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Evaluating the Impact of National Culture on Viability within Infrastructure Delivery Systems

B.O. Awuzie, University of Salford, UK
P. McDermott, University of Salford, UK

EVALUATING THE IMPACT OF NATIONAL CULTURE ON VIABILITY WITHIN INFRASTRUCTURE DELIVERY SYSTEMS

B.O Awuzie[1] and P. McDermott[2]

ABSTRACT

The term '*viability*' within systems thinking literature has been referred to as the ability of a system to become ultra-stable through the self-regulation of its internal processes and effective processing of information between its various elements. Applying this to infrastructure delivery systems (IDSs), this study holds that delivery systems can deliver to client requirements successfully only if they attain and maintain viability throughout the delivery process. Effective Interorganisational communication and collaboration are identified as central to systems viability. Therefore, IDSs have to be organised and managed in such a manner that they can attain and maintain viability by providing for effective interorganisational communication and collaboration. Ideally, cognisance should be taken of any factors capable of undermining communication and collaboration within IDSs. Surprisingly, National Culture (NC) has not been considered in the quest to achieve viability within IDSs; hence the decision by this study to attempt to evaluate the impact of NC on the ability of the IDS to attain viability. Adopting a multi-case study, qualitative strategy, this study explores three IDSs responsible for the delivery of infrastructure projects across two different NC contexts; Nigeria and the UK. Major participants in the delivery systems within the selected cases are identified with the aid of the Viable Infrastructure Delivery Systems Model (VIDM). Twenty-five semi-structured interviews were conducted across the cases to provide for an in-depth understanding of the existing interactions between these participants: client/project sponsor; main contractor and sub-contractors and to evaluate the impact of the prevailing national culture on these interactions, if any. Findings indicate that NC within the project delivery environment influenced the ability of the IDSs to attain viability, especially as it pertained to communication and collaboration between the elements of the system. Based on these findings, it is expected that in modelling IDSs for viability, adequate consideration would be given to the prevailing NC.
KEYWORDS: National Culture, Viability, Infrastructure Delivery Systems

INTRODUCTION

The delivery of an infrastructure asset is a complex undertaking which involves high levels of structural and social complexity arising from the degree of interactions and interdependencies existing between various parties (Van Marrewijk, 2013). Also, he describes the delivery process as one that should be regarded as the object and outcome of social interactions taking place within multiple contexts of socially constructed interdependent networks. These characteristics of the infrastructure delivery process thus make it imperative for a thorough understanding and embedding of contextual variables into the design of the delivery process. Scholars like Rwelamila et al. (1999) have blamed the non-consideration of these contextual variables in the design of delivery systems and their inherent governance mechanisms for the incessant cases of project failure in Africa.

Also, the successful delivery of infrastructure assets has been attributed to the effective organisation and subsequent management of the delivery systems. The infrastructure delivery system (IDS) is used in the context of this study to connote the representation of all types of

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[1] Postgraduate Researcher, University of Salford, UK, b.o.awuzie@edu.salford.ac.uk
[2] Professor of Construction Procurement, University of Salford, p.mcdermott@salford.ac.uk

interorganisational relationships existing between various stakeholder organisations during the procurement and subsequent delivery of a particular infrastructure asset.

As its central proposition, this study holds that IDSs must attain and maintain viability if they are to deliver to the expectations of infrastructure clients. Viability in this regard is used, in line with the concept of systems viability, to connote the ability of a particular system or organisation to self-regulate and control its internal activities in such a manner that it can effectively withstand any vituperation from its external environment(Hoverstadt and Bowling, 2002). This is referred to in systems thinking terms as homeostasis(Espejo and Gill, 1997, Schwaninger, 2006). As infrastructure delivery systems constitute of several parties, attaining and maintaining viability remains an arduous task due to the various contractual arrangements, divergent and competing interests which exist within the system. To deliver to the client's objective, there is undoubtedly, a need to harness these varied interests and to align them towards the attainment of one common goal; the client's objective. As such, it can be inferred that effective interorganisational communication and collaboration is imperative for the attainment of viability. Nothing less is expected from a viable IDS.

Culture has been severally referred to as an influential factor affecting both organisation and management. Its impact on project performance and success has also been noted (Pheng and Yuquan, 2002, Phua and Rowlinson, 2003, Ankrah et al., 2009). Tayeb (1997) description of culture as being manifest in the process of interaction between various parties and the widely held perception of the infrastructure delivery system as comprising of a multiplicity of such social interactions makes it imperative that the impact of culture on such interactions is subject to an evaluation. Whereas a great percentage of the existing culture-related studies have sought to investigate the impact of culture on project teams from a diversity management and organisational culture perspective, others have sought to assess the impact of culture on particular factors responsible for project success (See Gajendran et. al. 2012). However, not a lot has been done in assessing the impact of the National Culture (NC) on the performance of infrastructure delivery systems from a viability perspective and that is what this particular study sets out to do through a comparative case study of projects within two different NC contexts.

Therefore, this paper commences with a review of literature in the areas of NC, management and organisation, the concept of organisational/systems viability, a definition of the attributes of viable infrastructure delivery systems, and the development of propositions to be subsequently tested through the findings from the selected case studies. Thereafter, a discussion of the methodology adopted would ensue. This is subsequently followed by the presentation of findings, discussion and conclusion respectively.

