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EFFECTIVE REGULATION: THE 'STIMULUS PLAN' FOR THE ICT SECTOR

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1 INTRODUCTION

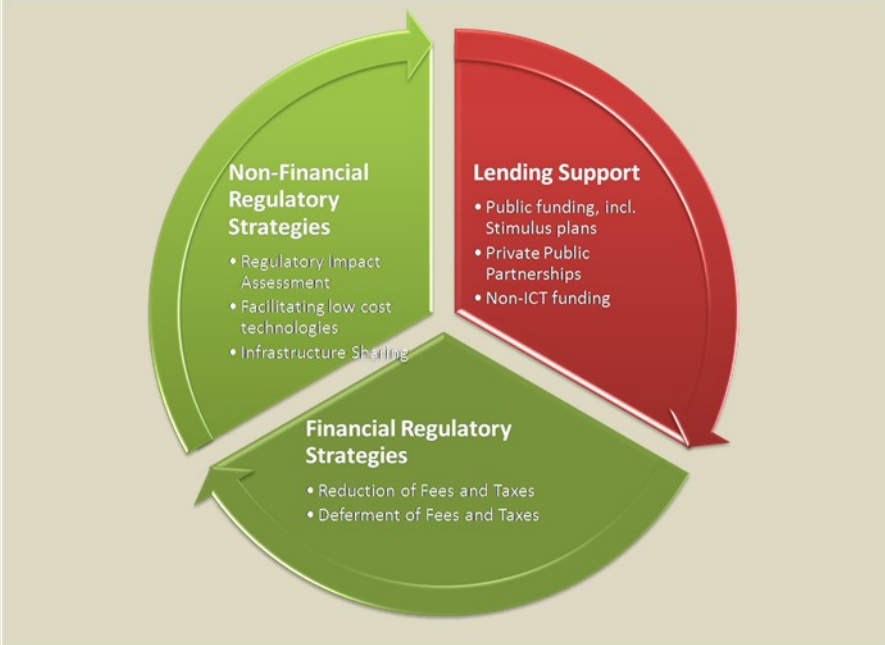
The ICT sector, known for experiencing troughs and peaks in terms of investment, has seen difficult times over the last twenty years. The sector survived the 1987 market shock. It rode through the early 1990's recession with some casualties. Most recently the sector took a particularly hard knock when the "dot.com bubble" burst in the early 2000's and yet again, it not only recovered but experienced unprecedented growth. Now the whole economy is facing a global financial crisis. There are varying perspectives on how the current crisis will impact the ICT sector.[i] Some investors may opt to wait for the recovery before making further investments or taking any risks; others still may see opportunity, particularly in developing countries, and with regard to the use of low cost, disruptive technologies. Whether opting to wait out the crisis or to take advantage of the opportunities presented by the crisis, the role and relevance of policy makers and National Regulatory Authorities (NRAs) will have to increase, bringing to focus the need for them to design creative incentives to increase consumer and investor confidence in the sector.

This paper examines the key role of regulation in increasing confidence, reducing risk and encouraging investment in the ICT sector in light of the global financial crisis. It will first examine the impact of the economic downturn on (1) ICT sector regulation and regulatory reform, (2) the market for ICT products and services and consumer demand, and (3) regulatory incentives for operators in light of the crisis. It will argue that although there is inevitably an impact across all three areas, the ICT sector is on fairly solid ground with respect to the development of regulatory and institutional frameworks, and that demand for ICT services, many of which are now considered a necessity, will not wane disproportionally, although affordability may. In isolating the challenges that the economic downturn brings about in the ICT sector, it becomes clear that the crisis is primarily one of funding and investment.

Moving from this premise, this paper will discuss how NRAs and policy makers can proactively address the challenges brought about by the global downturn and avoid a knock-on effect in the ICT sector through a two-pronged approach that sees governments:

- Lending financial support, i.e. offering mechanisms to provide alternative financial support to potential and existing investors and making available public sector financing, including through 'stimulus packages' and Public Private Partnerships (PPPs); and
- Lowering the costs of doing business, i.e. recognising the need to reduce operator's capital and operational costs and thus increase operating margins and profits through direct financial incentives such as lower or deferred license fees and taxes, and through non-financial means such as introducing regulatory measures that promote efficiency. Both the provision of financial incentives and the implementation of non-financial strategies will be explored.

Figure 1: Options for supporting the ICT sector



Source*: M Msimang, Pygma Consulting*

2 Pinpointing the Crisis: Contextualising the ICT Sector in the Global Financial Crisis

2.1 A crisis of regulation?

One of the lessons that governments, NRAs and even members of the private sector have taken away from the global financial crisis is that there was ineffective regulation in the financial sector, especially in developed countries. As a consequence, confidence in financial markets collapsed and the United States and many European Union (EU) Member State governments such as those of Spain, Portugal, and the United Kingdom, have turned to "bail outs" and "recovery plans" to increase demand and create jobs; many of these plans have included an increased role of the state in these otherwise free markets.

The risk is that other regulated industries, including the ICT sector, will interpret this as a debate between 'too much' and 'too little' regulation, as opposed to *effective* regulation. As a "knee-jerk" response, some may turn to increased regulation to correct the situation without conducting a detailed analysis. However, it must be noted that the ICT sector is already more strictly and effectively regulated as a consequence of its socio-economic imperatives, the nature of investment in the sector and the measures that were put in place following the late 1990's bubble burst. Since the 1990's the ICT sector, with a solid market reform agenda, sound institutional frameworks, grounded regulatory and policy principles and significant international collaboration, has arguably been better regulated that the financial sector. The market reform processes that have been embarked upon have led to the opening up of markets to competition in a majority of countries, resulting in at least 123 partial or full privatizations of incumbent operators and the establishment of 153 regulatory agencies in 2009.

Thus, it is difficult to make a direct correlation between financial and ICT sector regulation. However, overall, one lesson that can be carried from the ICT sector into the financial sector is that good regulation, which is transparent and reduces risk for all stakeholders, is key. Regulatory frameworks should exist not just in theory or on paper, but should be properly implemented, monitored and enforced.

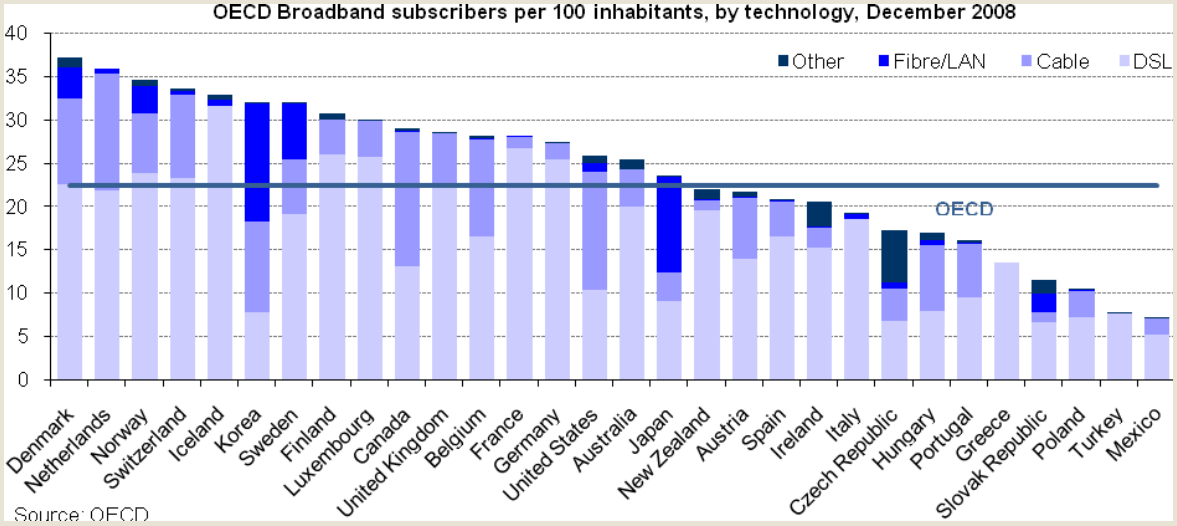
2.2 A CRISIS OF OPPORTUNITY?

