

# **The Changing Face of ICT Regulation and Radio Frequency Spectrum Management**

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## **1. Introduction**

The theme of the conference “Utilization of traditional and open source technologies for business solutions, cost reductions and profit maximizations approaches on a corporate and national level” is depictive of the current trends in ICT regulation. These include the merger of the old and the new, convergence, liberalization of markets, all with the ultimate goal of improving welfare for firms, consumers and the economy as a whole.

The issues in ICT regulation are many and varied and therefore, this paper will not seek to address them all. It will briefly state the current trends in ICT Regulation, against the background of the historical perspective. In addition some of the challenges will be highlighted.

As the Regulatory body tasked with the efficient management of the radio frequency spectrum, the SMA is acutely aware of the various trends and how they may impact on the development of the wireless sector in particular, and, ICT in general in Jamaica. Therefore, the paper will also briefly highlight some of the current thoughts in spectrum regulation and how the SMA is preparing itself to deal with the regulatory challenges of the new information era.

## **2. Background - “Never the Twain Shall Meet”**

Regulation of information technology, telecommunication, and broadcasting has been for years conducted for the most part along clear industry lines between the various technologies, each with its own rules, regulations and modus operandi. In keeping with the distinct technologies, the legislative and institutional framework has also developed along disparate lines.

Regulation in the past has been centered on ensuring that the monopoly provider of what ever service, does not abuse its position, while ensuring that the monopoly position was not threatened by creating high barriers to entry. An example would be the use of “low

powered incentive schemes, such as rate of return in regulating prices charged by the incumbent service provider.

It is also considered that regulation adopted a fairly heavy handed approach through systems of licensing and various fees created onerous entry requirements to the telecommunications market. In many instances, broadcasting, while regulated has been kept separate from telecommunications. On the other hand, regulations on information technology and the internet have been fairly light handed and in most cases non-existent.

Jamaica is a prime example of this modus operandi, where policy, law and institutional frameworks which govern the components of what is now called ICT have been separated.

### **3. What has changed?**

#### **Liberalization, Globalization and Convergence**

This sums up the answers re what and why the changing face of regulation as it relates to ICT.

#### **Liberalization and Globalization**

These two events have resulted in the move to harmonize domestic policies, regulations and standards with the principles and standards expounded in various multilateral agreements such as the GATS and by various international sector organizations such as the ITU. These principles have included the move towards a deregulated and competitive market structure; privatisation, encouragement of foreign investments, a reduced role for government; transparency to bring prices closer to costs and explicit universal service policies which address gaps due to market failures.

#### **Convergence**

Some may argue that convergence is the most significant influential factor of the three, some may say globalization. Nevertheless, there can be no dispute that convergence is

occurring at the technological level. With digitization both traditional and new communication services, voice, data, video can be provided over a single medium. Different networks, both wired and wireless are delivering these converged services.

Market activity shows that operators from the sectors affected by convergence are embracing the opportunities to enhance their traditional services and expand into new areas. Players in all the sectors, telecommunications, media and information technology sectors are also seeking cross-product and cross-platform development as well as cross-sector share-holding through mergers and acquisitions. Some examples of new products and services being delivered include:

- Home-banking and home-shopping over the Internet;
- Voice services over the Internet, using the voice over internet protocol VoIP;
- E-mail, data and World Wide Web access over mobile phone networks, and the use of wireless links to homes and businesses to connect them to the fixed telecommunications networks;
- Data services over digital broadcasting platforms;
- On-line services combined with television via systems such as Web-TV, as well as delivery via digital satellites and cable modems;
- Webcasting of news, sports, concerts and of other audiovisual services.

We are also seeing a trend towards the convergence of regulatory institutions (creation of one stop shops). At another level and in relation to satellite technologies in particular, the ITU, CITELE and other regional bodies are actively trying to create harmonization among regulations related to these services in an effort to reduce beauracratc delays and promote expansion in the use of these technologies in order to enhance the process of universal access.

This issue of convergence is indeed very significant. The above highlights the potential of ICT to touch the lives of every citizen and also the transformation in the range and diversity of traditional telecommunications and media services. With the development of Next Generation Networks, the possibilities are seemingly endless.

It is of note that at the recently held series of Technology Foresighting workshops, hosted by the SMA and PIOJ, a number of stakeholders in the sector, described the vision for the Jamaican ICT landscape as one in which there was the ubiquitous availability of converged services as mentioned earlier.

**The underlying principles of Regulation have also changed/expanded.**

Against the background of Globalization, Liberalization and Convergence, certain underlying principles of regulation have also been revolutionized.

- Regulation is now seen as a facilitator of growth, whereby policies are implemented in such a way as to encourage investment and growth in the ICT sector.
- Regulating in the public interest where the primary objective is to ensure that everyone has access to services at reasonable prices
- Bridging the digital divide and increasing social welfare.
- The concern over the cost of regulation has led to calls for a move from heavy handed to light handed approach given current liberalized environments.
- Greater emphasis on a consultative approach to regulation.
- Some of the principal components of current regulatory objectives relating to the ICT sector include: creating incentives for future investments and development in the sector consistent with public policy objectives; encouraging efficient operations; maintaining quality standards and promoting fair competition among operators.

