

# HUMAN INTERACTION IN THE REGULATORY OF TELECOMMUNICATIONS INFRASTRUCTURE DEPLOYMENT IN SOUTH AFRICA

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## **ABSTRACT**

*Telecommunications is increasingly vital to the society at large, and has become essential to business, academic, as well as social activities. Due to the necessity to have access to telecommunications, the deployment requires regulations and policy. Otherwise, the deployment of the infrastructures would contribute to environment, and human complexities rather than ease of use.*

*However, the formulation of telecommunication infrastructure deployment regulation and policy involve agents such as people and processes. The roles of the agents are critical, and are not as easy as it meant to belief. This could be attributed to different factors, as they produce and reproduce themselves overtime.*

*This paper presents the result of a study which focused on the roles of agents in the formulation of telecommunication infrastructures deployment regulation and policy. In the study, the interactions that take place amongst human and non-human agents were investigated. The study employed the duality of structure, of Structuration theory as lens to understand the effectiveness of interactions in the formulation of regulations, and how policy is used to facilitate the deployment of telecommunications infrastructure in the South African environment.*

## **KEYWORDS**

*Regulatory Authority, Telecommunications, Infrastructure sharing, Structuration theory, Human Interaction*

## **1. INTRODUCTION**

Infrastructure sharing is a concept that advocates on negotiated terms the sharing of network resources within geographical locations by two or more telecommunications network service providers [1]. Globally, telecommunications infrastructures (broadband) are deployed in urban and rural areas and these infrastructures can be shared. Sharing network infrastructure is relevant for both fixed and mobile telecommunications operators in helping to undertake the expansion of telecommunications networks in both urban and rural communities. Sharing telecommunications

infrastructure limits duplication and, enhances investment, product innovation and improved customer services [2], and reduces the infrastructure deployment costs for network service providers. It is further supported by [1] that building shared networks will lower the operators' capital investment and increase infrastructure roll-out speed. They further assert that operational costs can be saved, which is the key driver for sharing existing mature networks. However, the amount that an operator can save depends upon the depth of sharing arrangements [2].

The deployment and performance of shared telecommunications infrastructure (such as broadband) is significantly influenced by different national regulatory institutions, political processes and regulations [3]. These network infrastructures need to be managed and maintained with sound regulatory systems. In one of its strategic documents of 2009, [4] stated that the rapid rate, at which broadband technologies are deployed, requires regulations and policies for its guidance. [4] articulation and proposal for regulations and policies are mainly to avoid irregularities in the deployment, as well as to improve the technologies' efficiency and effectiveness.

Regulation plays an important role in the telecommunication industry. Regulatory structures represent key factors for innovative processes in the infrastructure sectors as they guide the direction of development and deployment of technology infrastructure [5]. These include price regulation, rules on network accessibility and environmental regulations. Therefore its sustainability relies on the legislation and regulatory structures of the country [6]. With distributed infrastructure and innovative regulations, telecommunication infrastructures such as broadband can provide high-end services to the business sector, as well a range of low-cost, high-quality services to all [7].

This article presents the use of duality of structure from the perspective of Structuration theory to understand the effectiveness of regulatory in facilitating the deployment of shared telecommunications infrastructure. The focus is to understand how non-technical factors enable and constrain the development and implementation of telecommunications infrastructure sharing regulations.

## **2. RESEARCH APPROACH**

To understand the roles and impact of regulatory and policy on telecommunication infrastructure deployments, a real-world situation was solicited through the case study and qualitative methods. [8] described the case study as method for eliciting natural setting. Qualitative research is a good inquiry process of understanding a social context [9]. In this vein, [10] described the method as a process which allows experience or perceptions to be shared. Based on the objectives of the research which was to understanding the roles and impact of regulation and policy on deployment of telecommunication infrastructures, probing of response was essential. The qualitative method allows for follow-up such as "why", "how", and "what" [11].

Capricon Regulatory Authority (CRA) was selected for the study. CRA is the main regulatory body in the South Africa. The organisation was instituted under the South African act of 1994. A total of four employees were interviewed within the organisation. The interviewees included two senior managers and two junior staff members. This was to draw balance in the data gathered.

The interviews approach was used in the data collection [12]. [13] described the interviews approach as a data collection method that produces first-on-hand accounts of experience, opinion, and perception from the respondents. Data was analysed using Structuration theory's duality of structure as a lens: to understand how and why interactions amongst actors were carried out in the manner that they did, in attempt to deploy telecommunication infrastructures; and to understand the impact of the roles of the agents in the deployment of telecommunication infrastructures.