REVIEW OF LITERATURE
National Culture and the Management of Organisations
Although there has been no commonly accepted definition of the term 'culture' this study adopts the definition proffered by House et al. (2002) wherein culture was described as those values, motives, identities and meanings shared by members of collectives or groups. From this definition, NC can be inferred to depict a situation where such elements identified previously by House et al. (2002) are shared by a majority of citizens of particular country. A lot of work has been done as it concerns national culture and its significance in the management of organisations. For instance, Chevrier (2003) asserts the importance of NC to management research and stated that persons who are embedded within a particular cultural context always seem to share particular perceptions of the world. These perceptions may be in the form of specific representations of suitable approaches to cooperation, conflict resolution, and managing communication among themselves or even accepting constituted authority. Meanwhile, the revelation by Gannon (1994) on the contribution of NC to the

variation in behaviours makes the evaluation of the impact of NC within various delivery systems imperative. In his study which spanned seventeen countries, he observes that NC was responsible for 25-50% variations in individual attitudes.

According to De Bony (2010), the literature about the influence of NC and management has evolved through time, revolving around three main standpoints. These standpoints include; first school of thought which posited that management practices were in essence objective and not in any way influenced by culture; the second school of thought which attempted to show, through cross-cultural studies, that the cultural dimensions prevalent in various societies were indeed comparable to each other using certain dimensions as developed by (Hofstede, 2001, Hofstede, 1980); and the third school of thought which supported the viewpoints of those who opined that culture was native to particular contexts, highlighting the impossibility of any attempt to properly draw comparisons to another culture.

This study draws its strength from the second school of thought. Although this school of thought has been criticised over its theoretical and methodological biases (Tayeb, 1994), it is still the most commonly used by international managers(De Bony, 2010). Tayeb (1994) in his attempt to emphasise the salient nature of NC, maintained that the major strength of the cultural perspective as a whole lies in its recognition of the fact that; the cultural values and attitudes are different in degree at least, if not in absolute terms in some cases, from one society to another; that different cultural groups behave differently under similar circumstances because of the differences in their underlying values and attitudes; and the important role that culture plays in shaping work organisations and other social institutions. Various studies have sought to investigate the impact of NC on the various facets of organisational management. In a study of TQM adoption in Botswana, Ngowi (2000) observes that although the values embedded in the TQM could be adopted into the proposed organisation, the prevailing cultural context of the wider society (NC) resisted such changes. On the other hand, Chan (1997) highlights the existence of a high degree of cross-cultural influences on construction project management disputes in China. He maintains that the societal culture (NC) was partially responsible to the cause of the identified disputes and the manner in which they were settled.

Furthermore, different studies on cultural differences also suggest that management controls that have been proven effective in one country may prove ineffective or even dysfunctional in another country. For instance, Leung et al. (2005) reiterate that the transfer of several management practices from developed countries to developing countries contributed to the organisational inefficiencies being experienced in such countries. Nazarian and Atkinson (2012) in their investigation of the impact of NC on organisational effectiveness discover that certain aspects of NC impacted upon organisational effectiveness significantly. Seymen (2006) advocates for organisations to establish ways through which they can manage cultural diversity by casting management and organisation structure around peculiar conditions which affect and determine its structure. Culture, national more so, has come to assume a major dimension in the management and organisation of infrastructure project delivery. Scott et al. (2011) in their book on global projects, trace the evolution of the culture domain in project organisations and infrastructure projects through three respective theoretical backgrounds; the contingency theory of organisations, the resource-based view theory of organisations, and the institutional theory of organisations. They maintain that the latter brought in its wake the immense consideration of project organisations as entities that are situated within different legal, regulatory and cultural contexts and advocated for these factors to be taken into consideration when managing such organisations particularly in the infrastructure context.

Hence, it would be safe to agree with Evans (1991) that NC makes a unique contribution to understanding management policies and practices. However, despite its seeming salience in organisational studies, Shore and Cross (2005)admit that NC and its influence on the success of project management process has received little attention in the literature.

Measuring the Influence of Culture on Management Practices

Tayeb (1994) reiterated the difficulty in measuring the influence of culture on management practices. To do this effectively, Pheng and Yuquan (2002) express the need for the adoption of typologies developed by Schein (1985)or dimensions developed by Hofstede (1980). They state that either of these two approaches could serve as good analytic tools for measuring the behaviours, actions and values of the members of a particular society. Cultural dimensions as developed by Hofstede (Hofstede, 1993)are adopted in this particular study, notwithstanding the criticisms trailing their use in various studies. For according to Pheng and Yuquan (2002), Hofstede had maintained that not only did these dimensions represent the critical elements of the basic structure which obtains in the cultural systems of various countries, they go a step further by providing an important framework for analysing NC and the effects of culture on management and organisations. Furthermore, Hoecklin (1996) insists that they allow for the comprehension of an individual's conception of not only the organisation and the management practices adopted by the organisation but in understanding the different roles of the parties to that organisation as well as the nature of relationships which exist between them. This study is interested in evaluating the impact of NC on the core tenets of viability within infrastructure delivery systems; interorganisational communication and collaboration by applying the Hofstede's dimensions. These dimensions are shown in Table 1. Another aspect which has been identified by Gajendran et al., (2012) as posing a challenge to the measurement of cultural influence on organisations and management practices is the determination of the actual level of cultural manifestation at which the analysis is to be carried out on. They refer to the extant cultural manifestations as identified by Hofstede (2001) on one hand and Rousseau (1990) and Schein (2004) on the other hand. Whilst acknowledging the emerging discourse on which manifestation is most suitable for the measuring cultural influences to which no consensus has been achieved (Gajendran et al. 2012), this study adopts the 'behavioural norms' and 'patterns of behaviour' exhibited by the organisations in the IDSs assessed as the level of cultural manifestation analysed.

