Managing knowledge to promote sustainability for infrastructure development in Nigeria

By
Dr. Amaeshi Uzoma Francis
Department of Project Management Technology,
Federal University of Technology, Owerri,
Imo State, Nigeria

Abstract:
This study examines the major issues facing knowledge management for corporate sustainability and infrastructural development in developing countries focusing on Nigeria. Our goal is studying the relationship between the dimensions of knowledge management (management, ideas, missions, learning organization and work of group as the independent variables and the individual entrepreneurship of personnel of industrial projects as the dependent variable. The variables like generic state, age, education and CV are known here as adjustment variables. This work is survey type using standard questionnaires; descriptive and inferential statistics on the population of the study. Data were analyzed with the help of SPSS. Our results show that knowledge management, ideas, missions and work of group have effect on entrepreneurship development; and there is a meaningful relationship between them, but there is no connection among management, strategy and learning organization. In order to achieve entrepreneurship development we recommend an adoption of more radical approaches in handling the theme of sustainability of Projects: new project sustainability models built on intrinsic sense of duty attained through individual and organizational based processes. This study is therefore, expected to arouse new interest among scholars, development practitioners and students of research about re-mapping the traditionally established paths towards project sustainability.
Key words: Knowledge management dimensions, entrepreneurship, infrastructural development.

1.0. Introduction

Nowadays the most important way of business competition is knowledge (Balogun et al, 2004). Organizations have great amount of data and information. And because of this the importance of knowledge management is increasing. Many of managers know that having knowledge base on information is very important in business (Radyng, 2009). On one hand Knowledge management help the organization in individual and organizational entrepreneurship and the other hand results in improvement, additional benefit, no stagnancy, more jobs and etc (Ahmadpour, 2005). Presently the economic condition of this country is entangled with shortage of infrastructure resulting in unemployment rough situation, lake of gross production, deduction in government investment and so on.

At a glance to world economy, we understood that entrepreneurship is the best way to confront the nowadays economic challenges (Dehghanpour, 2002). Importance of the entrepreneurship and its key roles in development of societies caused many of developed and developing countries to notice this issue (Feiz et al, 2007). Accordingly, entrepreneurship is considered from different dimensions and among them, knowledge management is one of the most important. With the close relationship between entrepreneurship and knowledge management, this study shows the effect of knowledge management on individual

entrepreneurship of personnel of Nigerian manufacturing sector leading to improvement of infrastructural development.

The need for adequate supply of infrastructure has long been viewed as a key ingredient for economic growth and sustainable development, both in the academic literature and policy debates. The quest for economic development by governments of developing countries has brought about the consequent emergence of public-private partnerships aimed at delivering major infrastructural projects on time, within approved budgets and in accordance with preset specifications. Maximizing success in infrastructural projects that will deliver integrated social, economic, and environmental concerns necessitates the establishment of a linkage between Sustainable infrastructural development and Project management. In this setting, there is the need for the recruitment of multi-disciplinary teams with specialist backgrounds to implement these infrastructural projects (Brown et al, 2007).

There is evidence from studies that project management is increasingly seen not as a profession with a clear educational path, but as a skill that can be acquired with experience and education (Peltoniemi et al, 2003). There is also evidence that project management is not highly competitive in tertiary institutions in developing countries as a result of a lack of clear understanding of the profession of project management (Rosenau, 2008; Ahamefula. 2011).

Research on Knowledge management systems and strategy development are ongoing by organizations (Kamara et al, 2002). These knowledge systems are based on the core competencies of the organization that hold the entire knowledge base required with a view to delivering full project solutions. The construction industry in Nigeria is more complex and subjected to greater risk as compared to any other business and thus it is important for the selection as well as implementation of effective strategies of risk management in order for the project to be successful and thus forms the core introductory principles of risk management.

The completion of construction projects within the projected time span has always been the most challenging task for the construction companies and it is found that many construction projects have been unsuccessful in delivery of the projects at time, cost and quality which the clients and their consultants had perceived before the starting of the project and thus it is important for the management to efficiently design a plan of action to achieve the goals and requirements.