### 3. STRUCTURATION THEORY

Structuration theory (ST) is a theory which constitutes agents and structure within a social phenomenon. The social structure is drawn upon by agents, to consciously or unconsciously produce and reproduce their actions [14]. [15] argued that ST allows us to examine how people (agents) enact structures which shape their emergent and situated use of technology as they interact with it in their ongoing practices. As shown in Figure 1, the duality of structure draws and associate different factors together during agents' reproductive actions. Thus, it becomes difficult to analyse these events separately.

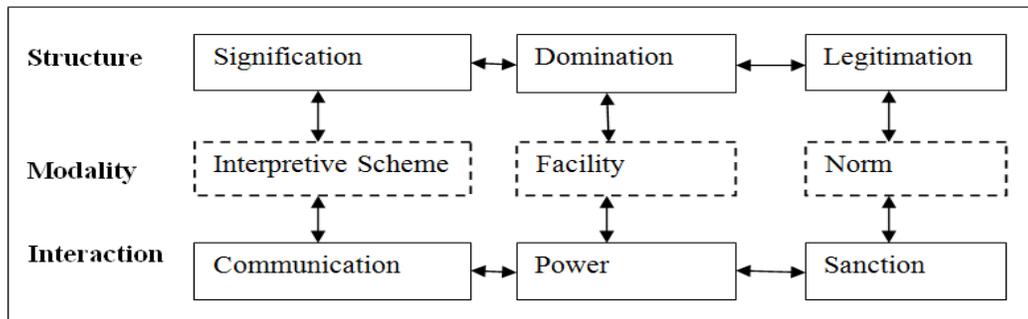


Figure 1: Duality of structure [14]

The modalities (interpretive schemes, facility and norms) link human actions (communication, power and sanction) with the structural components (signification, domination and legitimation) [16]. The human actors' communication involves the use of interpretive schemes which are stocks of knowledge that human actors draw upon in order to make sense of their own and other's actions. These human actors referred by [17] as agents, thereby produce and reproduce structures of meanings which are termed structures of signification [18].

The human agents utilise power in interaction by drawing on facilities such as the ability to allocate material and human resources; in so doing, they create, reinforce or change structures of domination. Structuration theory's view of power is positive as it involves the exploitation of resources that allows things to get done [19]. [20] further point out that resources are the means through which intentions are realised, goals are accomplished and power is exercised.

The human agents sanction their actions by drawing on norms or standards of morality as deemed acceptable in the organisation. Thus maintaining or modifying structures of legitimation [16]. Norms or standards influence actions which may lead to changes on how rules and resources influence interactions and, the reinforcement of the norms upon which these interactions are based [21].

### 4. TELECOMMUNICATION INFRASTRUCTURE DEPLOYMENT REGULATION

The deployment of telecommunications' infrastructures includes technologies that enable high speed transfer of multi-media and high bandwidth information [22]. The deployment of telecommunications' infrastructures is socio-technical in nature [5]. This is primarily because of the technical and non-technical such as people and process components that are involved in the deployment. Many countries, including South Africa ensure that legal requirements are met as part of the processes for telecommunication's regulatory matter [7].

Regulation is critical role on how and where telecommunications infrastructure are deployed and shared. Apart from the geographical location, regulatory structures have a major impact not only

on the functioning and performance of national telecommunications but also on the comparative global performance of telecommunications [23]. [24] argued that the role of regulations is important in investment decision making of telecommunication companies as it helps to determine or shape the direction of their return on investment (ROI).

In South Africa regulatory and policy activities in telecommunication markets are strictly regulated by CRA. It is the sole telecommunications regulator in the country maintaining a competitive and socially responsive communications industry. South Africa derives its legislative mandate from the country's Telecommunications Act of 1996, Competition Act of 1998, the Broadcasting Act of 1999, the CRA Act of 2000 and the Electronic Communications Act of 2005 (ECA) [7]. The CRA develops regulations and policies, issues licenses to telecommunications companies, and also manages the frequency spectrum [25].