Before any actions are taken to reinforce market confidence, the question must be asked – is there still growth potential? Do ICT sector opportunities continue to exist? While it is clear that operators and service providers will have to adjust their strategies and tariffs to accommodate the impact of the crisis on consumers' personal budgets, the answer is unequivocally yes.

Growth in the mobile sector has continued into 2009 despite the fact that the markets had been jittery since 2007[2]. With Europe's average mobile penetration rate being over 100 percent, potential growth lies in the fact that new services can give way to new opportunities. However, in terms of infrastructure, the growth potential for mobile is greatest in developing countries – Africa's average mobile penetration in 2008 was 32 percent and Asia's was 46 percent.

In the same period, broadband penetration was 20 percent in Europe, 13 percent in the Americas, almost 4 percent in Asia, and less than 1 percent in Africa.[3] The number of mobile broadband subscribers had reached 264 million in OECD countries alone, and the OECD average broadband penetration is 22.4 percent[4], in 2008. As per Figure 2, countries with the highest broadband access such as Denmark, the Netherlands and Norway have penetration levels of approximately 35 percent which shows that there is still a lot of room for growth within the mobile broadband sector– even in developed countries. [5]

Figure 2: OECD Broadband Penetration, December 2008



Source: OECD Broadband Portal

2.3 A FUNDING CRISIS?

As discussed in Section 2.2, despite the global downturn, the markets for ICT products and services, many of which are considered a necessity, remain attractive. Granted, in light of the reduction in the overall affordability thresholds of individuals, consumer spend may be reduced across both developed and emerging markets. This reduces the profitability of the markets but does not make them unattractive from a commercial perspective, particularly in developing countries that still have relatively low penetration. In addition, as set out in Section 2.1 the bottleneck arises as a result of constraints revolving around access to finance, as opposed to due to lack of liberalisation of ICT sectors.

Historically, the scope and diversity of financial mechanisms to support ICT investments has been quite extensive. As private sector investment has increased it has been secured through several channels including:

- internally generated funds;
- equity financing (provided by the sale of shares to investors);
- debt funding (through commercial banks and related financial institutions);
- vendor financing (through equipment suppliers[6]);
- sale of bonds;
- PPPs or private-private partnerships (including an increasing number of non-traditional players from other utilities or industries);
- partnerships with foreign donors and lenders such as the International Finance Corporation (IFC), the Asian Development Bank and the African Development Bank. It should be noted that in recent years these institutions have provided less direct private

sector funding and more assistance related to sector reform and targeted direct assistance, or universal service structuring and provision.

- A significant amount of private investment in developing countries has been channelled through Foreign Direct Investment (FDI). Even prior to the global financial crisis, domestic investment has been hindered by the lack of banking reform, and small equity and bond markets in many developing countries.

Box 1: Foreign Direct Investment

FDI in a country's domestic market is achieved through the privatization of the incumbent operators and the licensing of new foreign market players, whether they are fixed, mobile or Internet, and through the authorization of new services such as Internet Service Providers. The dependency of many developing country economies on FDI in their ICT sectors to boost their GDP is significant. As such, the ICT NRA's role in trying to encourage and if possible maintain similar FDI levels is critical. This role can be enhanced through cooperation with national investment promotion agencies (IPAs). According to UNCTAD, IPAs should seek to (1) reduce the impact of the crisis on the existing investor community; (2) consider the specificities of each sector and target investors based on sector prospects; (3) improve the business climate through policy advocacy; and (4) increase their own efficiency by directing their internal resources appropriately.[7]

Needless to say, as the global financial crisis has deepened, access to these types of funding has become increasingly restricted, particularly in developed countries. Global liquidity has dried up, which in turn has curtailed growth and international trade, resulting in the reduction and in some instances depletion of international capital flows. This has had a knock on effect in developing countries, causing a reduction in FDI flows.

3 Regulatory response: creating financial incentives

'Stimulus packages' and 'recovery plans' in the financial sector can be considered an *ex post* response by governments to market failure in the financial sector. NRAs' *ex ante* response to potential market failure in the ICT sector is effective regulation. As previously mentioned NRAs and policy makers can proactively address the challenges brought about by the global downturn and avoid a knock on effect in the ICT sector through a two-pronged strategic approach that sees governments (1) providing funding and thus providing lending support, and (2) implementing good regulation to lower costs.

3.1 Lending Support

As a principle, NRA's have over the past decade increasingly left the private sector to spearhead ICT investment only stepping in through the use of tools such as financial mechanisms for universal access where a market gap is identified.[8] In 2009, reduced access to capital, changing perceptions of risk and shifting definitions about what is economically viable in this climate – i.e., worth the return on investment – are reducing the number of areas where operators can venture due to lack of finance. They are also affecting operators' ability to make financial commitments to upgrade existing networks. Funding is also required in light of the increased challenges associated with the rollout of broadband infrastructure and Next Generation Networks (NGNs).

The temptation to respond to these challenges by increasing the role of the state in the ICT sector, in light of a similar trend in the financial and banking sector may be an unintended consequence of the present global economic downturn. Increased intervention by the state, a financial sector solution, is the antithesis of what is understood to be good practice for regulatory reform in the ICT sector. The hallmark of ICT sector reform is that the public sector has gradually withdrawn from the provision of services and has made way for private participation and the establishment of independent regulators globally over the last 20 years. State funding, however, *can* play an important counter-cyclical role. The state can augment private sector investment in light of reduced capital flow, namely through:

- Public funding programmes and investments, including
    - "Stimulus packages", and
    - Public Private Partnerships (PPPs)
    - Loans guarantees and grants
- Facilitating investments by non-traditional ICT investors, such as banks and electricity companies.
- Further to that, NRA's can play a critical role in developing frameworks to monitor the implementation of the commitments arising from the various stimulus plans and recovery packages, PPPs, and alternative investments.

3.1.1 PUBLIC FUNDING PROGRAMMES AND INVESTMENTS

The notion of governments playing a role in funding ICT sector development is not new, but its application has been controversial. Financing by the state has historically been linked to the ownership and operation of public assets, which reduces independence and increases investment risk. More recently any such funding has not been provided directly, but has been provided through NRAs and associated agencies, such as universal service agencies or administrators. Some funds such as Fondo D'Inversion en Telecomunicacions (FITEL) in Peru, the Telecommunications Development Fund (TDF) in Chile have been successful. However, the track record for allocation and disbursement of funds has generally not been good. Funds have sometimes been managed in a manner that is not transparent or accountable - thus reducing the credibility of the agencies and increasing investment risk.

With the role of the state in funding investment becoming more prominent, it is important that the principles for state involvement are clear. Recent trends in some African and Latin American countries in the last two years for governments to fund and specially licence state owned networks pose a threat to otherwise stable regulatory environments. This is evidenced by efforts by governments to increase their direct involvement in the operations of fixed and mobile operators. As illustrated by the EU's rules for the provision of state aid to fund broadband (see Box 2) funding for networks should be issued against a backdrop of clarity around:

- the criteria for intervention,
- the procedures for access public funding,

- the ownership model, and
- the thresholds available.

This information should be publically available, and competition for public resources should be encouraged to keep costs low through competitive bidding processes, reverse auctions, or other methods for allocation of state funds. These methods have been used to successfully allocate government and universal service funds in countries like Peru, Chile and Uganda without distorting competition.

Another way to manage the impact of state funding on competition is to provide public funding that targets non-infrastructure areas of the ICT sector such as research and development, job creation and education including provision of access to public schools and libraries, or also low-income population or groups with special needs. In the pecking order, with no tangible assets that can be used as surety, these areas may find it more difficult to attract investment. However, government funding in these areas assists in meeting universal service goals and spurring investment by increasing public access, and growing demand in a competitively neutral manner.

Box 2: EC Rules for State Aid for Broadband

In principle, infrastructure support must be given only to bridge the digital divide. Support should, therefore, be limited to areas where it is not commercially viable for private sector operators to establish adequate facilities. The European Commission distinguishes in this context between white, grey and black areas.

1. White areas are sparsely populated rural zones, where no broadband access except via satellite or leased lines is available. In such areas, state aid is in general allowed (rural broadband in Greece, optical fibre and rural internet access in Lithuania).
2. Grey areas are areas where broadband is already provided. Here, permission for state aid demands a more detailed assessment (optical fibre infrastructure for wholesale provision in urban Ireland through a publically owned network).
3. Black areas are those where at least two competing infrastructures exist, and where there will be a high risk for market distortion if state funding is allowed -in such areas state aid is generally not allowed.

