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TECHNOLOGICAL ADVANCEMENT IS A HANDMAID OF REGULATION PROCESSES.

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Abstract

Regulation involves the use of science. Basing on that phenomenon, technology is an integral part of it. It should therefore be noted that technological advancement in regulation demands an agile and high velocity approach to both economic and social regulation. Technological advancement in regulation is therefore a handmaid to regulation as it eases regulation hurdles by reducing barriers to regulation hence creating regulation efficiency. Its application though depends on regulatory governance.

In Africa, the decade within which Regulatory Authorities have been established is irrevocably impacted by computerisation which is characterised by speed, accessibility, accuracy and relevancy. Effective regulation would therefore require regulators to tap these technological potentials to expedite decision making processes. It is unfortunately that majority of regulators are facing technological gap. This technological gap is by design¹.

Technology in regulation creates ubiquity, global reach, universal standards, richness, interactivity, information density and personalisation as well as customisation². This in turn creates a co-creation of values in regulation due to information asymmetry which is of a great value to regulator, service providers and consumers. In Dar es Salaam, for example, passengers at Ubungo bus terminal face unprecedented hurdles caused by touts. This can easily be eliminated by the use of e-ticketing which eliminates personal interaction hence reduces time and cost of transport³. To achieve this, the regulator, through regulations, needs to press hard on service providers to adopt e-ticketing technology.

¹ Kikoyo, PhD Thesis on the Impact of Legal Framework on Regulatory Authorities to Spearhead Market Economy in Tanzania; Case Study of SUMATRA, Page 89.

² Laudon & Traver, 2007

³ Mambi, ICT Law Book, 2010 page 9

Transport sub-sector in Africa, Tanzania in particular, is characterised by high rates of road carnages. Most of these road occurrences, over 76% are caused by human errors⁴. This can easily be tackled by regulator through effective use of car tracking technology. This will reduce road carnages and will save tax payers money on treatment, and also save the labour cost involved.

Technology in regulation encounters challenges at hand. Most regulators operate under regulatory capture. Under such circumstances, regulators, however willing may be, will be held back. This is because some of the regulated businesses are dubious businesses. Any technology which is geared to reduce information cost and which raises information quality may be viewed as a threat to dubious business on the continent. The owners of the businesses may lobby executives, either through legislative processes or legal frameworks and could block any intervening regulation process before such information is brought to the “marketspace”⁵.

Key words: Power of technology, Regulatory Governance, Regulatory Independence, Information quality, Integrity, Confidential syndrome.

1.0 INTRODUCTION

The creation of regulatory authorities in Africa, Tanzania in particular, is a new concept introduced in our economic systems due to economic reforms made in the late 1980s. The said economic reforms introduced the market economy as a new economic system in Tanzania. Regulatory Authorities were resorted to as an alternative after the centralised state command economy was seen not to deliver the required results. The failure is attributed to the Government’s involvement in both policy making and regulatory activities, which overstretched it with many responsibilities and projects which consequently failed⁶

The Tanzanian market is partly liberalised and therefore exposed to market-economy’s principles. A market driven economy is devoid of stringent government controls, regulations and is free from monopolistic practices. Players in each sector of the economy find trust in a level playing field with a strong regulatory framework. The role of regulatory authorities is to ensure that there is a level playing field created by the Government on the regulated economic sectors. In order to attain that, three major rules of the game have to be adhered to, namely, (i) operate so as to maximise return on investment, most of which come from the private sector, (ii) let the forces of supply and demand hold sway to determine the outcome for each player, and (iii) be prepared to experiment to test a services or product in the market because consumers have the

⁴ SUMATRA/BICO Road Accidents report, 2007

⁵ Shapiro,

⁶ Kikoyo, I. O., The Impact of Legal Framework on Regulatory Authorities in Tanzania: A case study of The Surface and Marine Transport Regulatory Authority (SUMATRA), Page 1.

power to choose⁷. At the end, market driven economy aims at improving services and products, their quality and delivery. This is done through application of technology in order to maintain quality and delivery of same.