Telecommunication infrastructures are increasingly unconditional for information societies across the world. Telecommunication infrastructure facilitate, support and enable transparent system, wider dissemination of information, as well as guarantees freedom of speech for technology users [26]. Therefore the effectiveness of regulatory policies is critical in facilitating infrastructure deployment and sharing arrangements among the telecommunication companies, and the communities. The expansion of telecommunication infrastructure through sharing of infrastructure is a strategic process that necessitates co-operation among competitors, and it is subject to explicit involvement by telecommunication regulatory authorities to enforce implementation [22].

## **5. STRUCTURATION VIEW OF TELECOMMUNICATION REGULATORY DEVELOPMENT**

The formulation of regulations for telecommunications infrastructure was carried out within rules and regulations of the country. The regulations facilitate the telecommunications operations in terms of infrastructure deployment. The resources required in the formulation and implementation of telecommunications regulations included technology and people. There were also processes involved.

The organisation, CRA employed both internal and external rules and regulations when formulating the governance and guidance for telecommunication's activities. The internal rules and regulations (standards and procedures) were based on the organisation's objectives and strategy. The external rules and regulations were mainly from the stakeholders including the National Government and Municipal authorities of the country.

The regulations and policies were considered critical as determine geographical location for the deployment of telecommunication infrastructures. This made the formulators of the regulations and policies to be powerful. However, the skill required to carry out such tasks were scarce. One of the employees' views on the importance of skilled resources was stated as follows: *"The organisation employed people in all available positions. The challenge is whether they can do what is required of them is another matter"*.

There is mutual dependency among the regulators, the processes, rules and resources in the efficiency of developing and implementing telecommunications regulation throughout the country. The Table 1 below summarises the dependency.

## 5.1 DIMENSIONS OF THE DUALITY OF STRUCTURE

Table 1: Development and implementation of telecommunication regulation

Signification	Domination	Legitimation
Regulation and guidance of the deployment of telecommunications infrastructure is of importance to the government and the general community of the country.	The Ministry (Department) of Communication mandates the relevant Government agency to formulate regulation on the deployment of telecommunications infrastructure in the country.	The organisation (CRA) carries out its responsibilities and accountability within rules and regulations as set out by the government of the country.
Interpretive scheme	Facility	Norms
The government through CRA regulates the activities regarding locations where telecommunications infrastructures are deployed in the country. The CRA assesses the impact of telecommunications infrastructure on the communities.	The organisation (CRA) relies on the requirements (Government directive), people and processes to carry out its mandates in the formulation and management of the regulations.	The CRA have rules and regulations through which they developed, implemented, and facilitated the deployment of telecommunications infrastructure in the communities and the country at large.
Communication	Power	Sanctions
The regulations as formulated by the organisation are shared with all the stakeholders, following structures and channels as defined by the Constitution and bylaws of the country.	The organisation is solely responsible for the regulation of the deployment of telecommunications infrastructure in the country. This authority is bestowed on the organisation by the Constitution of the country. The executive committee is accountable for the activities of the organisation. While the Minister of communication oversees the activities of the organisation on behalf of the Government.	The regulations which are formulated by the organisation require approval of the internal process (executive committee) and the Minister of Communications.

### DUALITY OF STRUCTURE: SIGNIFICATION AND COMMUNICATION

The Capricorn regulatory authority (CRA) is accountable to the country's Minister of Communications. This was in order to ensure that there were sufficient regulations and policies to the telecommunications industry, and to protect citizens against negative effect of telecommunications infrastructure deployment. According to one of the employees, "*the core business of the authority (CRA) is to monitor the activities of the telecommunication industry*". The organisation's focus was considered essential in that it assist in creating an enabling environment for developing country as South Africa.

One of the criticalities for the regulations and policies was to guide against telecommunication service providers deploying infrastructures in locations as they so wish. This made the regulations and policies, as well as the organisation significant to the communities and government. For example, in a recent report by *Pretoria News*, edition of 14 August 2011, there was a protest by residents of Constantia, Cape Town over the deployment of Vodacom (one of South African service providers) towers in their community. The community was of the view that telecommunications towers will compromise their health.

The regulations and policies were in a sense also considered to be of important to the service providers as it provide an umpiring status amongst them. This controlled competitiveness in the deployment of their infrastructures, particularly in areas considered to be strategic.

However, there seemed to be a gap in CRA's infrastructure deployment regulations. The implications of gap in the regulations and policies resulted in inappropriate deployment of telecommunications infrastructure in the different locations across the country. One of the employees of CRA briefly explained that "*the incumbents are using the limitation of regulations to their defence for not deploying telecommunications infrastructure appropriately*".

