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## Global - Fast broadband and Trans-sector policies

### 1. SYNOPSIS

As the discussion continues about the need for intelligent networks and 'smarts' in virtually everything it becomes obvious that we must move away from the decision-making processes that have brought us to the point of financial crisis, environmental crisis and to the monopolistic and dogmatic regimes that have developed in the telecoms sector. Around the world debates are heating up in the search for new and better ways to find solutions for these crises. There is more or less universal agreement that a linear continuation of the past will lead to more problems and, eventually, utter chaos and destruction.

While in developed markets Fibre-to-the-Home (FtTH) will be the leading infrastructure force behind this economic and social transformation, mobile broadband will deliver these changes in the developing world. Nobody does need to miss out on these benefits as long as governments do take a leadership role both in relation to infrastructure developments and in developing trans-sector policies for healthcare, education, smart grids, transport and public safety; in short developing smart communities.

In December 2009 the OECD published its report on these issues and indicated that governments could justify the costs of fast broadband by using them to cut cost in sectors such as healthcare, education, transport and energy. On average, a cost saving of between 0.5% and 1.5% in each of these four sectors over a ten year period could justify the cost of building the NBN.

Governments are now starting querying whether this basic infrastructure should not be financed in the same way as other infrastructure, by making it a national right paid for through consolidated revenue, government bonds or, as the OECD indicated, government savings.

### 2. INTRODUCTION

The deployment of FtTH around the world is beginning to lead to exciting developments for the next generation of telecommunications. In particular, infrastructure based on FtTH is providing the foundation for smart communities and cities where a number of technologies and services are combined to create an enhanced value proposition for residents. Smart homes connected to these networks can utilise services such as e-health, e-education and e-government as well as access digital media and high-speed Internet. Sustainability is also integral to the smart community with many environmental initiatives, such as smart grids, slowly becoming a reality.

While FtTH networks had begun to arrive well before the financial crisis hit; surprisingly it is the crisis itself that is now driving fibre beyond its first stage. Many countries, such as the USA, UK, Australia and New Zealand, have included broadband networks in their economic stimulus packages. These developments are also pushing the countries that had already embarked on FtTH to increase activities in their fibre markets.

Australia has emerged as an interesting model to watch as the government plans to invest AU\$43 billion in a national FtTH broadband network. This is a clear indication that it believes broadband infrastructure is important for the collective good. The primary focus of the proposal comprises the establishment of a new utility, the National Broadband Corporation, to build and operate a super-fast wholesale-based National Broadband Network.

In Europe we have also seen extraordinary changes to the telecom networks as incumbents and new entrants switch on their All-IP Next Generation Networks. In addition there has been increased activity in fibre deployment as a result of the falling price of fibre builds and regulatory approval of municipal and government involvement in large infrastructure projects. While investments in NGNs are aimed at meeting burgeoning consumer demand for high-bandwidth applications, they have also triggered a number of regulatory changes on both the national and European levels as regulators endeavour to provide fair network access to competitors. These measures have included provisions for the functional separation of incumbent operators..

It is now becoming clear that a trans-sector approach is required to facilitate NGNs based on FttH. What BuddeComm is referring to is the importance of looking across sectors to create synergy. If we consider the major benefit of fibre infrastructure to be that it acts as a conduit for sustainable economic growth and society development, then we need to change the structure of its business model. Only if fibre is made available as a utility will we be able to reap the trans-sectoral fruits of this infrastructure in healthcare, education, environment, energy, public safety, transport, etc..

A trans-sectoral way of thinking can also be applied across infrastructure projects – looking at the potential synergies between the building of roads, sewerage systems, water and gas pipe networks, as well as telecoms and electricity networks. In short, it is trans-sector policies and strategies which will create the smart communities of the future..

#### **Exhibit 1- Key developments in FttH and trans-sector strategies**

- E-health, e-education, digital media and sustainability are the key reasons why developed nations need Next Generation Networks..
- Smart communities cannot be built from the current silo structure that dominates our thinking and require a holistic approach.
- In terms of FttH connections, Japan continues to lead the world with around 14 million homes and businesses connected.
- In terms of actual FttH penetration, South Korea leads with around 44%..
- Improvements in international fibre and other infrastructure in Africa are leading to a growing number of FttH initiatives. However, mobile broadband will be driving trans-sector developments here.
- There has been substantial recent investment in next generation infrastructure in the richer countries of the Middle East. Some projects have been completed and others are moving forward rapidly.
- Russia accounts for over half of all Eastern European FTTx subscriptions.
- Reforms in New Zealand will create a number of Local Fibre Companies which will operate FttH access network infrastructure in specific geographic areas.