1.1 What is technology?

The term technology has a broader meaning and application. It is derived from a Greek word “technologia” which is a combination of two words “techne” which means “craft” and “logos” which means “saying”⁸ It suffices to argue therefore that technology is the articulation of a craft. The word technology is therefore used to describe the extent to which a society can manipulate its environment. Our environment keeps on changing and so should the technology. Technology is dynamic and keeps on improving because even our needs and demands for technology keep changing. Technology can further be defined as a tool for development, which involves application of organized knowledge of facts about the physical world, natural laws and science of doing things⁹. According to Jhingan technology is the use of modern or improved systems and equipment to achieve a better product or process.

1.2 The role of Regulation - Does Technology Matter?

Regulation involves the use of science to shape conduct that is a by-product of imperfection. It is used to prescribe or proscribe a conduct through creation of limits, constraining a right, creation or limitation of a duty or allocation of a responsibility¹⁰. It is important to note that although regulation involves legal undertaking, it equally involves science in regulation processes. Basing on this contention, technology is an integral part of regulation just as it is for science. Basing on the nature of regulation and the importance of technology in regulation, it is rightly argued that technology is the handmaid of regulation. It should therefore be noted that technological advancement in regulation is of paramount importance and therefore cannot be taken as an optional. Taking this argument further, it is worth noting that its importance cannot be compromised for budgetary constraints’ sake. The reason is simple, in Tanzania for instance, all regulators are duty bound to promote competition and efficiency in their regulated economic sectors. The question is, how does it promote the same without going digital itself? Regulators ought to adopt technology in its regulatory processes in order to improve the quality of regulatory outcomes, reduce regulation cost and hence promote efficiency.

⁷ Yonah, Z. O., Communications Sector Performance Review, Challenges and Financing Strategies, A Paper presented at the JISR on 26-28 September 2007.

⁸ www.wisegreek/what-is-technology.htm (5/1/2015 at 11:53AM)

⁹ Ng’ang’a S.I, International Journal of Business and Social Sciences, Vol.3 NO.16 (Special Issue – August 2012), “Infrastructure and Technology Planning and Development for Sustainable Industrial growth: Lessons from Wood Enterprises in Kenya” page 252.

¹⁰ en.wikipedia.org/wiki/regulation (6/1/2015 at 12:30 AM East African Time)

One of the duties of regulators in the market is to intervene and prevent monopolists from setting rules of the game, and also prevent powerful firms or industries from abusing their market power to earn excessive profits¹¹. It is important to note that regulators are basically endowed with the following main types of regulation; that is, social and economic regulation¹².

The regulator, through regulation process, may allocate any regulated firm or industry any responsibility which will involve the use or application of a certain type of technology. As we shall see later, SUMATRA, for example, works closely with Tanzania Ports Authority (TPA) on the application of e-cargo tracking system in order to bring efficiency at the Dar es Salaam port. This is one of the regulators' weapon in ensuring that there is ease in regulatory processes through application of technology by the regulated economic sectors in order to bring economic efficiency.

1.3 Why Technology in Regulation?

As stated earlier on regulation involves science like other branches of science. Basing on that phenomenon, technology is an integral part of it. It suffices to state that technological advancement plays a significant role in regulation processes. It eases regulation hurdles and increases efficiency and effectiveness¹³. Mambi¹⁴ argues that the rise of computer technologies in the twentieth century and subsequently the Internet in 1990s has made the relationship between technology and law to become an important topic in legal discourse. Information technology, for example, facilitates not only efficiency but also transparency in regulation processes. In Tanzania, all regulators are tasked with promoting effective competition and economic efficiency. Basing on that noble duty, regulators have no option other than adopting an appropriate technology in order to discharge their duties. It is a dream or mirage to try to achieve efficiency in the regulated economic sectors without the application of technology.