Table 1 Hofstede's Cultural Dimensions

Value Dimension	Value Description	High Score	Low Score
Power Distance Index (PDI)	Degree of equality, or inequality, between people in a country's society	Inequalities of power and wealth have been allowed to grow within the society. These societies are more likely to follow a caste system that does not allow significant upward mobility of its citizens.	Indicates that the society de-emphasizes the differences between citizen's power and wealth. In these societies equality and opportunity for everyone is stressed.
Individualism/Collectivism (IDV)	Represents the degree to which a society reinforces individual or collective achievement and interpersonal relationships.	Indicates that individuality and individual rights are paramount within the society. Individuals may tend to form a larger number of looser relationships.	Indicates societies of a more collectivist nature with close ties between individuals and organisations.
Masculinity (MAS)	Degree to which a society reinforces, or does not reinforce, the traditional masculine work role model of male achievement, control, and power	Indicates that the country experiences a high degree of gender differentiation. Males dominate a significant portion of the society and power structure, with females being controlled by male domination.	Indicates that the country has a low level of differentiation and discrimination between genders. Females are treated equally to males in all aspects of the society.
Uncertainty Avoidance Index (UAI)	Depicts the level of tolerance for uncertainty and ambiguity experienced within the society such as unstructured situations.	Indicates that the country has a low tolerance for uncertainty and ambiguity Creates a rule-oriented society that institutes laws, rules, regulations, and controls in order to reduce the amount of uncertainty.	Indicates that the country has less concern about ambiguity and uncertainty and has more tolerance for a variety of opinions. Reflected in a society that is less rule-oriented, more readily accepts change, and takes more and greater.
Long-Term/Short-Term Orientation (LTO)	This dimension represents the degree to which a society embraces, or does not embrace long-term devotion to traditional, forward thinking values.	Indicates that the country prescribes to the values of long-term commitments and respect for tradition. This is thought to support a strong work ethic where long-term rewards are expected as a result of today's hard work. However, business may take longer to develop in this society, particularly for an "outsider".	Indicates the country does not reinforce the concept of long-term, traditional orientation. In this culture, change can occur more rapidly as long-term traditions and commitments do not become impediments to change.

Source: Hofstede (1980, 2001)

Table 1 above provides a description of the indicators for the various cultural dimensions propounded by Hofstede for analysing the impact of culture on society or organisation.

The Nigerian and United Kingdom's NC Context

Based on these dimensions, the scores for Nigeria and the UK as obtained from http://www.geert-hofstede.com/ are shown in Table 2 below.

Table 2: NC dimensions in Nigeria and the UK from Hofstede's Perspective

Dimensions					
Country	**PDI**	**IDV**	**MAS**	**UAI**	**LTO**
Nigeria	80	30	60	55	16
United Kingdom	35	89	66	35	87

Source: The Hofstede Center (accessed 15th January, 2014).

These scores will serve as a basis for the propositions to be developed and tested during the course of study.

The Concept of Systems Viability

Deriving from the law of requisite variety as put forward by Ron Ashby and the Conant-Ashby theorem, see (Schwaninger, 2012),Beer (1984) observes that for a system to remain viable and deliver its purposes whilst maintaining its identity within its ever changing environment, it would need to consist of several integral layers all which must be present to make for a viable whole. Hoverstadt and Bowling (2002) describe viability as an essential organisational attribute which "*implies the ability of organisations to become ultra-stable, that is capable of adapting appropriately to their chosen environment, or adapting their environment to suit themselves*". Espejo and Gill (1997) and Beer (1984) insist that the attainment of organisational viability remained pivotal to such an organisations potential for strategy adaptation and realisation. Achterbergh et al. (2003) state that the capability of systems to attain viability is wholly dependent on the possession of the five related functions and an identification of where these functions are situated within the system. These five functions include: operation; coordination; control; intelligence; and policy respectively. These systems are usually labelled systems 1-5 (Beer 1984). It is imperative that these functions as identified above should be continuously supported by the organisations during the implementation of their strategies.