### **3. THE BUDDCOMM TRANS-SECTOR MISSION**

*By Paul Budde*

This story began in May 2005 when, at a conference in Adelaide Australia, I spoke about the social and economic benefits of broadband. Senator Stephen Conroy (the now Australian Minister for Broadband Communications and the Digital Economy) was in the audience and he was enthusiastic about my vision on this subject.

My basic message was that we needed to look outside the box if we wanted to achieve the national benefits that broadband has to offer, and that it had everything to do with e-health, e-learning, smart grids and smart cities.

Thanks to the Dutch Professor, Nico Baken, we now call this the trans-sector concept, and we now also recognise that a trans-sector policy must underpin all new infrastructure projects so as to create an economic multiplier effect. In addition, my message was that, since the government has, at least indirect, and in many cases direct control in most of these sectors, they need to show leadership.

These trans-sector plans were supported by a large-scale industry group that I had organised to support these policies (in Australia we have the Digital Economy Industry Work Group – 200 people, 140 companies and international we have the Big Think Strategies group – 50 very senior experts). In true digital fashion we operate as a virtual support teams to policy decision makers in various countries.

In 2007 the Rudd Government came into power in Australia and a year later its \$43 billion National Broadband Network (NBN) was announced.

Both the Prime Minister and Minister Conroy understood and accepted the trans-sector concept; however it was rather more difficult to convince some of the other ministers. The problem we faced was that they considered it to be related to communications policies and felt that it had ‘nothing to do with my Department’.

Smart Grids was an early target area for a trans-sector approach, based on previous dealings with the PM's Department I knew that the Prime Minister liked the concept of smart grids. However, we failed to convince the Minister for Energy that smart grids were the way to go. He was committed to a previous government policy that was aimed at rolling out the so-called smart meters.

It was clear that in order to make progress here we needed the PM to take on a leadership role.

Then last year April, at 12 noon on a Tuesday, I received a call from the Prime Minister's office, asking if I could get a smart grid proposal to him by 1.30 that afternoon.

I now should pause and tell you that since 2001 I had been working with the electricity utilities. Under the cooperative industry banner of UtiliTel we had been looking at communications opportunities for these utilities. By 2006, however, our focus had changed and in early 2008 I founded Smart Grid Australia and we now have some 70 blue chip members, including 12 universities ([www.smartgridaustralia.com.au](http://www.smartgridaustralia.com.au)).

Back to the telephone call, I was able to quickly tap into this group and by 1.30pm we had our plan for a smart grid project on the PM's desk.

We asked for \$50 million and we got \$100 million for a government plan known as Smart Grid/Smart City – 10,000 households will be connected to a smart grid and the NBN is considered to play a key role in the communications side of the project. To show the truly trans-sector approach of this particular project it is led by the Department of the Environment with the assistance of the Department of Energy and the Department of Broadband. It is written into the legislation that this demonstration project will result in a national rollout of smart grids.

The trans-sector/open network approach also caught the attention of other governments. Together with the Big Think Strategies group, I have worked very closely with the Obama Transition Team and their activities led, among other things, to the \$7.2 billion NBN project and an open network perspective in relation to both broadband and smart grids.

I also met with the FCC and there is now a trans-sector team installed in their offices (National Purpose). In October 2009 I was invited to a meeting in the White House to provide an international update on these developments. The speech from FCC Chairman Julius Genachowski

In June of that year I also had a meeting with Minister Frank Heemskerk in the Netherlands and I have since produced a report for the Ministry Of Economic Affairs on *Trans-sectoral Innovation*.

The fourth government involved in this group is New Zealand and Minister Steven Joyce is taking a leadership role in the developments in that country. The government here has also installed a high level trans-sector team.

Furthermore, we can add the ITU to this group of trans-sector supporters. After my discussions in Geneva with the ITU Secretary General Hamadoun Toure in October last year that organisation has now also adopted a trans-sector policy, which the Secretary General is passionately advocating in his meetings with the various governments around the world.

#### **4. ECONOMIC AND SOCIAL MULTIPLIER EFFECTS**

Concentrating here on telecoms, both in the USA and Australia the telecoms debate has begun to move towards a trans-sector approach. FttH infrastructure investments (telecoms and smart grids) should be deployed in such a way as to create a social and economic multiplier effect for a whole range of sectors that use it independently of each other (open networks) for a new range of applications in healthcare, education, energy, water, transport and community services, as well as for entertainment and high-speed Internet access.

This is a radical change from the current dogmatic approach, which assumes that if we leave telecoms to the vertically-integrated (semi-) monopolies this multiplier effect will magically happen, in

accordance with free-market economics.

For most people it is clear that to receive these trans-sector benefits – which are measured not just in literally hundreds of billions of dollars but, far more importantly, in very significant social, environmental and life-style benefits – we need to be far smarter than we have been during the time leading up to the disastrous situations mentioned above.