In Tanzania, regulators have no excuse as far as technology is concerned, to wit, communication technology. The government of the United Republic of Tanzania, via Ministry of Communication, Science and Technology has finalised connecting all regions to optical fibre cable termed as National ICT Broadband Backbone (NICTBB). NICTBB is managed and operated by the Tanzania Telecommunication Company Ltd. (TTCL) on behalf of the government of United Republic of Tanzania¹⁵.

¹¹ Kikoyo, I. O., The Impact of Legal Framework on Regulatory Authorities in Tanzania: A case study of The Surface and Marine Transport Regulatory Authority (SUMATRA), Page 19.

¹² Ibid

¹³ Ladegaard, P., A Paper prepared for the International Conference on Reforming the Business Environment Cairo, Egypt, 29 November to 1 December 2005, page 2

¹⁴ Mambi, A, ICT Law Book, 2010 page 9

¹⁵ www.nictbb.co.tz (5.1.2015) at 14:26hrs)

NICTBB vision is to make Tanzania a hub of ICT infrastructure and ICT solutions that enhance sustainable socio-economic development and accelerated poverty reduction both nationally and globally¹⁶.

Regulators in Tanzania are slowly tapping NICTBB opportunities by putting into application the technology in regulation processes. SUMATRA for example, has its website¹⁷ by which the public get regulator's information. However, it is absurd that SUMATRA's website does not reveal all regulatory information due to a number of reasons I shall adduce later on.

SUMATRA is slowly striving towards technological era. In order to capture information from the public on the regulated economic sectors, it has introduced Toll Free numbers 0800110019 and 0800110020 which operate 24 hours. The public can reach the regulator from all parts of the country with complaints and/or complements to regulator. This is a good move but needs further improvements. Tanzania is a big country with total area of 947,300 km². Having that facility in Dar es Salaam may defeat the good purpose it was established for. It is imperative therefore to run and manage call centers in different areas of the country which are properly managed by ICT personnel.

Another effort worth mentioning undertaken by SUMATRA is an introduction of Mobile App which runs Android Platform by which the regulator can access information of regulated service providers, bus owners in particular. This technology, currently, is at the application of the regulator in regulation processes. With this Mobile App the regulator is able to feed the registration of the vehicle, to get all information pertaining to that vehicle, the owner, registered driver, licence etc. Through this technology, SUMATRA is certain of its income because service providers cannot forge licences as it used to be. More importantly, SUMATRA can do regulation on one-stop shop basis instead of running up and down on the high ways making inspections of her licences.

Apart from road transport, SUMATRA is monitoring closely Tanzania Ports Authority (TPA) as the latter embarks on e-cargo tracking system popularly known as Electronic Cargo Tracking Note (ECTN). This technology will help the authority to get precise information on import and export from relevant authorities at the port of departure. Before embarking on this technology, SUMATRA, Tanzania Ports Authority (TPA) and Tanzania Revenue Authority (TRA) were relying on importers and exporters submitted documents whose authenticity are often questionable. The application of this technology will boost SUMATRA, TPA's and TRA's revenue collection¹⁸.

¹⁶ Ibid.

¹⁷ www.sumatra.or.tz

¹⁸ Daily News, Tanzania, (Business Standard) Tuesday, January 6-12, 2015 page ii

SUMATRA is finalising three important programmes, namely, payment of regulation fees on line, renewal of business licences on line and access of buses on line. These programmes, which involve application of technology in regulation processes will create a great impact in the regulation of economic sectors. Other sectors, private sector as well as government departments such as banks, Tanzania Revenue Authority, TANESCO have succeeded using similar approach SUMATRA as a regulator is no exception.

Apart from the recorded success, there still many draw backs which hold back technological advancement in regulatory processes. This is partly due to lack of a well-defined purpose or definite major aims towards application of technology in regulatory processes. As a result technology is not taken seriously by regulators in Tanzania. This is evidenced by a number of reasons. First, Information and Communication Technology (ICT) is and remains a small unit which is understaffed. Taking SUMATRA again as an example, ICT unit has two staffs who have to serve SUMATRA Headquarters and its 25 regional offices. These two gentlemen however brilliant they may be, cannot catch up with the speed of technological changes, since they are so constrained to deliver to the required standards. With due respect, in technological world, where technology is driving earth planet to unknown destination, ICT needs to be taken seriously as one of regulators' core department or directorate, with enough staffing. This is necessary if ICT has to run the show and if the regulator is really determined to regulate the market.