There are also external rules and processes such as municipal bylaws that were regarded as critical to the deployment of telecommunications infrastructure. However the challenge is that these rules are not formulated in conjunction with the organisation (CRA), and has a major impact on how telecommunications infrastructure could be deployed in the country. This could be attributed to lack of information sharing or different interpretations of shared information. This was associated to the ways and manners in which the information is shared. One of the managers, explained that "*There are different municipal bylaws guiding the deployment of infrastructure, and that the inconsistencies in municipalities' bylaws created a complicated process for operators deploying telecommunications infrastructure in different locations*".

Within the organisation (CRA), the information regarding the Minister's policy directive was shared with stakeholders who were involved in the formulation of regulations and policies. According to one of the employees, "*the Minister of Communications' policy directives are communicated to the organisation's (CRA) Council for regulatory development. The Council shares this information with different stakeholders which are involved in the formulation of the regulations and policies*". Communication was considered to be an integral part of regulatory development and implementation plans. The stakeholders who were involved in formulating telecommunications regulations and policies were expected at all times, to understand the importance of regulating the telecommunications industry. The structures and channels that were required were also understood by the stakeholders. However, the structures amongst other factors gave some individuals and groups certain power, and source of domination.

### **DUALITY OF STRUCTURE: DOMINATION AND POWER**

As already established, the formulation of regulations and policies for the deployment of telecommunications infrastructures in the country was the responsibility of the CRA by virtue of the mandate bestowed upon them by the Ministry of Communications, as allowed by the constitution of the country. The Council of the CRA was therefore solely responsible and accountable for the regulations and policies guiding telecommunication infrastructure in the country.

Telecommunication infrastructure such as base stations and site towers were some of the facilities considered in regulatory development. To facilitate the deployment of telecommunications infrastructure in different locations, sharing of infrastructure was considered for rationale such as cost, and to reduce competitiveness. The CRA therefore formulated regulations to facilitate and manage the deployment of shared telecommunications infrastructures. The telecommunications operators were expected by law, to adhere to telecommunications regulations in terms of how and where infrastructures are deployed in the geographical locations across the country. This was intended to protect the sanity of the environment, as well as protect the interest of the communities.

The organisation had policy that guided how telecommunications infrastructure could be shared among the telecommunications companies. The policy was named or tagged "*Facility Leasing*". The *Facility Leasing* regulations was formulated to help facilitate efficient and appropriate infrastructure deployment. One of the employees explained that: "*the facility leasing regulation*

*defines the essential facilities that network operators (telecommunications companies) could use or apply in the deployment of their telecommunications infrastructure*". The *Facility Leasing* regulation was also intended to provide guidelines, and enable sharing of infrastructure among telecommunications companies in the country. The *Facility Leasing* served as a source of power to the CRA to manage and control the telecommunication companies. On another hand, it deprived one company from dominating others, particularly when it comes to size and financial muscles.

However, there seem to be some challenges in the finalisation of the *Facility Leasing* regulations. As a result, the telecommunications companies have not been able to apply the regulation in some areas such as sharing of the spectrum technology. The challenges include technical know-how to properly define and articulate technologies terms of reference for the telecommunications companies. One of the employees expressed himself as follows: *"there are many challenges with the Facility Leasing regulation, as a result, it is not executable. This is because it was not properly developed"*. The challenge was attributed to lack of availability of sufficient resources such as people.

The role of people was considered to be vital to the development and implementation of telecommunications regulations and policies. However the organisation (CRA) lacked the necessary skills which were required for the formulation of its regulations and policies. This had impact of on the relationship between the telecommunication companies and the CRA on one hand, on another hand, amongst the telecommunication companies in the country. This was primarily because the power to lead which were the regulations was weak due to lack of skilled resources.

The lack of available skilled personnel was attributed to insufficient fund. Two of the interviewees explained that *"the organisation do not receive enough funds which would enable them to recruit qualified skilled personnel. This therefore impacted the quality of regulations and policies that we formulate"*. Also, according to another interviewee, *"the Minister of Communication was responsible for the appointment of Council members and they are responsible to communicate their activities within the organisation to the Minister, in return"*. The Council was the highest decision making body of the organisation. This amplified the power of the Minister over CRA.