Source: Investment Dimensions in a Universal Service Perspective: Next Generation Networks, Alternative Funding Mechanisms And Public-Private Partnerships, Morten Falch and Anders Henten

3.1.2 Regulating the Spinoffs from Economic Stimulus Plans

Many developed countries and nearly all OECD governments have put in place macro-economic stimulus packages to stimulate demand in the short term, injecting cash into the economy and protecting existing jobs. Although impacted by the financial crisis that started in developed countries, developing countries with the exception of a few including Malaysia and Mexico have not developed stimulus plans. However, the April 2009 G20 meeting, billed as the "London Summit," allocated USD 100 billion of the USD 1.1 trillion global package to multilateral development banks (MDBs) to support lending to developing countries.[9] Both country-specific stimulus plans and the global G20 responses focus on increasing the liquidity of the financial system and banking sector. Like funds allocated through stimulus plans, the G20 funds as well as unallocated UAFs can be used as funding for implementation of ICT projects in developing countries.

In many cases country-specific stimulus plans have additionally put forward measures relating to innovation and long-term growth aimed at other sectors seen as important for macro-economic stability, including the ICT sector which contributes approximately 7.5 percent of GDP worldwide and impacts growth in other sectors.[10] Canada, Finland, Germany, Spain, Portugal, the United Kingdom and the United States included measures to expand broadband access and to bolster connection speeds in their planned economic stimulus plans. This includes investment in infrastructure, applications and human resources. With the economic downturn attracting investment in new technologies, broadband networks and ICT infrastructure broadly, will provide significant opportunities not just for short-term gains and job creation, but also longer term economic and social benefits.

Where stimulus plans deal with investing in ICT infrastructure and applications, they do so on two levels: (1) extending broadband to areas that are not served, primarily rural and remote areas, and (2) upgrading existing networks to support very high speed broadband connections.[11] NRAs, in the countries where these policy measures are being taken, can play a critical role in monitoring the implementation of the commitments arising from the various stimulus plans and recovery packages:

- The United States' Federal Communications Commission (FCC) has an important expert technical advisory role to play and must define key concepts such as "broadband", "unserved area," and "underserved area" and provide advice on the non-discrimination obligations and network interconnection obligations that will become contractual conditions of broadband grants. The National Telecommunications and Information Administration and the Rural Utilities Service of the Agriculture Department have grant and loan making responsibilities under the plan and are responsible for disbursing the funds.[12]

- The Malaysian Communications and Multimedia Commission (MCMC) has also been given an explicit role in the implementation of the USD 16.2 billion stimulus plan -- USD 651 million of the rescue package has been provided directly to MCMC to facilitate broadband community centres and provide basic telephony services in rural areas.[13]

NRAs, when they are in charge of implementing stimulus plans, should ensure that pledges of government funding are channelled through PPPs, grants, and loans to investors. They should not be construed as efforts to increase the long- term direct involvement of the state in infrastructure rollout. The involvement should be competitively neutral and in no way distort commercial incentives for efficient investment.

Table 1 : Examples of stimulus plans

	Date	Stimulus Plan Approach	ICT Contribution	Total Contribution (2008 – 2010)
European Union (part of European Economic Recovery Plan)[14]	Nov 2008	• To speed up investment, and to reduce the impact of the economic downturn • To enhance the EUs longer term sustainable growth potential through a targeted stimulus into the EU	EUR 1 billion, (USD 1.4 billion)	EUR 200 billion (USD 280 billion)

		economy. • Specific mention of broadband connection of rural areas.		
Portugal	Jan 2009	• To provide a credit line to investors to rollout NGNs to boost the competitiveness of the economy. • Credit line is part of an agreement between the government Portugal telecom, Zon Multimedia, Sonaecom, and Oni rollout.	800 million Euro (USD 1.12 billion)	2.18 billion Euro (USD 1.9 billion)
Malaysia	March 2009	• National operator is to establish a subsidiary to facilitate and improve broadband infrastructure. • MCMC to facilitate broadband community centers and provide basic telephony services in rural areas. • The plan also encourages companies to employ retrenched workers by giving them double tax incentives. • It also forms a special task force to monitor the impact of the financial crisis.[15]	3 billion ringgit (USD 813 million) Additional 2.4 billion ringgit (USD 651 million) directly to MCMC	60 billion ringgit (USD 16.2 billion)
Singapore	Jan 2009	• Homes and offices to be connected to NGN (broadband) by 2013. • Structural separation of network infrastructure from operating company. Government allocated SGD 750 million to the existing company that will manage passive infrastructure on the FTH network • A separate private sector company has received a SGD 250 million (maximum) loan to support infrastructure deployment.	SGD 1 billion (USD 650 million) Additional part of SGD 183 million for funding Intelligent Nation Masterplan[16]	SGD 20.5 billion (USD 14.5 billion)
United States	February 2009	• Provision of grants, loans and loan guarantees based on guidelines to be developed. • The funding is to be used for Rural Utilities Service (USD 2.5 billion) to provide and improve service in unserved and underserved areas and Broadband Technologies Opportunities (USD 4.7 billion) for stimulating demand for broadband, improving service, and providing support for public interest schemes facilitating access, and improve broadband uptake by public safety agencies.	USD 7.2 billion	USD 789 billion

Source: Author, adapted from OECD DSTI/STP/ICCP(2009)1/ADD/FINAL[17]

3.1.3 PRIVATE PUBLIC PARTNERSHIPS (PPPS)

The challenges posed by government-led, institution-led and private sector led investment, can be reduced through the development of creative investment models, and tapered through the development of a PPP model. The scope of this model has been widened to include citizens, civil society and non-governmental organisations, thus creating a Private Public People Partnership (PPPP).[18] PPPs, built on the expertise of each partner, represent a coordinated effort between businesses and governments to pursue investment opportunities through government subsidies, or co-financing arrangements particularly where projects have a socio-economic imperative.

PPP models have evolved over the last fifteen years. Interestingly, where PPPs have historically been concerned primarily with private sector partnering with the public sector at the request of the public sector for the public good; the focus will now shift and requests for investment are likely to come from the private sector. Traditional PPPs such as the rural telecommunications networks that were established in through Build-Operate-Transfer (BOT) in Lebanon and India; via Build-Transfer-Operate (BTO) arrangements in Thailand and the Philippines; and through Build-Own-Operate (BOO) arrangements in Malaysia and Solomon Islands. In general, BOT, BTO and BOO arrangements are all project finance structures aimed at attracting investment and management expertise required to develop ICT infrastructure in countries with state-controlled ICT sectors.[19] Through these arrangements infrastructure investment was funded and initially operated by private investors before being transferred to the state in the long term. This is the opposite of the PPPs currently being proposed. A growing trend in Europe is for publicly funded broadband infrastructure to be built with the objective of privatising or opening to competing service providers it in future.

Box 3: Africa Infrastructure Fund

The Emerging Africa Infrastructure Fund ("EAIF") aims to address the lack of available long-term foreign currency debt finance for infrastructure projects in sub-Saharan Africa. EAIF offers USD and EUR lending to private companies (or soon to be privatised companies) for greenfield projects or for refurbishment, upgrade or expansion of existing facilities.

Investments with a tenor of up to 15 years can range from a minimum of USD 10 million (or equivalent) to a maximum of USD 36.5 million (or equivalent) for any one investment. Loans are provided without the need for political risk cover to projects across a wide range of sectors including telecoms, transport, water and power, amongst others.

Source: Africa Infrastructure Fund, http://www.emergingafricafund.com/about-us.aspx

PPPs may turn out to be the preferred model to utilise the funds set aside through stimulus packages. They will also continue to be important in developing countries where stimulus packages may not have been set, but government funding, possibly through UAFs, and MDBs can supplement private sector funding. PPPs will also be important in countries like Australia, France, Hungary, Ireland, Japan and Korea (Rep.) that have announced the finalization of separate broadband plans in parallel to, but not as part of, their stimulus packages.