The terms "attaining effective competition and economic efficiency" will remain cosmetic and unachievable if regulators cannot use technology. Citing SUMATRA as an example, due to limited staff in ICT unit, registration of regulation of motor vehicles (commuter buses and upcountry buses) is still done manually and this consumes regulators' time as well that of service providers.

Another area which SUMATRA has to immediately use technology is on buses ticketing systems. This programme can be developed by the regulator or by the private sector. The role of regulator is to provide and/or order Tanzania Bus Owners (TABOA) to use e-ticketing system. This simple technology saves time and money for consumers on one hand, and, saves profit for service providers on the other hand. The regulator cannot sit on the fence waiting to see things happen. Technology as stated earlier on, is a tool all regulators have to use. Ng'ang'a (2012) brings this point home by noting that technology is essential and ensures compliance with a wide range of regulations implemented to achieve environmental, safety and other social goals¹⁹.

¹⁹ Ng'ang'a S.I, International Journal of Business and Social Sciences, Vol.3 N0.16 (Special Issue – August 2012), "Infrastructure and Technology Planning and Development for Sustainable Industrial growth: Lessons from Wood Enterprises in Kenya" page 252.

Failure to adopt technology, Ubungo bus terminal in Dar es Salaam, for example, is too saturated and dangerous for passengers. Consumers use a lot of precious time to go for booking a ticket something that could be done at home or in the office.

The application of technology in regulation processes creates a need for rapid regulatory change as technology changes rapidly²⁰. In Tanzania, this has been experienced in communication sector where mobile phones have been transformed and used for all sort of activities one can think of ranging from banking (M-Pesa, Tigo Pesa, Airtel Money), Internets, Short Message System etc.

With this type of technology in communication, regulators in telecommunication need high technology to be able to regulate this subsector otherwise the regulator would be regulated by the sector itself. It is important to note that technology influences many factors that determine the nature of regulation and the processes for modifying it.

It is important to note that Regulators in Africa cannot shy away technology at this stage. The 21st century holds numerous challenges for developing countries as the global economy becomes more heavily reliant on the flow of instantaneous information from one location to another. Information and Communication Technology is no longer a new tool on the global arena. Like others before it, Information and Technology can work in favour of or against the whole societies and economies. The challenge is how to best exploit its full potential to benefit the country and its people and not wait for the opposite to happen²¹. The driving force of this free flow of information is infrastructure which is in place for the case of SUMATRA and EWURA.

It is worth noting that African economies which Regulators regulate are responsive to global economy which is technology based. Ashford (2011) notes that globalisation has changed the economic landscape. It connects national economies in new ways and denationalises access to information, technology, knowledge market and financial capital²². He further asserts that rigid regulators whose processes remain stagnant will be rendered irrelevant in new market systems.

Tanzanian economy for example, receives investment in gases, oil, mining, transport from major economies outside the continent to mention but a few, china, Canada, Australia and United Kingdom. In such cases, EWURA and SUMATRA cannot sit on the fence outside the technology. The fence-sitting disease is on the prowl in Africa on serious and critical matters. The mistake of sitting on the fence is likely to affect regulators as some tend to be cynical and sceptical when it comes to joining technology bandwagons. Some are averse to being deeply

²⁰ Kleits, A, "Experience and Best Practices in Achieving Regulatory Efficiency and Open Markets" A Paper presented at the Regulatory Management and Reform Seminar; held in Moscow, Russian Federation, 19-20 November 2001.

²¹ Yonah, Z. O., Communications Sector Performance Review, Challenges and Financing Strategies, A Paper presented at the JISR on 26-28 September 2007.