Effective and efficient inter-organisational relationships remain central to the conduct of these functions and subsequently, the attainment of overall organisational viability(Adham et al., 2012). Within the IDS, organisational viability can only be through the alignment of the objectives of participant organisations towards achieving the project sponsor's overall objective especially given the nature of an IDS as a Project Based Organisation (PBO). This position is supported by findings from a study by Ochieng and Price (2010). Therein, they establish that excellent levels of project performance are recorded only when the entire project team is fully integrated and wholesomely aligned with the project objectives. This fact highlights the importance of effective inter-organisational relationships and interactions. Furthermore, Hoegl and Gemuenden (2001) in their study of TWQ (Team Work Quality) in successful innovation projects identify six facets responsible for enhancing TWQ within teams. Relying on the assumption that these facets also hold true within IDS, this study adopts them as measureable indices for assessing the relationship between the organisations within the delivery system. These facets include: communication; coordination; balanced member contributions; mutual support; effort; and cohesion. Hoegl and Gemuenden (2001) in describing these facets highlight that they were capable of providing answers to questions on the relationship of team (*organisations*) members within a team (*delivery system*). However,

in this study, these facets are streamlined into two basic categories, namely; communication and collaboration. Co-ordination, balanced member contributions, mutual support, effort and cohesion are jointly regarded as collaboration.

These questions include:

1. Communication:
   - Is there sufficiently frequent, informal or formal, direct and open communication within the system?

2. Collaboration:
   - Are individual efforts well-structured and synchronised within the IDS in such a manner that would ensure the achievement of the client's objectives?
   - Are all members of the IDS able to provide their respective skills and strength to their full capabilities in the performance of their respective roles?
   - Do system's members provide encouragement, assistance and support to each other when executing assigned tasks?
   - Do system members employ all efforts when executing the assigned tasks?
   - Are members adequately motivated to maintain the system's principles?

Having identified the basic facets responsible for effective and efficient interorganisational relationships; deemed critical to overall organisational viability, the study proceeds to evaluate the impact of NC on the viability of the Ids from interorganisational communication and collaboration facets. Figure 1 illustrates the relationship between the facets for evaluating viability within an IDS, cultural dimensions and project performance.
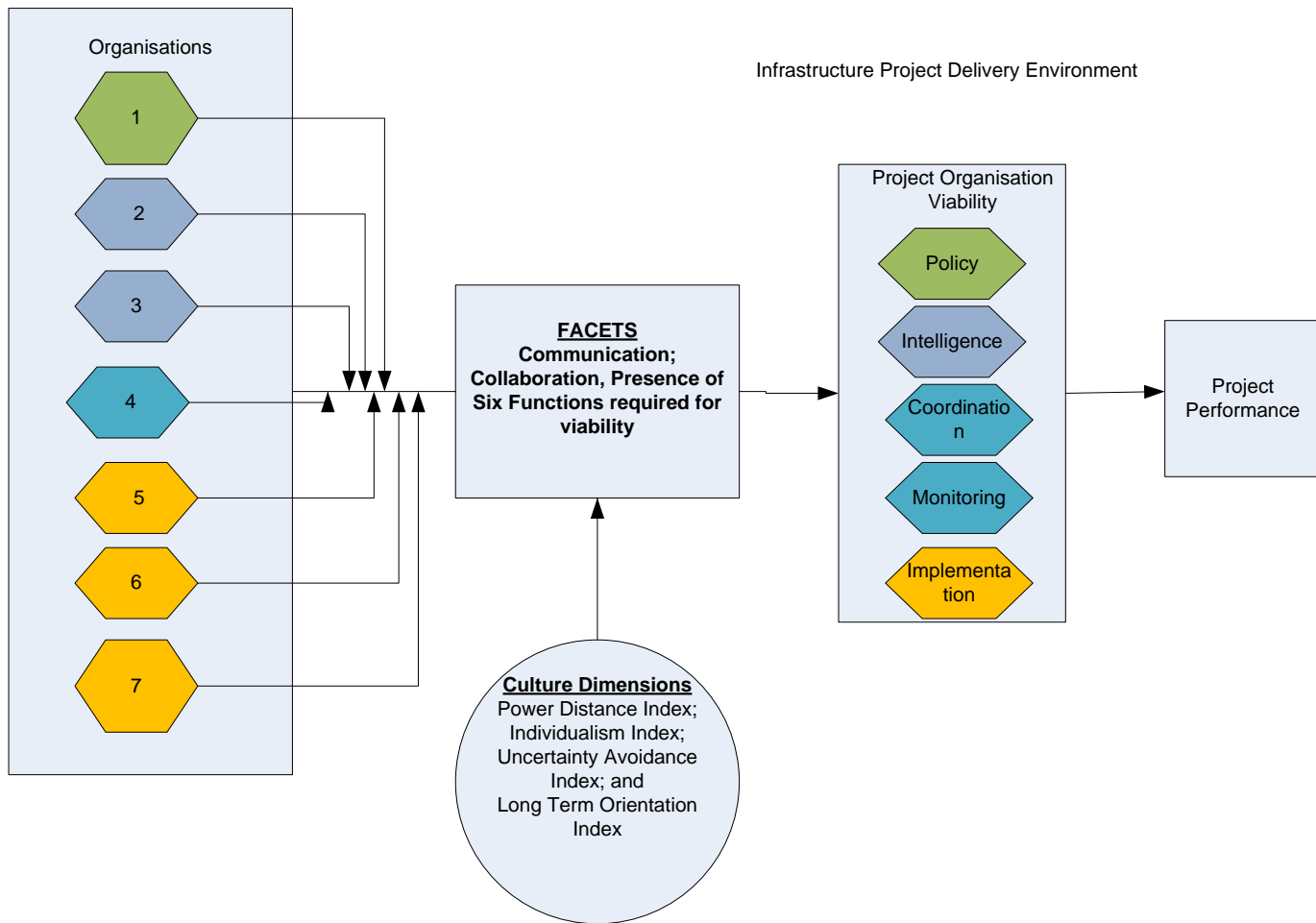
Figure 1: Relationship between Organisational viability, Culture and Project Performance