An important emerging trend, even before the global financial crisis, has been the involvement of local and municipal governments in the direct deployment of next generation core and access

networks through PPP arrangements. Municipally-sponsored projects have arisen across Europe and in the United States particularly making use of unlicensed frequency spectrum bands and low costs technologies like WiFi. Many of these projects are designed to grant open access to competitive broadband service providers.

Box 4: Achieving Universal Broadband Access through PPP in Australia

In 2009 the Australian government announced that it would establish a company, of which it will be a majority shareholder, in partnership with private sector investors. Under a PPP model a separate majority government-owned utility will be established to be privatized within in five years after the network is built and fully operational, consistent with market conditions, and national and identity security considerations. Importantly, The company will:

- be Australia's first national wholesale-only, open access broadband network
- be built and operated on a commercial basis by a company established at arm's length from Government and involve private sector investment
- be expected to be rolled-out, simultaneously, in metropolitan, regional, and rural areas.

The company will invest USD 43 billion over 8 years to build and operate a new high speed National Broadband Network which will connect 90 per cent of Australian homes, schools and workplaces with broadband services with speeds up to 100 megabits per second. It will connect all other premises in Australia with next generation wireless and satellite technologies that will deliver broadband speeds of 12 megabits per second; and will directly support the creation of up to 25,000 local jobs per annum over 8 years.

Source: Australian Government Media Release, http://www.pm.gov.au/media/release/2009/media_release_0903.cfm, 7 April 2009

The fact that the funding for PPP increasingly comes from the public sector does not change their governance and management principles. Generally, regulators and policy makers seek to ensure that PPPs, and in fact any intervention involving public sector funding should have the following structural characteristics:

- Networks are built and operated on a commercial basis by a company established at arm's length from government.
- PPPs should not assume a long-term ownership role by government. Government should specify the conditions under which it will reduce its interest and provide an estimated time frame. In the Australian case (see Box 4) after 5 years, once the network is built and fully operational, consistent with market conditions, and national and identity security considerations, the government will sell off some of its interest.[20]
- If not properly managed the combination of public and private investment in a PPP can pose risk to other and future investment. PPPs should not compromise the competitive neutrality of the ICT regulatory framework by the fact that a government has a stake in a commercial player active in the sector. The Australian example (see Box 4) addresses this through confirming that the network will be a national wholesale network that does not compete at retail level.

- Where the PPP requires scarce resources, particularly wireless spectrum, it should be assigned in an open and transparent manner that does not distort competition, and mechanisms should be put in place to encourage efficient spectrum use.
- At an infrastructure level, particularly with the move towards NGNs and IP-based services, the support for ubiquitous open access networks should be implemented in the case of PPPs. The Australian case described in Box 4 is one such example.

3.1.4 Loan Guarantees and Grants

An alternative to direct government involvement in the rollout of projects, is the provision of loan guarantees or grants to investors at a reasonable rate. Governments, Non-Governmental Organizations (NGOs) and philanthropic organizations such as the Bill and Melinda Gates Foundation[21] provide grants to different categories of investors. In addition, governments can provide loans at preferential interest rates, or can partially or totally underwrite loans given by financial institutions and in so doing, reduce the risk associated with the investment. Loan guarantees represent a key element of a funding strategy in that they enable the governments, amongst others, to provide support at an arms' length.

Loan guarantees have been used by MDB and NGOs in supporting micro-finance institutions lending to SMME's. The Grameen Foundation's Growth Guarantee is one such example and is one of the microfinance industry's largest financing efforts dedicated to ensuring adequate liquidity for fast-growing Micro-Finance Institutions (MFIs.) It was developed as a collaborative effort between a major bank and a few individual high net worth donors. The donors do not make a direct financial contribution, but rather lend their names and credit while continuing to earn returns on their individual investment portfolios. The Grameen Growth Guarantee has provided loans to MFIs in Tunisia, Bolivia, the Philippines, India, and Nicaragua and is anticipated to amass USD 50 million for disbursements as loan guarantees. 22. Another example is Multilateral Investment Guarantee Agency (MIGA), a World Bank agency that provides political risk insurance to foreign investments in developing countries, which has supplied an additional USD 700 million to the ICT sector through private investment guarantees.[23] These examples illustrate how loan guarantees can play a key role in a climate where commercial banks are reluctant to lend.

Increased reliance on Multilateral Development Banks (MDBs)

Public sector funding, either directly, or via PPPs is one approach to addressing the inability of traditional sources of funding to support ICT investments. Additionally, alternative, but not necessarily new, funding partners, such as MDBs and bilateral and multilateral development agencies and bodies will gain importance, especially in a developing country context. Although there are few examples of developing country stimulus plans, the $100 billion of the G20's $1.1 trillion global package that is allocated to emerging markets and developing countries will be channelled through the International Monetary Fund and possibly other MDBs. As in the case of stimulus plans, it can be expected that a portion of this will be put to use in the ICT sector.

MDBs are already involved in financing ICT in emerging markets and include organisations such as the World Bank Group (WBG), the European Bank for Reconstruction and Development (EBRD), the

Asian Development Bank (AsDB), the African Development Bank (ADB), the Inter-American Development Bank (IADB) and the European Investment Bank (EIB) which offer catalytic or complementary investments which represent only a part of the total investment in a project. The International Finance Corporation (IFC), a member of the WBG has played a role in financing and providing technical support to operators in Uganda, Palestine, and Cameroon, amongst others. Furthermore, MDB investments appear to have played an important counter-cyclical role, providing support in the post-2000 period when flows from the private sector diminished. MDB funding may be sought to fund new investments and extensions of existing networks in developed countries as well, to the extent that is aligned with their mandates.

3.2 New Non-ICT Funding Sources

As the potential of applications developed by the ICT sector grows, and as opportunities for investment in the sector increase given rapid technological development, ICT investment from non-ICT funding sources is increasingly possible. In addition with ICT increasingly being seen as a catalyst for growth in other sectors, cross—investment is becoming more likely. This is generally carried out through partnerships between traditional ICT companies, whether they are telcos, mobile operators, or ISPs and companies from other historically unrelated sectors such as electricity, banking and construction.

3.2.1 Electricity Sector

In addition to the shift in focus of existing sources, there are new sources of funding for the sector based on strategic partnerships. Investments by non-traditional ICT players are on the increase. Infrastructure companies in other sectors such as electricity are finding means of entering the ICT space, especially with the development of Power Line Communications systems with mixed results in Australia, Portugal, the United States and Spain. Trials and pilot projects have been embarked upon in Egypt, Indonesia, Saudi Arabia and Ghana amongst others. This trend is a result of convergence of platforms and is not a result of the financial crisis, however, in light of the crisis, potential sources of funding from outside of the traditional ICT sector should be encouraged. NRA's licensing and market entry requirements should not preclude the involvement of new types of players in the ICT space.[24]

With the development of new ICT applications such as mobile enabled financial services (m-banking), banks and non-banking financial corporations have been entering the ICT space. This is generally being done in partnership with mobile operators. M-banking models and services have been successfully implemented in Afghanistan, Kenya, India and the Philippines and are set to gain favor, particularly in developing countries where much of the population is unbanked, but has access to mobile communications. It is natural to question the opportunity for m-banking in the midst of a financial crisis. However, the recession may in fact be a catalyst for ICT innovation and specifically for the uptake of m-banking. While obtaining loans and financing may be increasingly difficult, due to the crisis, many banks have experienced a shortage of liquidity and resources from international markets. To overcome this deficit, banks have aimed to expanding their depositor base by offering new products and targeting new market segments, including the poor.[25] A key challenge of m-banking though, which is increasingly obvious in light of the crisis, is how to ensure that payment systems are adequately supervised and regulated by financial regulators or telecommunications regulators, and in some cases, both. (see Box 5).