The transition to this new regime could take 10-15 years or longer, but at the end of that time we should be moving towards the smart communities, smart cities, smart buildings and similar smart concepts that are presently under discussion.

## **5. WHY DID WE GET IT SO WRONG IN THE FIRST PLACE?**

Given that wrong decisions have obviously been made in the past it is important to identify how this has happened. It would seem that either we didn't input the right data in the first place, or that we developed the wrong set of goals. BuddeComm believes that the latter is most likely the case.

There have been many indications that the far right schools of economics have a great deal to answer for. These people exert enormous influence, in the USA in particular. At the same time our overly legalistic approaches – especially in telecoms – are another possible indication of where our decision-making processes went off the rails.

With the telecoms industry at a crossroads worldwide we now have a unique, once in a lifetime, opportunity to get the goals and processes right.

Massive new investments are needed to move the industry forward. Several countries have launched broadband, smart grid and e-health stimulus packages, other countries have introduced government policies that access to broadband is a human right. There are obvious differences in how to implement the new environment because of differences in size, scale, etc but in this analysis we will concentrate on the high-level policy issues.

## **6. DIFFERENCES BETWEEN FAST BROADBAND APPROACHES**

Australia's decision to leave their 'broadband backwater' was based, in part, on an understanding of the trans-sector value of near-universal connectivity. Similarly, in now assessing the benefits of this decision an empirical, trans-sector approach to measurement is the only one likely to yield the breadth and depth of knowledge needed to maximize the value of the investment. Before going into social and economic measurements (and into writing a business model) Australia has set a clear goal with a clear set of testable hypotheses – perhaps at this stage not all that well-defined, but at least with clear political backing.

A worrying element is that the US approach (as evident in the FCC FttH research study) is not structured around a similar set of clear goals. The possible goals being explored in the USA are ones upon which Australia has already agreed, in broad terms at least. The Australian government has made a political decision that a national FttH network is in the country's interest; it aims to provide trans-sector benefits and it has therefore made the trans-sector goal central to its plans.

Australia can now go straight into a process that measures these trans-sector benefits as critical components of the FttH plan – it doesn't first have to make an argument for this. So all the data that needs to be collected for both the social models and the business models for this infrastructure investment will be trans-sectoral from the outset.

The USA, on the other hand, is still taking a rather 'old school' theoretical approach towards its FttH plan. While the Obama Team in its early days indicated its support for a trans-sectoral approach it now appears that a case must first be built to support the need for the infrastructure to deliver trans-sector benefits.

This half-hearted attitude will give the old school lawyers and economists all the room in the world to continue their linear approaches to the old telecoms environment, which are driven, not by national or broader social and economic interests, but solely by the desire to maximize their own profits. And it is obvious that the current vertically-integrated telcos and cablecos have a vested interest in maintaining their own lucrative status quo.

Such a debate – which, as we know, will be mainly driven by lawyers – has been closed off by the Australian government and, that being the case, the incumbents in Australia are taking a totally different approach. They (both telcos and cablecos) have concluded that a trans-sector approach – based on an open network policy – will lead to a bigger telecoms pie overall, which will offer more opportunities. And so they are now, for simple economic reasons, putting their support behind a trans-sector approach.

This would never have happened if the government had not set a clear goal.

On a more positive note in relation to the situation in the USA, President Obama, the FCC and the Department of Commerce are all clearly supporting the trans-sector approach coupled to the need of a national high-speed broadband network and as such they are slowly but steadily chipping away the old structures; it might take a bit longer but the end result will be the same.

## **7. TRANS-SECTOR REQUIRES INTELLIGENT APPROACH TOWARDS MEASUREMENT**

Nevertheless, despite the differences in approach, an empirical methodology around the collection, measurement and interpretation of socio-geographic data is needed to support any FttH process.

Once the decision has been made that FttH infrastructure is in the national interest it becomes much easier to change the rather inflexible and silo-based measurement and decision-making procedures of the past into intelligent (smart) ones, aimed at creating a new horizontal system that is viable from both a social and economic perspective.

The problem we see in the USA is that a lack of a clear (policy) goals makes it difficult to ask the right questions, and to know what to measure. It will also be rather difficult to compare the various submissions, which will be written according to completely different (possibly opposing) goals depending on the interpretations and the positions the submission author represents (eg. national interests vs. vested interests).

Once the high-level policy goals (hypotheses) are defined, what needs to be tested becomes evident. Without those clear hypotheses the door is wide open for an undermining of the actual process and its outcomes. Submissions that are based on unambiguous hypotheses will be more constructive in nature and will provide far more valuable and credible information that can be used to measure the right models needed to move forward.