²² Ashford, N.A., et al; The Importance of Regulation-Induced Innovation for Sustainable Development, 2011

involved in technology due to limited capacity to manage information flow and sometimes due to dubious businesses carried out by scrupulous business people in the regulated sectors. In order to maintain their legitimacy, regulators have to make sure that they invest on technological development taking place globally so as to cope with varied situations at the local market ²³.

Regulators need to equip themselves with both private and public technology assets that address increasing complexity of emerging technologies. To attain this goal, they must manage technology infrastructure effectively²⁴. Some Regulators take camouflage and hide under the excuses of lack of capital. Technological development is a process and therefore it cannot be a one day or one year achievement. It goes through a long historical process, which is from the simple to complex techniques, from those satisfying local needs to those meant for distant markets and from those using local resources to those requiring foreign capital²⁵

2.0 TECHNOLOGY IN BASIC REGULATORY FUNCTIONS

2.1 Regulatory Governance.

In order to make technological advance in relation to regulation processes, the regulator needs operational independence vis-a-vis legal independence. Majority of regulators have legal and financial independence which does not give them operational independence. It is important to note here that if non performance of regulatory authorities is due to lack of independence, then the root cause of the problem could be traced to management rather than in the legal framework. It happens where regulators tend to act politically even where professionalism and critical thinking is required²⁶. Regulators who stand firm and take decisions based on regulatory principles establishing them make a big impact on the regulated economic sectors. In the words of Abraham Lincoln, “Important principles may and must be inflexible”. If principles can be bent, they cannot serve as reliable guides to behaviour²⁷. Nxele and Arun (2005) argue this point further as they contend that a regulator has to pass the test of legitimacy by being seen to be independent by its stakeholders and those it regulates. By and large, legitimacy is not conferred by law, but earned by the regulators themselves through the manner they execute their regulatory functions.

Regulators who regulate the market based on opaque regulatory practices are likely to shy away technology. Lack of transparency in the regulatory process is a by-product of corruption, where

²³ Kikoyo, I. O., The Impact of Legal Framework on Regulatory Authorities in Tanzania: The Case Study of SUMATRA, Doctoral Thesis; The Open University of Tanzania, Page 163.

²⁴ Ng’ang’a S.I, International Journal of Business and Social Sciences, Vol.3 N0.16 (Special Issue – August 2012), “Infrastructure and Technology Planning and Development for Sustainable Industrial growth: Lessons from Wood Enterprises in Kenya” page 252.

²⁵ Ng’ang’a S.I (Ibid) page 253

²⁶ Kikoyo page 175

²⁷ Qubein, N., & Jamal, A., Benefit in Living a Purposeful Life, The Citizen, Thursday, 23 May 2014

rule of law is replaced by rule of politics. The excuse will always be on budgetary constraints year after year to shield dubious businesses in the regulated economic sectors. Technology in such circumstances is viewed as a threat because it reduces information asymmetry and enhances transparency. Under such circumstances, regulators, however willing may be, will be held back. This is because some of the regulated businesses are dubious businesses and are comfortable with opaque regulatory processes. Any technology which is geared to reduce information cost and which raises information quality and enhance regulatory transparency may be viewed as a threat to such dubious business on the continent. The ‘powerful’ owners of such businesses may lobby the executives, either through legislative processes or legal frameworks and could block any move by intervening regulation process before such information is brought to “marketspace”²⁸.

2.2 Regulatory Substance

Regulators who regulate economic sectors under opaque regulatory processes will always limit information to the public under the disguise of confidential charter. For a regulator, having a website is not enough in itself, what matters is what is posted in the website. A website which provides scanty information which does not give any valuable information on the regulation processes does not meet the minimum standards for regulatory transparency. Limited information to the regulated market is due to a couple of reasons; namely lack of transparency in regulation processes, lack of confidence on the part of regulators, regulatory capture, just to mention but a few.