In Figure 1 above, the various organisations working within the IDS are represented by the seven hexagons, numbering from 1-7. Attaining systems viability requests the steadfast implementation of these five functions by the parties responsible for them as indicated by the different colours used in distinguishing between these organisations, these organisations are expected to work collaboratively and communicate effectively within the delivery system. Communication remains a critical facet to effective inter-organisational relationships (Hoegl and Gemuenden, 2001). Pinto and Slevin (1987) describe effective communication as providing a medium for the exchange of information between project participants thus having a direct relationship with project implementation. Ochieng and Price (2010) also establish that good communication was essential to the development and maintenance of strong working relationships between parties to heavy construction engineering projects. Effective communication is essential for enhanced collaboration between the various parties to an infrastructure delivery exercise hence the desire to evaluate the impact of NC on these two facets.

METHODOLOGY

This study was carried out using a qualitative multiple case study strategy. Case study strategy have been severally applauded as most suitable when compared to other research strategies when a researcher is intent on obtaining answer to 'why' and 'how' research questions; particularly when the phenomena being explored is of a contemporary nature(Darke et al., 1998, Yin, 2009). In this study, the case study's capability to deal with a variety of evidence through various data collection methods(Yin, 2009) made it a natural choice for the authors. According to Leonard-Barton (1990), the use of a multi-case strategy enables the researcher overcome the limitations of the single case approach. She maintains that the strategy encourages observer independence and serves as a boost for external validity. Miles and Huberman (1994) add that the use of multiple cases allowed for comparisons and contrasts to be drawn from multiple sources to encourage validity of emergent theory. This strategy encourages and sustains enhanced replication across selected cases (Eisenhardt, 1989, Eisenhardt and Graebner, 2007, Amaratunga and Baldry, 2001). According to Yin (1994), multiple-case studies were capable of providing stronger foundations for theory building. The usage of multiple sources of evidence as the way to ensure construct validity has also been advocated (Yin, 2009). The use of multiple cases to test a range of cross case propositions boosts the external validity and enhances replication, both literal and theoretical alike.

Three cases were selected from a robustly developed case selection criteria. The selection criteria developed was structured in such a manner that it allowed for both literal and theoretical replication alike (Meyer, 2001, Eisenhardt and Graebner, 2007). The three cases selected comprised of the IDSs responsible for the delivery of three distinct infrastructure assets. Whereas IDS1 and IDS2 were responsible for the delivery of infrastructure assets, Assets 1 and 2 respectively in Nigeria (literal replication), IDS 3 was responsible for the delivery for Asset 3 in the UK (theoretical replication). In all the projects, Assets 1, 2, and 3, there were overarching requirements for the engagement of local suppliers/labour during the delivery phase. Whereas this requirement was statutorily backed in IDS1 and 2, it was rather implicit and subtly encouraged by the client in IDS3. Therefore, the engagement of this category of persons/organisations is viewed as a major success factor. The evaluation seeks to explore the impact of NC on how this requirement was adhered to by the stakeholders from an interorganisational communication perspective. Also, IDS1 and IDS2 governed by different contracting strategies to allow for theoretical replication within the same NC context. The Viable Infrastructure Delivery Model (Egan, 1998), a model developed based on the tenets of the Viable System Model (VSM) was used to identify all the organisations that took part in the delivery exercise (Figure 1) by mapping the model on the various delivery systems selected. This enabled for a proper identification of the parties involved in the respective IDSs and their positions on the overall system. These twenty-five interviewees are listed in Table 4. Twenty-five face to face semi-structured interviews lasting for an average of forty-five minutes to an hour were conducted over a period of fourteen months.

Table 3 List of Interviewees with the systems they represent and IDS

Institution/ Subsystem/IDS	Job Title	Alphabetical code
Suppliers' Exchange/4/1 & 2	General Manager	GM
National Oil Company/4/1	Programme Manager	PM
Federal Ministry/5/1 &2	Assistant Director	AD
Regulatory Agency for the Oil and Gas Industry/4/1&2	Senior Manager, Technical	SM
Regulatory Agency for Local Content/4/1&2	Assistant General Manager, Compliance Monitoring	AGM
Regulatory Agency for Local Content/4/1&2	Senior Project Manager, Projects Evaluation and Monitoring	SPM
Client (JV Operator)/3&2/1	Contract Holder	CH
Client (JV Operator)/3&2/1	Assistant Manager, Contracts and Procurement	ACP
Client (JV Operator)/3&2/1	Board Representative /Senior Relationship Manager	BR
Client (JV Operator)/3&2/1	Head, Content Development	HCD
Client (Public Sector Partner)/3&2/2	Manager	MGS
Client (Private Sector Partner)/3&2 /2	Programme Director	PDN
Client (Private Sector Partner)/3&2/2	Project Manager	PMC
Client/3&2/3	Head of Procurement	HoP
Client/3&2/3	Programme Director	PDT
Main Contractor/1/1	Programme Manager	ProgM
Main Contractor/1/1	Manager, Content Development	MCD
Main Contractor 1/2	Managing Director	MMC
Main Contractor 1/2	Assistant General Manager, Nigerian Content	AGMC
Contractor 1/3	Programme Director	PDCM
Sub-Contractor 1/1	Project Manager	SFPM
Sub-Contractor 1/1	Manager, Supply Chain	MSC
Sub-Contractor 1/2	Project Manager	PMS
Sub-Contractor 1/2	Administrative Head, Projects	HPS
Sub-Contractor 1/3	Managing Director	SSC