Unfortunately the organisation depended on the Government for funding in order to carry out their mandates. According to one of the interviewees, *"we are dependent on the Minister of Communications for financial support in order to carry out our day-to-day responsibilities"*. The implication of such dependent led to control and political manipulation of the organisation's activities. According to one of the interviewees, *"the Minister of Communication has the final word on our regulatory and policy matters"*. Through this type of funding model, the government asserted its power and dominance over CRA and the telecommunications companies in the country. At the time of this study, this was the norm and was legitimised and accepted by the stakeholders such as the telecommunications companies, the communities and CRA.

## **DUALITY OF STRUCTURE: LEGITIMATION AND SANCTIONS**

Capricon Regulatory Authority (CRA) was legally authorised by the government of South Africa to regulate the activities of telecommunication industry, particularly to those that have impact on the communities. As already established above, CRA provided governance, and were the custodian of all regulatory development and implementation in the telecommunication industry. Some of the participants pointed out as follows: *"the Minister of Communications' policy dictated their objectives and directions"*. In this case, the organisation needed to get approval for all its activities including recruitment of personnel. For example, as pointed out by one of the interviewees, *"the organisation needs to get approval from the Minister to appoint international*

consultants and if the Minister does not approve of what the organisation requests, he pulls tight on the pay strings”.

The legitimisation and approval of CRA activities were driven through three-way dimensional approach: the CRA, Department of Communications, and the Minister of Communications. This had impact on the efficiency of regulatory and policy by CRA. One of the managers tried to explain the process and rationale for the approach as follows: “the Department of Communication was the bridge between the CRA and the Minister. That the communication between CRA and the Minister has to go through the Department of Communication, this was based on the 1994 on which the CRA was established”.

The formulation and implementation of regulations and policies were guided by external and internal rules and interests. The rules were followed during formulation of telecommunications regulations. The internal rules included the processes which were set by the organisation for its day-to-day business operations. External rules were set or directed by stakeholders such as the Ministry of Communications and municipalities bylaws.

However, there was a mutual dependency between the municipalities’ bylaws and the regulations that were implemented by the organisation. The bylaws were considered as a tool that was used to ease some challenges in the deployment of telecommunications infrastructures in different locations. The bylaws were fundamental in that each of the geographical location across the country had its unique requirements. One of the interviewees pointed out: “It was a very complicated process for the telecommunications operators to deploy infrastructure in different locations, and that the challenge was due to lack of coordination in addressing the different bylaws set by municipalities”. Despite the challenges, the CRA, government and the communities accepted the development and implementation of the regulations that facilitated the telecommunications’ activities in the deployment of infrastructures in the country.

## 6. FACTORS INFLUENCING TELECOMMUNICATION REGULATIONS AND POLICIES

From the analysis presented above, some factors were found to influence the formulation of regulations and policing which guided the telecommunications infrastructure deployment. The factors, include government, organisational politics, regulatory accessibility, communication and organisational structure and technical know-how, as depicted in Figure 2, and discussed below.

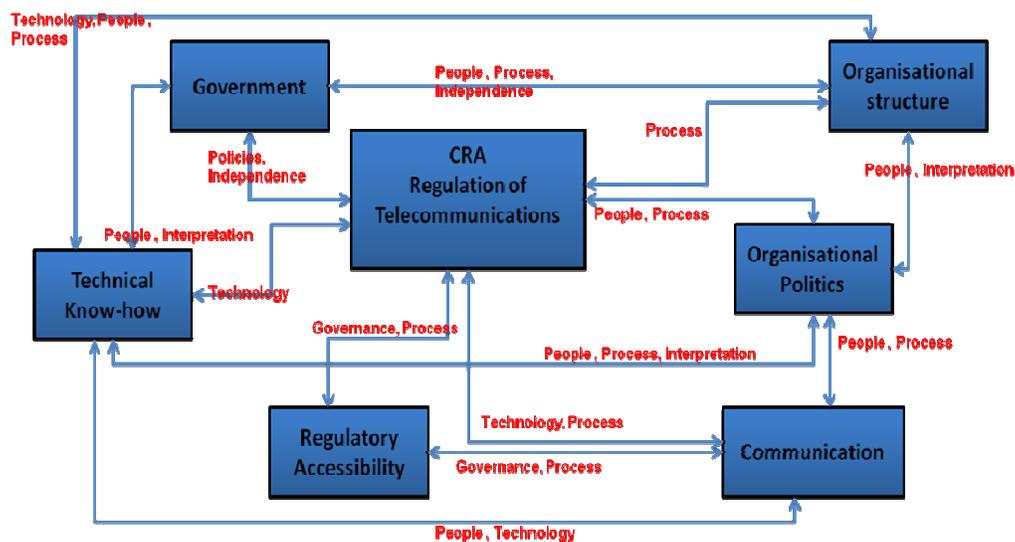


Figure 2: Components of telecommunication regulatory

## **GOVERNMENT**

As revealed in the analysis, government has a significant role in the formulation or regulations and policies by CRA, which were intended to guide the deployment of telecommunications infrastructure in the country. This was to ensure sustainability, control of competitiveness in the industry, as well as long-term innovation through sharing capability.