3.0 THE FUTURE OF REGULATION IN AFRICA

As stated earlier, globalization has changed the economic landscape. It connects national economies in new ways and denationalizes access to information, technology, knowledge, markets, and financial capital. It has also opened up two distinct pathways by which a national sector or economy can compete in international markets²⁹. Denationalisation of access to information, technology, knowledge, markets and financial capital is the future of African economies and hence regulation. The future, survival and performance of the best regulators on the continent highly depends on how best regulators equip themselves with technology. Economic development in market driven economy, cannot stand bureaucracy and rigid regulatory processes. Regulators need to keep pace with technological changes in order to discharge their effective regulation processes. It is on this basis that regulators need to strengthen Information Technology (IT) units to take a lead on this crusade. SUMATRA, for instance, has recently started, preparing to expand its IT unit by employing four IT experts. SUMATRA needs to go a step further by creating an IT Directorate in order to prepare itself for the bright future.

3.1 Change Mindset; a Shift from Business as Usual to Real Business.

²⁸ Shapiro,

²⁹ Ashford, N. A., et al; The Importance of Regulation-Induced Innovation for Sustainable Development, 2011

The future of regulation on the continent requires a critical change of the mindset. There is a need for a critical change from business as usual to a real business which gives time a proper value. This goes hand in hand with business ethics and integrity. It must be noted that regulatory authorities regulate day to day commercial activities which affect daily lives of the people, that is, transport, water, electricity, gases, television, mobile phones etc. Any laxity in these crucial economic sectors has adverse impact on the entire economy and consumers of regulated goods and services. With improved economic life in Tanzania as supplemented with mobility and improved educational services, consumers start to claim cost effective regulation processes. The future requires regulators to be transformational rather than being transactional and therefore needs to invest more on competence based regulation processes³⁰. It is worth noting that competence is a product of critical training on a subject matter with appropriate related technology. This approach presents shift from traditional tangible assets to intangible assets or 'soft aspect' of capacity building. The traditional definition of competence highly attached success of the enterprises on the deployment of tangible assets such as property and equipment. Currently, competence is based on intangible assets such as knowledge and systems capabilities as opposed to traditional assets.

4.0 CHALLENGES OF TECHNOLOGY IN REGULATION IN AFRICA,

4.1 Lack of strategy and planning.

This is signified by business as usual syndrome. Regulation in most African countries is responsive to political whims. This is because regulatory authorities are still a new concept on the continent's socio-economic patterns. For a long time, activities now under regulatory authorities were under different ministries and were performed by government agencies which worked under instructions of respective ministers. The advent of regulatory authorities, which legally are independent in their decision making process, posed administrative confusion. Ministries under which these regulatory authorities report tend to regard them as agencies of times past and hence issue orders which sometimes erode their essence³¹.

In such cases, if the regulator lacks a proper strategy and planning to respond to the propensity of political pressure, the regulator may implement the ruling party's manifesto. Politicians will find technology expensive to implement because it has no direct advantage to their political ambitions. It is the role of the regulators to strategise and plan for technology advancement and plan for continuous awareness and sensitization campaigns for making politicians and society at large to understand the critical role of the technology in regulation.

4.2 Lack of competent/under staff.

Technology in regulation has not been taken seriously by regulators. As stated earlier, SUMATRA, for example has only two staff in its IT unit. These two staff have to ensure the regulator and its 25 regional offices are connected.

³⁰ Kikoyo, page 147

³¹ Kikoyo, page 117

4.3 Unreliable electricity

Electricity is another problem altogether on the continent. In Tanzania, for example, only 32% of Tanzanians are connected to the national grid. Yet those who are connected, its reliability are questionable. Our electricity is characterised by black out and low voltage which can be linked to another technological advancement set back.

4.4 Poor internet connectivity

In Tanzania, we experience poor internet connectivity which sometimes does not respond to operations. Services come to a stand still, waiting for the network to respond and stabilize. Due to operational problems some people decide to abandon it and resort to old modes.

5.0 CONCLUSION

The African continent is going through socio-economic, political as well as technological transformation. Its economy is connected to global economy which is technology based. The question of technology in regulation on the continent cannot be over emphasised. Regulators are therefore required to take a lead in application of technology to ensure efficiency in regulated economic sectors and deliver good regulatory outcomes.

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