Funding for m-banking can be sought from outside the ICT sector. It can be obtained from organisations with interests in expanding access to finance, not just ICT. Such funding may be made available to operators and banking institutions, but is most likely to be channelled toward research and supporting activities to improve the informational, policy and regulatory environment in which m-banking initiatives will be appreciated (See Box 5).[26] The global microfinance resource center known as Consultative Group to Assist the Poor (CGAP) made a new four-year commitment in 2008 to identify, fund, research and champion technology that enables banking services for more than 25 million people across 20 countries. CGAP will provide USD 10 million to microfinance groups, banks and mobile phone providers to find business models that succeed in this endeavor. The Bill and Melinda Gates Foundation has co-funded this work since 2006.[27]

Box 5: M-banking presenting opportunities and challenges in the midst of a financial crisis

M-banking services present new and unique challenges for regulators and policymakers in the ICT and financial sectors include the following:

- Determining where m-banking services fall in the ICT and/or banking licensing framework
- Calling for greater cooperation and collaboration between the banking and ICT sectors
- Creating robust e-commerce frameworks which recognize electronic signatures and PIN numbers
- Determining how to ensure effective consumer protection and education.
- Allowing non-bank and non-ICT third parties, such as local merchants, to conduct "cash-in/cash-out" transactions and interact directly with customers.
- Adapting the anti-money laundering and anti- terrorism framework to the realities of transactions conducted through m-banking
- Balancing competition policy issues —creating incentives without allowing monopolies.
- Making sure payment systems are open to all players and adequately supervised.
- Determining what taxes and fees should be levied and who should collect them.

Source: Author, adapted from http://www.bankablefrontier.com/assets/ee.mobile.exec.summary.pdf[28]

Strategic partnerships such as those in the financial and electricity sectors bring in new expertise and broaden the scope of funding for ICT development at the application and services levels, and bring in investment that would traditionally have stayed outside of the sector. While NRAs may not be able to directly influence funding decisions using these models, they play an important role in promoting such innovative models and ensuring that any barriers to entry into the relevant markets are only to protect consumers. In the case of banking applications, obviously NRAs and their financial sector counterparts will need to collaborate to ensure that there are pre-defined standards of transparency, liquidity and financial strength in order to protect consumers.

4 Regulatory response: Lowering Business' Costs

Creating a conducive environment so that investors can secure funding, and in some cases providing funding directly, is one approach to creating a market-friendly climate. Additionally, as will be seen in this section, NRAs can directly influence the *cost of regulation*. If regulation is considered a product, i.e. a set of instruments through which government implements requirements on different stakeholders, then it becomes clear that the costs of this product can be controlled.[29] In a

constrained economic climate, one of the key contributions that NRAs can make to create a favourable environment for new and existing investors is to seek to reduce the investor's operational and capital expenditure costs that are directly affected by the NRA's behaviour and decisions such as decisions on new regulations and rulings on issues such as introduction of new requirements such as number portability, local loop unbundling and carrier pre-selection. Regulations such as these which require operator-investment in order for them to be implemented should be canvassed properly before being introduced and implemented in the most cost effective manner. The regulatory costs associated with these decisions affect the sustainability of companies, and ultimately impact the pricing of services offered to end users and consumers, whose affordability is decreased and who are also under pressure in the current economic climate. There is therefore value in regulation that produces the desired results as efficiently as possible.

This section recognises the fundamental need for operators, now more than ever, to control their costs. It will consider how NRAs and policy makers can use direct financial incentives (reduction or deferment of fees and taxes, tax incentives), and non-financial strategies (regulatory assessments, assignment of spectrum to deploy low cost services, forward looking consideration of mergers and acquisitions, and facilitation of infrastructure sharing) to create a market-friendly regulatory environment.

4.1 Direct Financial Incentives: Review of Fees and taxes

Levying proportionate fees is important. Many of the current fees for licences, spectrum, numbers and other resources were arrived at a while ago, prior to the change in the economic climate. NRAs can support existing operators and service providers, and encourage the entry of new ones by assessing:

- **the appropriateness of the fee structure** - once off or "fixed" license fees are usually calculated based on good expansion prospects and may prove too high in an economic downturn. Where fixed licence fees are levied they can be deferred or spread out over a period and paid in instalments. This approach will facilitate market entry in financially challenging times and has been followed in countries like South Africa where incumbent mobile operators were allowed in terms of their licences to pay the mobile (GSM) license fee over 5 years; new entrants, such as the third mobile operator were given 12 years to pay the same fee with a deferred payment for the first three years.[30] Consultation is critical if changes to the fee structure are to be made. Attempts by the NRA in one country in 2007 to increase licence fees with limited consultation and retrospectively resulted in temporary suspension of services in that country and have had a negative impact on the investment climate.
- **whether a fee reduction would be appropriate** - recurring fees charged on an annual basis, often as a percentage of revenue, are charged in countries such as Bahrain, Kyrgyzstan, India and Jordan amongst others. Given that the fees are based on a percentage of revenue, there is less of an argument for reduction of these fees in those countries as the licensee that is not doing well financially will pay proportionately less to the regulator if its revenues or turnover drop. This will be the case if NRAs established these fees in a transparent

manner and if the calculation of the quantum, (generally between 0.5 – 5 percent) recurring license fee is correct.

- **whether a fee or tax "holiday" should be allowed** - depending on the severity of the impact of the crisis on a market regulators may consider putting in place mechanisms for a reduction in taxes or a tax holiday where the revenues drop beyond a particular threshold; however as a rule of thumb, these fees should not require adjustment since they are predictable and payment is linked to the company's performance. An example of a tax reduction is in Kenya this year, where import duty on mobile phones has been reduced as well as the 16 percent VAT on new handsets.[31]
- **the relevance of the current fees** - where fees levied are paid to and retained by the regulator to cover the administrative and other costs of regulation, there will be less flexibility or scope to propose reductions or deferments;

4.2 Non-Financial Regulatory Instruments: Regulatory Impact Assessment (RIA) [32]

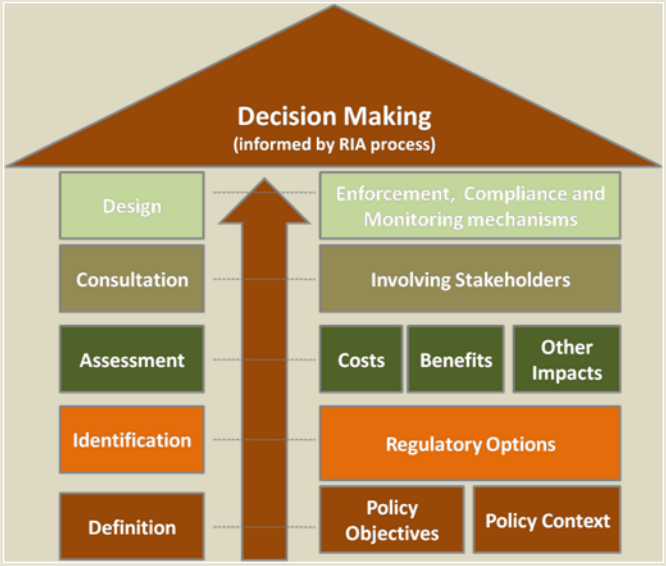
4.2.1 Analysing the Costs & Impact of Regulatory Intervention

Often government and regulatory action involves trade-offs between different possible uses of resources to maximise the benefits to society. In recognition if this, RIA, an *ex ante* measure which includes a cost-benefit analysis as an element, can facilitate prudent regulatory decision, particularly in the context of budgetary constraints and in light of competing policy demands.[33]

RIA is a policy tool that is used to examine the benefits, costs and effects of new or existing regulation. It represents a trend towards more empirically-based regulation and decision making. As described in Figure 1, a standard RIA starts with the identification of the problem or the proposed subject of regulation, and the policy context and objectives that it affects, which lead to a desire for regulatory action. The next step is to identify the various alternatives that exist to address the issue – whether the options are regulatory or not. The following step, a cost-benefit analysis (CBA) forms part of RIA and is an important quantitative step in the assessment. On its own CBA raises questions such as: How is the socio-economic benefit of a fee related to delivering universal access quantified? How does an NRA measure the competitive benefits of the introduction of number portability before it is implemented? How is the benefit of the migration towards terrestrial digital broadcasting quantified and measured? However, CBA is not the total sum of RIA which also assesses options and risks. This allows for RIA outcomes to be made relevant to a specific country context.

After the CBA process, in the next stage the impacts of the options are quantified. In addition to the cost of implementation by cash-strapped operators versus the benefits to be reaped, other impacts are taken into account including the social and strategic impact and timing of the introduction of such measures and the desired impact. Therefore it is important that NRAs have a clear understanding of the desired *economic impact,* if not just the cost implications of a decision. In recognition of the fact that once an option is selected it will only be as effective as its implementation, before the NRA makes the final decision it must consider compliance and monitoring strategies associated with each of the options – effectiveness and efficiency being key considerations. Finally, given information asymmetries, especially relating to costs information and commercial and consumer impact, public consultation should be held to facilitate stakeholder input.