The interest and role of the government was defined around power to control the activities of the telecommunication through the establishment of CRA. By so doing, the government created obligatory passage point for CRA, meaning the organisation could not act based on its own assertion. This had negative impact on the operations of the organisation. For example, their privilege to access funds for its operations was not based on their scope of their scope of activities, but on the discretion of the Minister of Communication, which sometimes created uncertainty.

However, there were some positive implications in government interference to CRA activities. It gave the organisation the political strength and muscle to manage and get the telecommunication to adhere to its regulations and policies. This implication of government interference was also positive from the perspectives of the community, as witnessed in the case of protest in the Cape Town area.

The CRA clearly depended on the government for funding and thus the autonomy of the organisation was undermined. This made the relationship between CRA and the government to be one sided, and was based on power for control. This had impact on the deployment of telecommunications infrastructures, and how they could be shared. The government interference was a manifestation of politics which emanated from interactions amongst the agents of the stakeholders.

## **ORGANISATIONAL POLITICS**

Organisational politics existed in the course of formulation of regulations and policies for deployment of telecommunications infrastructures. The politics emanated from stakeholders' intent to control how the regulations and policies are developed. This could also be attributed to how information was communicated and interpreted, which were based on interests.

The organisational politics as experienced by CRA was influenced by many different factors, such as power to control and signification of presence, from both internal and external sources. The government and CRA wanted, at the same time, maintain their presence in how telecommunication companies deploy infrastructures within the communities. The power to control, which bestowed on the government, was aided by the fear that the telecommunication companies could embark on aggravated competition for space and location at the expense of the communities.

Politics is never stable and permanent. It is often driven by interest, as the government interest as in this case. This has serious implications on the existence, as well as the type of service delivered by the CRA in South Africa. As the government's interest shifts focuses, the CRA changes direction, causing instability for the telecommunication companies. This in-turn impacts the types and quality of service that the communities get from the telecommunication companies overtime and space of occurrence.

The manifestation of the organisational politics can be further described as destructive. For example, due to government interference, formulation of regulation which is intended to guide sharing of infrastructures such spectrum technology has not been finalised as at the time of the study. This has implications on the telecommunications operator's decision making in deploying telecommunications infrastructure in certain areas of the country. For example, rural communities

in some areas such as Malolisa in the Province of Limpopo suffer the consequence of the politics. Sharing of spectrum was intended to facilitate faster deployment of telecommunications infrastructure for shared network coverage.

Also, the manifestation of politics ignited the decision to sometime withheld fund, which deprived the CRA from recruiting qualified personnel, which sometimes derailed activities, as revealed in the analysis. Organisational politics and organisational structure influence, and depend on each other to exist and make a difference. As such, it is difficult, or lack of sustenance to address one without the other.

### **ORGANISATIONAL STRUCTURE**

The organisational structure of CRA was relied upon in the distribution and allocation of tasks when it came to formulation of regulations and policies for the deployment of telecommunication infrastructures. Based on its role, the organisational defined how interactions were carried, and shaped the relationship amongst employees in the organisation, on one hand. On another hand, the structure of the organisation shaped the both interaction and relationship between CRA and the government, as well as the telecommunication companies.

The structure of the organisation dictated how roles and responsibilities were allocated amongst employees. The allocation of tasks had impact on how employees related with one another, and their subsequent interaction in carrying out their ultimate tasks, which was the formulation of regulations and policies. Somehow, the structure of the organisation was not clear and transparent, at least to external stakeholders.

The organisational structure of CRA was interpreted by some stakeholders as complicated, and as well undermined by some influencing factors or agent such as the government. This was attributed to ineffectiveness in CRA performance of its activities. This was because the Minister of Communication played a dominant role in the organisation's recruitment process. The Minister appointment of CRA's Council member made it difficult for the organisation to make decisions that were contrary to Government's interest. This can have an influence on the organisation's ability to regulate the telecommunications industry free of Government interference.