During the interview sessions, the interviewees were asked to describe their relationships with other organisations within the IDS as it concerned the engagement of local suppliers/labourers. These interviews highlighted the manner in which the organisations communicated project requirements and collaborated towards attaining them in the performance of their organisational tasks. The interviews were recorded and subsequently transcribed. Transcripts of the interviews were read and re-read by the interviewer for two main reasons; the search for clues on the impact of NC on communication within the delivery system through the lens of the various value dimensions listed in Table 1 and to familiarise himself with the emerging bits of data. Pre-set themes were used during the coding of the data. Owing to the use of the case study strategy, the authors were able to complement the data emanating from the interviews with data from other sources such as policy and strategy documents. Examples of documents reviewed included the procurement strategy of the client organisations in the IDS as well as policy documents.

Certain limitations which affected the study are worthy of mention here in line with the tenets of good research practice (Shenton, 2004). One of the constraints encountered had to do with the composition of the project organisation for IDS1. It had been the intention of this researcher to adopt projects that had purely local suppliers and organisations with wholly local employees within the delivery system. It was expected that this would have enabled the researcher to carry out a proper evaluation. Although a vast majority of the organisations within the delivery system remained Nigerian entities, the EPCm (Lead) contractor was a foreign organisation. However, the deficiency was partially remedied by the fact that the Project Manager in the EPCm organisation was a Nigerian. Most of the subcontracting organisations also had persons from different cultural contexts besides the Nigerian cultural context. However, the organisational representatives interviewed in the respective cases were citizens of the two countries where the projects were situated. Whereas this confirms the global nature of the workforce engaged in infrastructure delivery(Scott et al., 2011, Mahalingam and Levitt, 2007), it must be reiterated that this constraint is not peculiar to this study alone. Posers had been raised previously in Tayeb's criticism of Hofstede's 1980 study when he inquired into the possibility of getting only people of a particular culture within a particular organisation at any particular time(Tayeb, 1994). The busy schedule of the interviewees due to their senior positions caused a huge delay to the data collection exercise as interviews kept on stalling for a long period of time.

FINDINGS AND DISCUSSION

This study set out to evaluate the impact of national culture on the patterns of interorganisational communication and collaboration within the IDSs being understudied and how this influences viability. From the interviews with members of the respective IDSs, it was observed that NC influenced the outcomes of the various processes and the interactions of the participating organisations within each of the IDSs due to its impact of the manner in which the various organisations communicated and collaborated. MAS was not included in the analysis presented in subsequent parts as it was not observed as having any impact on the interorganisational communication and collaboration within the IDSs understudied.

Power Distance Index

From the interviews describing the various relationships which existed within the respective IDSs patterns validating the dimensions as proffered by Hofstede were sought after. In IDS1 and IDS2 for instance, it was observed that although there was an explicit statutory legislation in place for the engagement of local suppliers in the supply chains for the delivery of projects within the oil and gas industry in the country, client organisations and governmental agencies were more inclined to awarding such tasks to already known

contractors and suppliers. They made it impossible for new suppliers to win work through the non-provision of critical information during PQQ and tender stages. In fact, one of the subcontractors interviewed in IDS2, maintains that he did not know how the PQQs were assessed as the applicable weighting criteria was not made known to his organisational representative. He further admitted that he got no feedbacks from the EPC contractor after having committed a lot of funds towards putting up a good bid for participation on the project. However, he states that he ended up on the project having bought out the package awarded to a '*political contractor'*. The term '*political contractor'* was used by the interviewee to describe suppliers who though not having the capacity to deliver on certain work packages are awarded such packages due to their relationships with those in authority or responsible for performing industry oversight functions. Similarly in IDS1, the client organisation, an oil and gas joint venture company, herein referred to as the 'operator' developed its own supplier development network with a period predating the delivery of Asset 1 and carried out the supplier selection for the IDS1 through this Supplier development network. This meant that suppliers who were not previously enlisted within this Supplier Development Network were considered as outsiders and as such not eligible to participate in the Calls for Tender processes.