Figure 3: RIA Building Blocks



Source: Author, adapted from OECD, Elements Integrating RIA. Building an Institutional Framework for Regulatory Impact Assessment (RIA). OECD, 2008.[34]

There are several RIA success stories in the OECD countries, which follow varying models. RIA is a legislative requirement in countries like Mexico, Republic of Korea, Czech Republic, and a policy requirement in Canada, New Zealand and Poland. RIA can be applied in many forms and sectors – in the UK it analyses the social and economic benefits of regulation of the public and private sector; in the US it has evolved from an assessment of the impact of a regulatory decision on inflation, to an analysis of economic efficiency benefits and costs of regulation.[35] Recently developing countries and economies in transition including Tanzania, Bangladesh and Serbia are increasing considering the adoption of some form of RIA model, at a macro-level, and this is likely to feed into ICT sector practice in those countries. [36]

Box 6: Canada Regulatory Impact Assessment Statement (RIAS)

Components of RIAS

- **Description:** outlines the regulations, defines the problem and shows why action is necessary
- **Alternatives:** lists options beside regulation and other types of regulation
- **Benefits & Costs:** quantifies the impact
- **Consultation:** shows who was conferred with and the results
- **Compliance and enforcement:** explains the policy on conformity to the regulations and tools to ensure it is respected

Delving into 'Benefits and Costs'

- Quantifies the impact of different options
- Address direct and indirect benefits and costs, and impacts on environment, government, business, workers,

consumers, etc.

- Address impacts on sustainable development and balance societal and economic goals
- Analysis of regulatory burden required on all alternatives
- Specific effects on small business required through the business impact test
- Recommended solutions must impose least costly information and administration burden

Source: Canada's RIAS: http://www.pco-bcp.gc.ca/raoics-srdc and David Shortall, RIA: Methodology and Best Practice, 2006, INMETRO International Workshop on Conformity Assessment

Box 7: OECD RIA Principles: Using consistent but flexible analytical methods

A consistent approach taken by and NRA is key and OECD countries generally include the following in their RIA frameworks although the legal and institutional framework may vary:

- Quantitative cost/benefit analysis (socio/economic impact, business impact, cost- effective analysis)
- Other methods including qualitative assessments (efficiency, fairness)
- Need for flexibility in selecting among analytical methods
- Apply standardised guidelines for each method

Source: OECD 1997: Regulatory Impact Analysis: Best Practices in OECD Countries, Paris and David Shortall, RIA: Methodology and Best Practice, 2006, INMETRO International Workshop on Conformity Assessment

4.2.2 Referring, not deferring to RIA

As RIA's popularity grows, various RIA models are adapted across the world. These models should be properly contextualised to maintain their effectiveness and to avoid unintended policy consequences – such as RIA *increasing* the cost of regulation. While RIA is touted as a way of reducing the cost of regulation for investors, it also has the potential to increase the cost of regulation for the NRA and policy maker. This is particularly true in countries where institutional frameworks are weak, or where regulators have human resource capacity constraints, which is the case in many developing countries with relatively new NRAs. RIA relies on and promotes efficiency and effectiveness. Lack of skills in the areas of law, finance and economics will result in bureaucracy and can make it difficult to implement RIA which requires significant technical and analytical skills.

Making RIA a legal requirement in a country that does not have the institutional framework to support may be dangerous. RIA places a lot of importance on process. In an institution with weak processes, mandating RIA may serve to delay decision making, or make any instance of arriving at decisions made using other means unlawful – even if they are otherwise well thought out. The solution might be RIA as a guideline in some countries to promote regulatory assessment, and key principles such as CBA, and not necessarily as law. Where NRAs suspect that their institutional frameworks cannot support the mandating of RIA, this should be acknowledged. It can then be

integrated in varying degrees into regulatory processes, provided that the fundamental principles are respected. By gaining quantitative and qualitative context for decision making through reference to RIA, NRAs can still prioritise and allocate resources to the most important areas.

The analytical approach to decision making (which may or may not lead to regulation-making) supported by RIA improves the quality of political and administrative decision-making making it more efficient and cost effective, while also answering to increasing calls for openness, public involvement and accountability, and thus improving the investment climate. If nothing else, consideration of RIA principles will increase the investors' confidence in regulatory decision making. A regulatory environment that requires RIA may be considered more investor-friendly that an alternate investment destination that does not[37].

4.3 Regulatory Measures to Promote Technology Innovation

The ICT sector has been able to weather previous storms through innovative approaches to the provision of services. Pre-paid technology, now used in other sectors such as electricity and banking, was developed in the mobile sector as a response to the challenges of affordability. The Google search engine was born in 1998 in the midst of the Asian financial crisis; and Skype's VoIP services arose from the ashes of the dot.com slump. Even in the midst of an economic downturn, technological innovation, particularly that which reduces costs for operators and consumers, continues, in fact it may be nurtured.

NRAs that take a flexible, but consistent and transparent approach to the issuing of licenses, consider available spectrum and enable licensees to use spectrum in a technology neutral manner, i.e., based on their choice of technology in response to market needs, are certainly addressing the primary market needs of affordability and cost effectiveness. A lack of clarity with regard to the licensing frameworks and processes for allowing new technologies and delays in the commencement and/or conclusion of licensing process, as has been seen in the case of WIMAX licensing in countries in Europe, South America and Africa, can negatively impact the investment climate by reducing investor confidence in regulatory processes and delaying potential investment.. Equally imposition of overly onerous requirements and restrictions that are inconsistent with the potential of the technology, e.g., WiFi can have a similar effect.

Conversely, making spectrum in particular readily available once it has been established that operators will use the spectrum efficiently and where they have a sound business and technical plan to make use of the technologies supported by such spectrum, will open up the market and allow for the development of reliable, low cost alternatives to what is currently available, whether it be through WIMAX, WIFI, GSM, CDMA or another capable technology. Operators will in turn be well positioned to respond to the market, which at this time is demanding affordability, in delivering services. This scenario will increase the value of the license and of the investment. Regulatory risk will furthermore be reduced since this approach guarantees the licensee's spectrum rights as long as it uses the frequency spectrum in an efficient and effective manner. The end result of creating opportunities through flexible spectrum management is the stimulation of competition and the reduction of prices, while lowering input costs for operators – attractive market characteristics for any investor or policy maker.

4.4 Forward-Looking Regulatory Responses to Mergers and Acquisitions

Financial crisis for some operators presents an opportunity for others. Smaller operators and new entrants that generally have a high level of borrowing are unlikely to be able to secure financing in this climate. Absorption by larger businesses may be their only means of "survival." Despite the reduced liquidity in the market they are likely to find willing buyers, particularly within the ICT sector, and interestingly also in developing markets. Larger operators and service providers who are still riding high from the increased subscriber bases, and growing revenues seen in the last 5 years are most likely to have the funds needed to acquire assets at relatively low prices which will allow them to grow their subscriber bases and increase their footprints to sustain growth. In this climate, countries like with more than five mobile operators and several service providers and ISPs that have entered the market within the last three years are likely to see consolidation in their markets, or see smaller players struggle to survive (see Box 8).

Box 8: GTV Statement on Liquidation: Smaller Players and New Entrants may Struggle to Survive

Gateway Broadcast Services announced on 30 January 2009 that its Board of Directors has unanimously approved a plan to liquidate the Company. The current financial and global crisis has severely interrupted the company's ability to secure further funding for the continued operation of the business.

Gateway Broadcast Services, suppliers of the GTV service to subscribers across Africa has over the last 2 years invested a total of USD 200 million and created jobs and competition in the 22 markets. The economic crisis that has emerged globally over the last few months has caused excessive demands on the business. With immediate effect the service will be withdrawn.

'Increased instability in global markets interrupted our ability to secure funding on an acceptable timescale and have left us no choice but to cease operations....We realise the negative impact this has had on our loyal customers, creditors and staff, all of who have believed in GTV and the revolution in pay TV it had created. We have tried every possible step to keep the company going but we are all the unfortunate victims of the current global economic crisis.'