The structure within which the CRA operated extended beyond its boundaries. As part of the structure, there was a bridge created between CRA and the Minister of Communications. The bridge was occupied by the Department of Communications. This had a negative impact on how the organisation carried out its activities, as a result of bureaucracy, and multi interpretation of any and all events.

The Department of Communications made use of the structure to exert own dominance and power within legitimated frame. For example, the Department of Communications sometimes decided on which information was to be brought to the attention of the Minister of Communications and which information require their authorisation and approval. Also, the organisational structure influenced and shaped technical know-how in the formulation of regulations and policies in the deployment of telecommunications' infrastructures in the country.

### **TECHNICAL KNOW-HOW**

To implement sufficient and efficient regulations it was crucial to have skilled and competent employees within the organisational structure. Lack of funding and the way the organisation was structured had impact on the recruitment of the required skills. The organisation lacked sufficient skilled people to carry out its strategic objective. Although the people formulate regulation, they cannot implement it. There was a need for skilled people with the appropriate technical know-

how as it is a lack of such knowledge that causes problems with regulations such as spectrum sharing.

It was clear that there was a challenge regarding un-executable regulations for facilitating the telecommunications infrastructure deployment in different locations. This created challenges for licensed telecommunications operators to carry out their operations in deploying shared telecommunications infrastructure throughout the country.

Government's intervention and the dependence on government for funding have led to CRA not being able to employ the appropriate skilled persons to fulfil the role of regulating and implementing the regulations required to ensure the effective distribution and allocation of spectrum and infrastructure sharing.

### **COMMUNICATION**

The effect of the organisational politics shaped and influenced how information was communicated, and interpreted by employees as well as the stakeholders. The organisation relied on communication to carry out its mandates. Unfortunately, it was not only used for that purpose, but also for personal interest.

Some employees including stakeholders shared and interpreted information in accordance to their personal interests. In the same vein, others understood their roles and responsibilities based on their interest. Unfortunately, the information and their interpretations were followed in executing their daily activities.

Another critical aspect was that the communication amongst employees within the organisation took a different shape from the communication which happened externally, between the CRA, and the government, as well as the telecommunications companies. Due to factors such as organisational politics, and organisational structure, communication channels were not effective, messages did not reach audiences accurately.

This has an impact on the deployment of shared telecommunications infrastructure in the country. Proper communication channels will also improve productivity and, enhance those policies that have been developed through correct communication channels. However, in spite of the challenge of communication channels, the organisation and Government accepted the regulatory development and implementation facilitating the telecommunications environment.

### **REGULATORY ACCESSIBILITIES**

The communication channels had an impact on how information was shared in the organisation. Based on our empirical evidences, it is fair to say that information sharing, and access to processes and procedures were limited in CRA. This had impact on the end-product, regulations and policies procedures.

Even though the organisation published its regulations on the website, the processes that were followed as well as the determining factors, drivers and requirements remained a secret. The secrecy could be attributed to many factors, such as the roles of government, the interaction amongst stakeholders, and independence of the organisation, which were questionable acts.

In summary, the interest of the government and the communities was driven by the significance which was associated to the services of the telecommunications, and how the infrastructures were deployed. The significance as interpreted by the CRA influenced how information was shared, and how communication was carried out. The government exerted its dominance, using the

recourse as source of power over the CRA. At the end, the processes and procedures including the outcome (regulations and policies) were accepted as norm.

Interpretation, a further step in sense making of the findings was carried out. This was to gain a deeper understanding of why those factors as found in the analysis existed in the way that they did.

## 6. CONCLUSIONS

The study has empirically proven and revealed that the role played by non-technical factors such as people, processes and politics are critical to the development of telecommunication regulations and policies. The factors have a major impact on the effectiveness and efficiency in regulatory development and implementation. The study would therefore be important to telecommunications managers, the regulatory authority, government, as well the communities at large to gain better understanding of the impact and implications of the actions of non-technical factors.

The use of duality of structure from the perspective of Structuration theory (ST) was useful in understanding how events and activities were produced and reproduced overtime and space in the formulation of regulations policies for the deployment of telecommunication infrastructures in the country. Within the frame of the duality of structure, it was possible to follow the interactions which took place amongst the agents, and understand how significant was associated to facilities, and how events transformed themselves and become norm. This would be difficult or impossible to achieve without ST.

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