In the same vein, evidence adduced from the interviews indicated that the regulatory environment within which IDS1 and IDS2 operated made it increasing difficult if not impossible for small suppliers to successfully bid for work. For an organisation to enter the industry as a supplier of work, such an organisation would have to be routinely registered across various platforms operated by different government agencies. Unarguably, this will result to major expenditures which most of the local suppliers would not be willing to undertake if they are unsure about winning work packages. Securing approvals from these agencies is another area where the nation's PDI score comes into play. The country's legislation on local content development in appreciation of the lack of many specialist skills required for the delivery of projects in-country allowed contractors and client organisations alike to apply for ministerial waivers to enable them recruit such expertise from overseas. It was observed that given the difficulty in securing such approvals, most clients tied their supplier election process to the ability of prospective suppliers to easily secure such approvals from the supervising ministry. Also, it was gathered that the ability of suppliers to obtain these waivers with ease made them more likely to be selected for participation within the IDS. According to the EPC contractor in IDS2,

> "*During the tender stages, after being asked about our technical competencies, the client wanted to know how we would cope with the areas where we did not possess the required competencies and when we mentioned that we had overseas technical partners, we were asked how long it usually takes us to apply and secure approval for the engagement of these expatriates in our previous projects.....we told them that this process usually takes about three months; which was considered a quick one given the bureaucratic bottlenecks in the process*"

However, when asked about the challenges they faced during the delivery of the assets, suppliers in the IDS2 reiterated the fact that they had to wait for as long as five to six months in some cases to obtain approvals. They bemoaned this slow pace as it made them to outsource such tasks to other companies which already had such expertise in-country. In IDS1, such approvals were obtained by the client organisation on behalf of the suppliers. This could be attributed to the operator's reputation as being strongly connected to topmost echelons of government. On the other hand, in IDS3, there was unbridled communication at the earlier stages about the proposed project and the guidelines for participation were made public. Furthermore, during the PQQ stages and subsequent negotiations with the prospective contractors, the client encouraged the candidates to develop innovative ways of engaging

local suppliers and labourers during the project and at the end of this process, the winner also encouraged its subcontractors to engage local suppliers as part of its corporate social responsibility programme especially in areas where such skills were locally domiciled and such engagements made business sense.

These findings further validates the scores accorded to the PDI in the various countries as the communication and collaboration appeared targeted at wealthy and powerful organisations with little information being allowed out into the public domain thus raising transparency concerns and also shutting out prospective participants within the Nigerian context. However, in the UK context, information was easily assessable by the participants as they progressed with the procurement and subsequent delivery of the asset. No party during the process felt that access to the right information was denied them at any point of the process unlike what was obtained within the Nigerian context wherein some parties indicated that communication and effective collaboration was restricted to a select few who were highly connected thus posing a major entry barrier to other potential players.

Individualism/Collectivism (IDV)

Here, the Nigerian society records a low score on the Hofstede's scale hence indicating a high level of collectivism within the delivery system. As such this high score, to the researcher's understanding connotes high levels of collaboration within the IDS wherein closer ties exist between the various organisations involved in the IDS whereas a high score would depict non-collaborative stances between the organisations. Available evidence from the interviews carried out within IDS1 and IDS2 led to the observation of this collectivist attitude between member organisations which serve as partial validation of the score attributed to the Nigerian NC PDI dimension. Partial in the sense that such collectivist attitude was limited to the interorganisational relationships within the respective levels (subsystems) operating within the overall IDS and not across levels or subsystems as required for overall viability. A kind of '*we*' against '*them*' mentality was discovered, particularly in the interorganisational relationships between supplier organisations and the lead contractor organisation and/or the client organisation. Similarly, such issues were also discovered in the relationships between the client organisations and regulatory (government) agencies on one hand and between contractors and suppliers against the regulatory agencies on the other. Suppliers were quick to allege that they were being undermined by the EPC contractor in IDS2, maintaining that this affected enhanced interorganisational communication and collaboration between both parties. However, they were quick to rise up in defence of sister supplier organisations whilst maintaining a critical stance of the regulatory agencies whom they accused of working jointly with the client organisation and lead contractor to undermine their capabilities. Such instances were discovered when the issues of challenges were raised by the interviewer as well as when they were asked about the how they felt about the progress with the implementation of the local content legislation as it pertained to the engagement of local suppliers and/or labour. Shared meanings of definitions were identified within levels but not across levels on issues such as the definition of '*local suppliers*' and the appropriate criteria or measuring content development progress. The presence of varied meanings within the systems impacted negatively on their viability.

On the other hand, the evidence deduced from IDS3 does not support this idea of collectivism as organisations at various levels (subsystems) performed their roles as agreed with other parties and assumed total responsibility for the performance of these roles. In a nutshell, the parties in IDS3 only went as far as the prevailing contracts and their respective organisational goals allowed them to go and no further in the performance of their roles. This was quite unlike the case in IDS1 and IDS2 where stakeholder were ready to hold brief for similar agencies or organisations operating at similar levels with them. It was easier to trace

the quarters within the IDS wherein various responsibilities were apportioned thus engendering probity and accountability unlike in IDS1 and IDS2 where tracing such was difficult as organisations at various levels were protective of each other and hesitant to release information which might undermine the credibility of another organisation operating at the same level of the IDS. This scenario in IDS1 and IDS2 fostered corrupt practices. Once more, these findings lend credence to the scores awarded to both countries on the Hofstede's index. It also portrays the capability of the NC IDV dimension to affect interorganisational, multi-layered communication and collaboration within the IDS thus indirectly affecting the viability or otherwise of the IDS.