This has affected the way we measure the effectiveness of ICT Regulation. Recently, the ITU developed a Digital Access Index, which not only accounts for the factors such as teledensity, and infrastructure and now include factors such as knowledge and level of education. This broadens the scope of ICT regulation. Jamaica has been ranked among those countries classified as “upper access”, an indication that we are on the right track in terms of promoting ICT as an enabler of development at all levels.

#### 4. **Regulatory Challenges**

In moving from environment where previously distinct lines have now become blurred many challenges to regulation have emerged. Generally, these include the following:

**Transparency** - Regulators have a challenge in this new era to be “transparent”. Some common definitions associated with transparency include, that which is obvious or evident, “allowing light to pass through so that objects behind can be seen distinctly”, transmission without distortion and “functioning without the user being aware of its presence. It is the transparency of the operator that affords its credibility and legitimacy in the eyes of all its stakeholders.

**Regulatory Capacity and Competence** – This relates to the human skill sets which Regulators possess in order to be deemed effective. Traditionally, in developing countries, relatively few individuals have the necessary skills and experience to act as Regulators. However, this has been changing over time, especially in Jamaica and the wider Caribbean. The University of the West Indies, St. Augustine in collaboration with the International Telecommunication Union and the Cable and Wireless Virtual Academy launched a Masters in Regulation and Policy (Telecommunication) in 2003. Participants in this programme (including seven Jamaicans) represent over 40 countries.

**Regulatory Independence** is a key aspect of current thoughts on Regulation. Safeguards for independence include a clear legal mandate, separation from operators and political pressures, own stream of revenue, clear criteria for appointment of executives, Boards etc.

#### **Regulatory scope**

The ongoing transformation of the ICT landscape often leads to greater confusion rather than clarity with respect to the scope of the regulatory framework.

## 5. Regulation of the Radio Frequency Spectrum

Changes in technology and approaches to ICT regulation have impacted on and are still revolutionizing the traditional approach to spectrum management. The concept of spectrum as a scarce resource is one that is rapidly being eroded. In addition, the future of regulation of the radio frequency spectrum is of paramount importance. Wireless is the way of the future. It is mobile and ubiquitous, two of the necessary requirements for a modern way of life. The rapid growth in wireless, not only in Jamaica but worldwide is evidence of this. In addition, it is being projected that data will overtake voice as the engine of growth in ICT. Some recent statistics on mobile voice from the ITU show the following

- At the end of 2003, there were over 1.35 billion mobile subscribers worldwide, compared with 1.2 billion fixed line subscribers. This has significant positive implications for access to telecommunication services and ICT technologies. (ITU NEWS, April 2004)
- In Jamaica, current estimates put the number of mobile subscribers at 1.6 million, compared to fixed line subscribers at 500,000. In terms of internet use, the number of users was estimated at 600,000 at the end of 2003. However, this translates to just over 5 out of every 100 inhabitants.

The growth in Broadband is just as phenomenal, mainly in countries such as Korea, China and Canada. Whatever the reason for the phenomenal growth in these services, it requires that policy makers reconsider the limitations placed by current policies and regulatory approaches to alternative access networks in the interest of providing universal access and satisfying the demand of consumers for alternative, flexible services. Throughout the globe, countries are at varying stages in reforming regulations relating to the radio frequency spectrum, where the new face of regulation centers on a more liberalized spectrum policy. In Jamaica, the process is in the embryonic stages, but there is recognition that there is a need to step up the pace in light of the rapid advances in technologies.

## 6. What is the SMA doing as it seeks to tackle the challenges of regulation?

The SMA is currently strategically repositioning itself to regulate for the present as well as for the future. *“We have to regulate for the reality of the market today and tomorrow, not for a snapshot of yesterday’s market frozen in time, nor for a vision of the day after tomorrow which may never materialize in the form we anticipate”.* (Department of Trade and Industry UK, *Regulating Communication, approaching convergence in the Information Age*)

### **Transparency**

As we seek to keep pace with the changes in technologies and varying regulatory approaches, the SMA has sought to establish transparency in all its business processes as well as in our systems of governance. This is characterised by greater institutional transparency and accountability and increased participation by interest groups (Spectrum Users Committee) and our clients in the decision-making processes.

### **Regulatory Capacity/Competence**

The SMA is in Phase 1 of its Institutional Strengthening programme which is a part of its two (2) year Business plan. During this phase, we will enhance our abilities to effectively execute our mandate to efficiently manage the radio frequency spectrum, while in the process of becoming an agency on par with the best in the world. We have a team of highly skilled professionals and we have now embarked on the procurement of two main operating systems:

- The Automated Spectrum Management Software
- The Radio Monitoring and Direction Finding System.

The Request for Proposal for these systems will be available on November 1, 2004.