GTV had a presence in 22 African countries including Botswana, Kenya, Cameroon, Gambia, Gabon, Ghana, Lesotho, Liberia, Malawi, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.

Source: Excerpt from press release at http://www.gtv.tv/ and article at http://appfrica.net/blog/archives/1484, Viewed June 2009

4.4.1 Balancing the impact of mergers and acquisitions on competition and market reform

While consolidation, i.e., mergers and acquisitions, may address the short term problem of access to capital and survival for smaller companies, if not properly regulated, it may reduce competition in the market in the long term especially in the case of vertical integration. Mergers and acquisitions will lead to fewer operators and reduce competition in the market. In addition, greater consolidation in a market with entry barriers, sunk costs and advertising investments would assist operators to coordinate their competitive behavior. The new operator resulting from the acquisition could

increase its dominant position in the market, particularly in the case of a vertical merger (e.g. a network operator merges with a service provider).

However, some mergers, particularly if one firm is failing, may be pro-competitive, for example, by enhancing production efficiencies resulting from economies of scale or scope, as is the case in many horizontal mergers (e.g. the merger of two network operators). It is likely that horizontal mergers, in particular, would occur, albeit at a different pace, with or without the crisis – this is evidenced by trends such as the increase in infrastructure sharing, and is supported by the fact that increasingly operators are differentiating themselves at services level as broadband access becomes a key service objective. In such cases, mergers are likely to create synergies and allow companies to apply complementary skills and systems to develop new products and services. This could lead to not only assisting companies to 'survive' the financial crisis, but a speeding up of the growth of converged businesses. Notwithstanding the potential benefits, the risk of the same action harming competition and therefore consumers must be managed by NRAs.

4.4.2 Clarifying NRA roles in assessing mergers and acquisitions

The competitive implications of mergers and acquisitions cannot be over-emphasized. Where the choice that the market and government face is between the failure of a firm and its acquisition by another player to create a dominant player NRAs should think carefully - but not slowly - as the timing of acquisitions can impact the value and how a player exits the market, with consequences for employees and consumers.

In anticipation of increased merger activity in the ICT sector, and recognizing that each case will have to be considered on its own merits, sector-specific or competition regulators should ensure that there are rules in place, such as merger guidelines, similar to those published by the Antitrust Division of the US Department of Justice in conjunction with the Federal Trade Commission (FTC)[38] as well as the draft recently published jointly by the UK's office of Fair Trading and Competition Commission[39], that assist firms to anticipate the procedures and criteria which will be applied in assessing a merger. The need to react speedily and decisively when making merger decisions may be challenging in countries where a Competition Authority and a sector specific NRA both are in place, and may have jurisdiction over competition matters and need to coordinate their input, or where the market is not mature resulting in a shortage of experience of competition regulation.[40]

Clarity in the manner in which such transactions will be addressed and assessed goes a long way towards turning such transactions into opportunities for investors and consumers and not challenges. Even where ex post competition regulation falls outside of the mandate of the NRA, for example in Australia, Chile and the United States (the FCC participates in merger reviews), given the high number of mergers and acquisitions in the global ICT industry that can affect national markets, and the potential for that number to increase in light of the global downturn, regulation relating to ownership and control is gaining significance for NRAs.

With increased merger activity some of which may be cross-border transactions, the alignment of regulation on a regional basis is an important way of luring local, regional and international investors to domestic markets. Operators with a presence in more than one market will benefit from the consistency of regulation, as well as reduce their costs of compliance. For local players, regional

harmonisation and exchange of ideas is likely to improve the quality of regulation and thus create a better investment environment. Governments are beginning to appreciate the value of co-operation to stimulate investment as it possesses the attributes mentioned above as being important to an effective regulator – transparency, autonomy and accessibility.

4.5 INFRASTRUCTURE SHARING

The most significant risk in ICT investment is associated with the deployment of networks which are expensive and represent sunk costs. Thus any strategies geared at lowering the cost of regulation must encourage network build out, and effective use of existing networks while lowering costs through reducing Operational expenditure (Opex) . Ways must be considered to reduce the time to market and costs for new entrants where they have secured funding. Infrastructure sharing, at a minimum "passive" sharing[41], is one such strategy. There are different regulatory approaches to infrastructure sharing – it can be encouraged and facilitated as in Austria, Saudi Arabia and Tunisia, or it can be mandated as is the case with many European countries including Demark, Greece, Italy and Spain which have provisions in the legal frameworks mandating active infrastructure sharing such as roaming for 3G /2G and 3G/3G.[42] Policymakers and NRAs who may have considered that there is a trade off to be made between competition and infrastructure sharing are urged to rethink their regulatory strategies in light of the credit crunch. Infrastructure sharing is a strategic response in an environment where operators' traditional revenue streams may be threatened, where consumers are likely to reduce their spend, and where there is less liquidity in the markets. It is a response that will:

- release already limited capital for strategic investments. Operators can increase their focus on subscriber acquisition and new commercial strategies for growth in and across the ICT industry rather than on resource intensive ICT network rollout and management. This could lead to increased investment in service innovation and lower consumer prices;
- reduce investment requirements by dividing the costs of the infrastructure between a number of operators. More money, contributed by more players, will be available for investment. In addition more efficient use of the network will be achieved;
- offer a supplementary wholesale revenue stream for existing network operators who will be able to lease or rent their networks, or space to new entrants at a fee;
- decrease the financial barrier to entry for new players thus encourage service based competition, and the associated benefit of price competition, and encourage new entrants such as ISPs and Mobile Virtual Network Operators (MVNOs).

Passive Infrastructure sharing (e.g., collocation and site sharing) which certainly makes sense at the best of times becomes more important now. In addition to attracting investment, the broader regulatory imperatives for infrastructure sharing remain, namely – to reduce capital and operational expenditure, to encourage efficiency, to promote the use of scarce resources such as rights of way and spectrum, to protect the environment, and to speed up market entry for new players. As noted in ITU Trends in Telecommunication Reform 2008 "sharing active infrastructure is a much more contested issue, as it goes to the heart of the value-producing elements of a business. Many countries have restricted active infrastructure sharing out of concern that it could enable anti-

competitive conduct, such as collusion on prices or service offerings. These concerns remain valid, but they have to be weighed against advances in technology and applications that enable service providers to differentiate their offerings in the market. In addition, for some remote and less accessible areas, the risks of active infrastructure sharing have to be balanced against the alternative of having no services at all." Further infrastructure sharing will encourage the innovation necessary to take the ICT sector to a new wave of convergence.

5 CONCLUSION

GOOD REGULATION: REINFORCING THE FUNDAMENTALS AND REDUCING REGULATORY RISK

In summary, for governments, providing access to funding is one possibility to provide support to ICT sector investors in the current economic climate. Other possibilities for attracting and facilitating investment and reducing regulatory risk specifically in the ICT sector, in the midst of a financial sector crisis, include putting in place policy, regulatory and institutional measures to:

- strengthen the credibility and capacity (i.e., competency, objectivity, transparency, and accountability) of the regulator through the development of a clear institutional framework, following due process, the promotion of clear financing mechanisms; and improving the efficiency of the regulatory process. In light of the global financial crisis, an approach that can be adopted is the implementation of RIA as discussed in Section 4.2 and PPP as discussed in Section 3.1.3.;

- increase competition through licensing of new entrants and reducing barriers to market entry, specifically in network deployment Countries like Equatorial Guinea have in the last year opened monopoly markets to competition and Iran and Gabon have recently attracted additional investment by licensing competitive operators in various market segments. Encouraging infrastructure sharing, as discussed in Section 4.5 will also support this;

- effectively manage public resources such as numbers, spectrum, and rights of way to facilitate network rollout in line with international best practices. Countries such as Malaysia and India have put in place converged frameworks with technology neutral approaches to spectrum regulation. As discussed in Section 4.3, encouraging innovative use of spectrum to reduce costs is key; and

- clarify regulatory rules where ambiguity and uncertainty exists. EU Member States are making ex ante regulations to address potential abuses of dominance and significant market power, while frameworks that encourage transparent interconnection regulation and provide certainty on its pricing such as the regulatory frameworks in Hungary and Tanzania give new investors comfort. In light of the crisis and the likelihood of increased merger activity, competition regulation must be strengthened and a pro-active approach would be to prepare, apply and enforce clear merger guidelines as discussed in Section 4.4.