Uncertainty Avoidance Index (UAI)

To a large extent, the findings from the interviews support the scoring from the index in this regard. In Nigeria, the implementation of the local content policy guidelines commenced initially with the client organisations being encouraged by the government to allow for the engagement of local suppliers within their supply chains. However, the introduction of a statutory legislation to enforce such engagement after a trial period of seven years could be traced to the society's inclination to the use of laws, rule, regulations, and controls to enforce compliance and clarify the areas where such engagements are needed. With the coming into law of the legislation, the expected roles and responsibilities of various parties to an IDS was clearly specified as it concerned the engagement of local suppliers and/or labour. It was expected that such clarification will reduce the level of uncertainties concerning the roles and responsibilities which was obtainable in the era preceding the enactment of the legislation. This was capable of influencing the viability of the IDS as stakeholders were made aware of their statutory roles in the implementation of policy. Situated within a contrasting NC context, IDS3 portrayed evidence of higher tolerance for uncertainty and ambiguity as it pertained to the development of innovative ways for ensuring engagement of local suppliers. The client organisation within the IDS allowed the DCM contractor to seek means of engaging local suppliers and also the measurement of progress made in this regard. According to ProgM,

> *"We created our own KPIs; like how many local labourers should we have? Forty, fifty or perhaps none at all within a forty mile radius.....we decided where we were and what was best to be done. It was an internal monitoring arrangement for the CSRs back to the contractor organisation but not to the client side. We gave it to the client at some point when they said; you know, can we have it...And it consisted of mostly people's postcodes and then just numbers of apprentices created."*

This is quite an opposite of what obtains in the Nigerian context wherein these conditions are expressly stated in the legislation, hence denying participating organisations the opportunity to be innovative in this regard. This is capable of influencing the viability of the overall system. ProgM highlights the adverse nature of prescribing such issues in legislations and contract documents when he reiterated the position in a similar project where he had been previously involved. He admits that in a situation where the client mandates the delivery of sixty apprenticeship slots within a particular project; a situation similar to what obtains in the IDS1 and IDS2 cases, it would result in certain problems such as opportunistic behaviour among contractors and suppliers alike. He maintains that,

> *"There is also a problem of what is sixty apprenticeships within the project, could it possibly be sixty percent all the time or just a one off sixty percent or could it possibly be one apprentice receiving various trainings sixty times on various project? This encourages a lot of people to just play games and try to justify whatever it is because it is difficult. But if you create something that is reasonable, that is a sort of smart objective then that is fine. If it becomes difficult you don't act, as a client, you don't really achieve what you want to do in reality just because of these benefits."*

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Long-Term/Short-Term Orientation (LTO)

A proper scrutiny of the local content development act currently being implemented in Nigeria which governs the two distinct IDSs being understudied in this study indicates that the Nigerian society is one which is interested in short-term objectives as against the long-term objectives as it pertains to the development of local suppliers and subsequent engagement. The law demands immediate award of work to Nigerian owned entities on the short term during the actual project delivery. Proper attention is not accorded to the development of the skills and competencies by the local suppliers. Even more surprising is the fact that approvals for the recruitment of expatriates in the performance of tasks where there are no competencies in-country are limited to a three-year period. A three-year period has been referred to by interviewees as being inadequate for the development of specialist competencies by local suppliers. Also, it appears that all the emphasis on development of competent local supply chains was aimed at the construction phase only alongside other ancillary programmes and not the asset maintenance aspect which had the potential for achieving sustained engagement of local suppliers in a cost-effective manner. The lack of this long-term orientation within IDS1 and IDS2 was also discovered within the context of providing a continuous pipeline of work for suppliers to develop the much sought after competencies. Contractor selection and adoption of contracting strategies was done with short-term cost considerations being taken into account. Suppliers were not assured steady work and as such could not sustain the engagement of locals when it did not prove cost-effective on the short term.

In the UK context, the society's inclination to longer term orientation was observed as reflecting on the workings of the IDS3. The choice of contracting strategy played a key role in achieving the sustained engagement of local suppliers. Furthermore, the client organisation programmed the delivery of the works on asset 3 in such a manner that the main contractor was assured of continued work on the project over a long term period thus allowing the contractor to collaborate with the rest of the supply chain to achieve client's local supplier requirements. This finding supports the scores accorded to the various country NC contexts in the Hofstede's index and shows the kind of influence which the NC context can have on the viability of the IDS.

CONCLUSION

Upon the identification of the need to evaluate the impact of NC on the viability of IDS, this study commenced the inquest with a reflection over the extant discourse on the influence of culture on management practices. This was followed by a review of NC and its measurability within the contexts of megaproject delivery systems, referred to as Infrastructure Delivery Systems. The cultural dimensions as propounded by Hofstede were adopted for this purpose. A review of the concept of viability was carried out, highlighting its key tenets among which are collaboration and communication within and across interorganisational and multi-layered systemic arrangements. A justification of the adopted research methodology was conducted, after which the findings and discussion of the findings ensued. Besides establishing that NC exerted a major influence on the nature of interorganisational communications and collaboration and therefore the viability of the overall IDS, the study went a step further to validate scores awarded to Nigerian and United Kingdom contexts from the respective NC cultural dimensions. Summarily, it is expected that the findings from this study would elicit further discussions as it concerns the impact of NC on project delivery systems to enable better planning of delivery and the attainment of successful outcomes in tandem with client requirements.

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