitate businesses to own and manage their telecommunication services, as well as make more informed choices

between competitive offerings. Another example relates to negotiating flexibility and reliability: are businesses willing to compromise on service reliability for the flexibility of accessing new pilot technologies? Finally, discussions related to FIT FOR US must include addressing the role of regulation for each element and the overall network.

The FIT FOR US model is not exhaustive, but an example of how mnemonics may be used to encourage and empower end users to participate in community discussions of ICT policy at all jurisdictional levels. It is one way that policy advice can be 'transformed into language that resonates with the public' (Mintrom, 2011, 10). However, for community participation to maximise its innovative value as a complementary asset requires commitment and investment in resources from government and state institutions. The Australian Communications Consumer Action Network (ACCAN) is an innovative example of a state-sponsored organisation that has many characteristics of the complementary asset advocated in this article. Launched in 2009, ACCAN is an amalgamation of smaller citizen, business and advocacy groups and receives \$A2 million as a peak organisation to canvass community opinion, fund related research, and lobby industry and government for affordable, accessible communication services for all Australians (Australian Government, 2010; Accan.org.au).

To summarise, this article began with questionable claims that a significant public investment in advanced broadband technology alone will result in major economic gains to the economy. With reference to similar transformative power being promised by computerisation in the 1980s and 90s, which resulted in the apparent paradox of the widespread diffusion of computers and less than expected gains, some scholars express scepticism that the projected benefits of the UFB network will be realised. They point out that factoring contemporaneous complementary investments in intangible assets into the equation resolved the paradox, albeit over a longer time period. If, as some suspect, we are seeing the emergence of a broadband paradox fed by excessive speculation over the transformative power of certain broadband infrastructure, where are the complementary assets? The task remains for New Zealand governments and state institutions to leverage technical capacities by investing further in complementary assets formed around the principles of expanded notions of open innovation, public value, and deliberative democratic processes. In this way, inclusive consultative-participative processes are not simply markers of mature democracies but make sound, long-term economic sense.

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Local Government Strategic Planning in Theory and Practice

By the Local Futures Research Project

Local Government Strategic Planning in Theory and Practice is the second and final monograph of the Local Futures Research Project, a study of strategic policy and planning in local government, funded by the Foundation for Research, Science and Technology and based at the School of Government, Victoria University of Wellington. The book describes and analyses the experiences of a sample of local and regional councils as they worked with their communities to prepare Long-Term Council Community Plans under the Local Government Act 2002.

The authors critique the design and implementation of community strategic planning under the Act with a focus on the relationship between theory and practice. They also consider the implications of recent amendments to

local government legislation, including the creation of the Auckland Council and modifications to strategic planning and management requirements.

Local Government Strategic Planning in Theory and Practice is a valuable resource for anyone interested in strategic planning, local government and governance, and the interrelationships between councils and communities, central government and the private and community sectors.

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