- keep the formal and informal dialogue between the NRA, MDBs, consumers, industry and other stakeholders open and be responsive to the needs of the sector as a whole.

Stakeholder consultation prior to decision making in all areas of regulation-making allows for planning.

- The crisis does not challenge what historically has been known as good regulation in the ICT sector. The above principles of good regulation are not new. However, the current economic climate dictates that in order to encourage new entrants and support existing players, these principles should be applied to a few strategic areas of regulation in addition to continuing with and strengthening traditionally proven strategies. The measures set out above should be, and in many cases have been, put in place by NRAs to reduce regulatory risk regardless of the state of the financial markets and the constraints on investment.

In conclusion, proactive approaches can be taken by regulators and policy makers to guard against reduced liquidity in the global markets *creating* crisis in ICT markets. A two-pronged strategy is required – one that looks at how governments can lend money to the private sector through PPPs and other funding programmes, including stimulus plans; and a second that looks at effective regulatory strategies and policies – both financial and non-financial. The aim of both approaches is to lower the costs, increase efficiency and ultimately improve the market for the benefit of operators, consumers and policymakers.

In order to work, these strategies must be underpinned by strong regulatory institutions, and transparent policies and procedures – the bedrocks of effective regulation. The role of NRAs in attracting the investment that will steer the ICT sector through the current crisis is paramount. Lack of regulation was one of reasons for the collapse of the global financial sector; in the ICT sector, effective regulation is part of the 'stimulus plan' that will see the sector ride through the current global economic crisis.

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[i] See " Confronting the Crisis: Its Impact on the ICT Sector," International TelecommunicationsUnion, February 2009.

[2] See GSR Discussion paper entitled Impact of Effective Regulation on Investment: An Investor's Perspective, by Lynne Dorward – CRO and Salah Al Fouzan- CBDO – Zain Group.

[3] http://www.itu.int/ITU-D/ICTEYE/Indicators/Indicators.aspx, 2008.

[4] OECD Broadband Portal, December 2008.

[5] OECD Broadband Portal, December 2008, http://www.oecd.org/document/54/0,3343,en_2649_34225_38690102_1_1_1_1,00.html

[6] Vendors such as ZTE, Huawei and Nokia Siemens offer vendor financing arrangements to network operators.

[7] Assessing the Impact of the Current Financial and Economic Crisis on Global FDI Flows, April 2009. UNCTAD. http://www.unctad.org/en/docs/diaeia20093_en.pdf.

[8] In this paper Universal Access Funds (UAF) include Telecommunications Development Funds, Rural Development Funds, and any other funds established to support and finance ICT access in underserved areas.

[9] www.brettonwoodsproject.org/art-564159. "G20 'Trillion' Dollar Magic Trick Reforms Remain House of Cards." 3 April 2009.

[10] OECD, DSTI/IND/ICCP(2009)1/ADD/FINAL

[11] Ibid.

[12] Section 6001 of the American Recovery and Reinvestment Act of 2009 requires the National Telecommunications and Information Administration (NTIA) to establish the Broadband Technology Opportunities Program (BTOP).

[13] Malayisa's Supplementary Supply Bill 2009 and http://www.zdnetasia.com/techguide/smb/0,3800010798,62052199,00.htm. "Mixed Reactions to Malaysia's ICT Stimulus," ZDNet Asia. 13 March 2009.

[14] http://ec.europa.eu/commission_barroso/president/pdf/Comm_20081126.pdf, A European Economic Recovery plan, European Commission. November 2008.

[15] ZDNet Asia.

[16] Intelligent nation Master plan includes NGN and was originally introduces in 2007 to increase broadband access.

[17] OECD DSTI/STP/ICCP(2009)1/ADD/FINAL, Policy Responses to the Economic Crisis: Stimulus packages, Innovation and Long Term Growth

[18] In this paper the term PPP is used for consistency and can include PPPP, where relevant.

[19] ICT Regulation Toolkit. http://www.ictregulationtoolkit.org/en/Section.692.html

[20] Government Media Release, http://www.pm.gov.au/media/release/2009/media_release_0903.cfm, April 2009

[21] www.gatesfoundation.org

[22] http://www.grameenfoundation.org/what_we_do/capital_mgmt_advisory/growth_guarantees/. A list of transactions that the Grameen Growth Guarantee has enable is set out at: http://www.grameenfoundation.org/what_we_do/capital_mgmt_advisory/transactions/

[23] http://www.ictregulationtoolkit.org/en/Section.3292.html and www.miga.org

[24] ICT Regulation Toolkit. http://www.ictregulationtoolkit.org/en/Section.1791.html and http://www.ictregulationtoolkit.org/en/Section.1930.html

[25] Ponce, Alejandro. "Does it make sense to promote an access to finance agenda in the midst of a financial crisis?" http://microfinance.cgap.org/2009/06/19/does-it-make-sense-to-promote-an-access-to-finance-agenda-in-the-midst-of-a-financial-crisis/

[26] Victor van Reijswoud , "Mobile Banking – An African Perspective." World Dialogue on Regulation. http://www.regulateonline.org/content/view/948/76/

[27] Consultative Group to Assist the Poor (CGAP) website. http://www.cgap.org/p/site/c/. CGAP is an independent policy and research center dedicated to advancing financial access for the world's poor. It is supported by over 30 development agencies and private foundations who share a common mission to alleviate poverty. Housed at the World Bank, CGAP provides market intelligence, promotes standards, develops innovative solutions and offers advisory services to governments, microfinance providers, donors, and investors.

[28] Porteous, D. The Enabling Environment for Mobile Banking in Africa. DFID, May 2006.

[29] General Principles for Regulatory Impact Assessment, OECD. http://www.investmentcompact.org/dataoecd/24/31/39637667.pdf

[30] See Cell C (Pty) LTD Licence, Clause 7.1 in Government Gazette 27087, December 2004 which allows Cell C, the third entrant, to pay its fixed licence fee in 12 equal instalments from the 3rd anniversary of its commercial date; Vodacom(Pty)

Ltd Licence, Clause 1 in Government Gazettes 27088 and 27089, December 2004 which provide in Clause 1 that Vodacom and MTN pay 10% as an initial fee in 1993 and the remained of the fixed fee over 5 years from the Commercial Date..

[31] www.itu.int/ITU-D/ict/newslog. Source: Cellular News. 16 June 2009.

[32] The terms used for impact analysis systems differ – RIA (Regulatory Impact Analysis, Regulatoy Impact Assessment, Regulatory Impact Statement (RIS), Regulatory Impact Analysis Statement (RIAS). The key elements of these systems are similar.

[33] Building and Institutional Framework For Regulatory Impact Analysis (RIA), OECD, 2008.

[34] Diagram adapted from Chart 1: Elements integrating RIA. Building an Institutional Framework for Regulatory Impact Assessment (RIA). OECD, 2008. The adaptation is aligned with the concept of 'building blocks."

[35] Ibid. Page 10.

[36] Building an Institutional Framework for Regulatory Impact Assessment (RIA). OECD, 2008.

[37] OECD Regulatory Impact Assessment REPORT, 2009, http://www.cba.ufl.edu/purc/purcdocs/PAPERS/TRAINING/Jamaica/July2006/advancedreadings/Regulatory_Impact_Analysis_OECD.pdf

[38] http://www.ictregulationtoolkit.org/en/Publication.1936.html and http://www.ftc.gov/bc/docs/horizmer.htm

[39] http://www.competition-commission.org.uk/about_us/our_organisation/workstreams/analysis/cc2_review.htm

[40] Competition Commission of India, Tanzania's Fair Competition Commission, South Africa's Competition Commission, Zambia's Fair Trading Commission, Kenya's Commission for Monopolies and Prices.

[41] *Passive infrastructure sharing* allows operators to share the non-electrical, civil engineering elements of telecommunication networks. This might include rights of way or easements, ducts, pylons, masts, trenches, towers, poles, equipment rooms and related power supplies, air conditioning, and security systems.

[42] Booz Allen Hamilton (2009).