This makes it possible to take a far more granular trans-sectoral approach to the actual socio-economic measurements that need to be taken, which then makes it possible to establish detailed correlations between these sectors. When this is added to knowledge-based systems intelligent predictions can be made about the requirements of services within certain areas, and, in fact, even on a personal basis. This is totally in line with the interactive and personal nature of the capabilities of an FttH infrastructure.

As a result critical information can be supplied to:

- Government agencies for a range of social, environmental and economic issues;
- Networks operators for the design and topology of their infrastructure; and
- Providers of these end-user services.

A well-structured and intelligent measurement process – known as behavioral economics – can generate predicted behaviors of patients, customers, staff and communities and can lead to significant

service improvements. Governments can be far more precise in predicting where certain services are going to be needed, thus increasing productivity, efficiency and avoiding waste. Finding where the gaps are, or will be, for certain services becomes easier and when this is linked to the new electronic mapping tools it becomes possible to drill down deeply to where the efforts are needed the most.

Increasingly organizations involved in these data systems are personalizing their services further by getting the end-customers to actively participate. At BuddeComm we tried out a predictive data healthcare service from pkc.com. It can link up to 100 different sectors into its database. This database is linked to a knowledge database that, according to the input data, can come up with predictions that can be used to advise the patient and their carers. Such systems can also be operated by healthcare providers, who can go through the process together with their patient.

## **8. MASSIVE INCREASE IN EFFICIENCY, PRODUCTIVITY AND CUSTOMER SATISFACTION**

It is not too difficult to extrapolate the concept behind this example to energy, transport, education and so on – not to mention the thousands of commercial applications that can be used.

Already we are seeing these predictive data services used in mobile networks, websites, search engines and so on. Profiling is another technique used to enhance predictions. This allows for far more intelligent lifetime-value propositions, loyalty services, customer service, and quality control.

The basic notion for all sectors is that it is essential to collect high quality data on inputs and outcomes, and then, using proven analytical methodologies to analyse the data, to turn it into information and put it to use. This increases the value of anything you measure many times over. It does, of course, help to have lots of information. Small data sets can overturn even the best hypothesis, since they do not represent a large enough population to corroborate or reject the premise.

With the right sort of data made available it becomes possible to calculate the various economic benefits. Demand forecasts based on intelligent socio-geographic data, as well as in relation to the impact of certain applications on the network (capacity demand), are other important outcomes. The demand for skills and services can be predicted and linked to job creation, training, etc.

Increasingly local and state governments are looking at broadband for economic development purposes, and predictive data can become very useful in this sector also, to actually put some figures into the mix. Furthermore, all of the systems provide services that can follow actual developments and compare them with the predictions. This not only provides accountability but maximizes the end results as well, since finetuning can take place in an intelligent way rather than adjustments being made with a stab in the dark.

Other benefits of these systems relate to job retention, customer satisfaction and in general the wellbeing of the ecosystem in which the organization participates.

These predictive data tools are going to transform customer service, but the results will only be as good as the company that is behind the actual service. As we have seen in the past, more data does not necessarily mean a better service. The organization must maintain top-level commitment to use the predictive data to the advantage of their customers, staff and the community at large.

## **9. PRIVACY IS PARAMOUNT**

Privacy is paramount in these services, but fortunately there are many ways to address this issue.

Most countries have long-established government-based data research institutions (Census Bureau USA, Australian Bureau of Statistics) which have strict rules and procedures in place that can be benchmarked. They are also an excellent source of a great deal of good quality basic data that can be used in the intelligent data processes mentioned above.

Within these intelligent measurement systems none of the data needs to be personally tagged and all personal data remains in the ownership of the customer. Nevertheless strict legal privacy rules will need to be applied as these predictive services become more prevalent.

However, in principle, the social and economic benefits significantly outweigh the negatives. In healthcare for example, according to the Australian National E-Health Transition Authority, 80% of people are in favor of an electronic patient record system, which would allow for potentially helpful interaction with other data and medical knowledge databases to assist people in the management of their healthcare.

Unlike advertising, marketing, telco and other commercial organizations that gather data, it is in the interest of these data companies to provide that 100% guarantee. While others might receive a slap on the wrist but continue to operate their core business more or less unpunished, the credibility of these specialized companies would be at stake if they were to misuse data.

## 10. OTHER REPORTS

[Country by country overview of national fast broadband initiatives](#)

See also:

[Global - Economic Crisis - Strategic Developments for Comms during the Crisis](#)

[Global - Economic Crisis - Strategic Vision for Comms after the Crisis](#)

[Global - Infrastructure - Next Generation Telecoms](#)

[Global - Investing in the Communications Revolution](#)

[Global Recovery will depend on Trans-Sector Vision](#)

[Smart Cities, Buildings & Communities](#)

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