Training and development of our human resources is a key part of this strategy to enhance regulatory capacity and competence.



## **Regulatory Independence**

Indeed, this is a core feature of any effective regulatory regime. To this end, the Authority has sought to ensure that it fulfills the main requirements for independence.

- ✓ The SMA satisfies the WTO guidelines that the Regulatory body is “separate from and not accountable to any supplier of basic telecommunication services. The decision of and the procedures used by regulators shall be impartial with respect to all participants” (Section 5 of WTO Reference Paper).
- ✓ Since April 2003, the Authority established its own revenue base independent of the GOJ.
- ✓ Although the Authority is an agency of the MCST, it has operational independence in terms of day to day management and operations.
- ✓ There is a clear (though deficient in some respects) legal mandate in terms of the management of the radio frequency spectrum as stated in the Telecommunications Act 2000.
- ✓ All recommendations by the Authority to date have been accepted by the Minister.
- ✓ Most recently, the Minister has delegated to the Authority powers to sign all licences except VSAT.

## **Regulatory scope**

While the main focus of the SMA is on spectrum management, this can no longer be divorced from the wider ICT issues. The SMA recognizes that one of its key roles as a Regulator is to be an integral part of the broader initiatives to ensure that alternative technologies and new applications, such as the Internet, and the vast numbers of low powered devices which exist become ‘economic equalizers’ rather than ‘digital dividers.

As a regulator, it is our job to identify the barriers to the effective introduction of the innovative services likely to result from these developments and ensure that the regulations adopted ensure fair competitive participation and minimal barriers to entry.

## 7. **Future Considerations with respect to ICT/Spectrum Regulation in Jamaica**

With respect to the approaches to regulation, the focus for Regulators should be the “design of next generation regulation that is capable of building the regulatory foundations for growth in network economies”. (Melody, 2002) There are a number of issues for current and future consideration in relation to ICT regulation in Jamaica, as it relates to the radio frequency management. Some topical ones are:

- ✓ **Licence-exempt spectrum**, specifically in the spread spectrum bands 2.4 GHz and 5.8 GHz. These bands have been declared in many countries such as the USA and Canada and this has been cited as the reason for the success of the roll out of various low powered technologies such as WiFi and Bluetooth. Recognizing the importance of avoiding systems of regulation that could form inappropriate barriers to future development and would prevent developments in the interest of the consumers, the SMA has actively undertaken work which will lead to the unlicensing of these bands in Jamaica. It is the intention that this move would lead to the rapid and efficient rollout of information structures needed to promote ICT development.
  
- ✓ **Open Skies Policy**. The effects of globalization have also impacted on the satellite industry in recent years. Governments are now recognizing the importance of harmonization of regulatory approaches in order to reduce the bureaucracies which often exist. The high cost of entry has also been a deterring factor in the expansion of satellite services. In addition to the traditional VSAT networks in Jamaica, there is also interest on multiple VSAT networks to provide data services. The SMA recognizes that regulation has to be responsive and adaptive, taking into account the needs of consumers, suppliers and producers and therefore is also in the process of

reviewing the approach to satellite regulation including the current fee structure which applies to VSAT users in Jamaica.

- ✓ **Spectrum trading.** This relates to the adoption of a more market based approach to spectrum allocation and assignment. This raises issues of proprietary rights to the spectrum and in the case of Jamaica, whether the market is mature enough to efficiently allocate and manage spectrum via this method. Spectrum trading is prevalent in countries such as the USA and New Zealand. Countries such as Australia are using a combination of market based and administrative incentive pricing. One observed result from the adoption of these approaches is the reduction in the price of spectrum licences and greater flexibility in the spectrum management process.

In addition to those mentioned above, countries such as Brazil, Guatemala, Japan, Korea and Nigeria to name a few have all been examining and changing their approach to spectrum regulation. Technology neutral regulation which allows flexibility and responsiveness to new technologies is becoming the way of the future in terms of spectrum regulation.

Jamaica has yet some distance to cover, but it is recognized that the time period is short. By learning from the experiences of others however, it is expected that we can leapfrog some of the changes, as we seek to provide an environment which will encourage efficient and effective spectrum use and hence ICT development in Jamaica.

## 8. Conclusion

The new face of ICT Regulation, inclusive of the radio frequency spectrum is without doubt one which encourages the “utilization of traditional and open source technologies for business solutions, cost reductions and profit maximizations approaches on a corporate and national level”. The fundamental goal is to create the right regulatory environment with the suitable institutional infrastructure to meet the required policy outcomes.

The SMA is cognizant of the current and emerging trends within the ICT environment. To this end, we are actively reviewing specific spectrum policies in order to further Jamaica’s development in the field of ICT. Certainly with respect to the radio frequency spectrum, the changes in regulation should offer greater flexibility in rolling out technologies and services. Our tag line” Shaping your future with wireless” speaks to our commitment to remain relevant, while satisfying the needs of spectrum users in Jamaica.

### References

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