1.1. Objective of the study
The challenges of managing various types of development projects in developing countries as cited by previous literature sources and the subsequent ordered ranking of these as calculated by this author, is the same as that perceived by project managers of projects in developing countries today.

Knowledge management and project management are recognized to be of supreme importance to the competitive advantage of organizations. They are as well major agents of change in the new era of the knowledge economy. The overarching research objective is to ascertain whether the relationship between the dimensions of knowledge management (management, ideas, missions, learning organization and work of group and the individual entrepreneurship of industrial projects will improve infrastructural development in Nigeria.

1.2. Importance of the study

This study is special and importance because it is a highly comprehensive process which if well designed and carried out by project teams comprising practitioners as well as academics will reduce project failure in Nigeria. Project Management Institute (2000) presented Project Uncertainty Management (PUMA) as an integrated methodology based on the hierarchically structure, flexible and generic process which is developed keeping in view the owners and the consultants assisting the owners. This study builds on that methodology towards effective project delivery.

The biggest challenge to developing a global project delivery system is getting all team members to work efficiently and effectively together. Sharing knowledge and expertise is crucial in any team, and in a team where members work in different countries and time zones and speak different languages, communication is not something that can be left to chance. Previous studies focused on the knowledge sharing which is very generic and there were no studies conducted specific to integrate project management and knowledge management development in industries. We identified this as an important research gap, and focused efforts in this direction.

In theoretical terms, this study fills a surprisingly large gap in the literature that appears to exist due to the bi-dimensional nature of the projects under study; projects face both educational-related challenges as well as project management-related ones. To capture the full complexity of managing these projects, both fields of research must be considered. However this has surprisingly not been done. Therefore this study is significant in that:
(1) It integrates findings related to the challenges of managing projects from both project management literature sources and educational literature sources for the first time ever.
(2) It is the first time managers of projects – as opposed to NGO stakeholders, government officials et cetera – have been directly interviewed to ascertain their perceptions of the challenging practical realities of managing such projects. The importance of this real-life perspective is self-explanatory: those who are closest to the projects are closest to its problems. It is also significant as:
(3) It tests for the first time – through comparison of project manager perceptions with theoretical perceptions – whether existing theoretical knowledge really is relevant to real-life practice. By analysing the realities on the ground, this study may either provide empirical backing for the applicability of the challenges of managing various types of educational development projects in developing countries to industrial projects, or highlight the literature's contemporary inconsequence. Its final point of significance derives from its reliability in doing so because:
(4) It is the first time that project managers with (a) different personal attributes of gender and nationality, and (b) different geographical locations have been deliberately targeted so as to better ascertain whether past research into mostly internationally-based or governmentally-run youth education development projects is relevant to industrial projects in extremely different contexts.

The diversity in gender, nationality, geographical location and project size captured by this study allows rather significant conclusions to be drawn about the relevance of existing literature to a variety of real-life projects in developing countries. Indeed, while a diverse sample cannot uncover irrefutable patterns in a certain context like more evaluative studies can, the fundamental value of this study is its representation of a wider range of industrial projects in developing countries and hence more widespread proof of the current literature's relevance or irrelevance. Despite being a relatively new and emerging concept, knowledge

management (KM) has been used to develop mechanisms and tools for managing information and knowledge in a diverse range of contexts in many sectors of industry and business.

1.2.1. The relevance to other industrial project managers

Ultimately, while the study purports to address a gap in the literature that exists due to the unsuitability of generic development project challenges in predicting the challenges faced by project managers, it does to a certain degree fall victim to its own accusation. That is, due to the limited sampling frame and empirical methodology used to elicit ―more relevant‖ and ―more specific‖ challenges as perceived by project managers, it may not be helpful for information seekers from outside these specific project contexts. Indeed, for the very reason that these sampled projects are so important (i.e. due to their flexibility to respond to client needs), it is impossible to generalise our findings to all industrial projects in developing countries.

As Carron et al, (1991) state of non-formal education project research: ―the only sensible detailed inventories of projects are to be compiled locally for a local audience of organisers and potential participants, hence our study is only properly relevant to those project managers with similar personal characteristics to the ones we interviewed, and who operate similarly-scaled projects in satellite countries to those under study.

1.3. Statement of the problem

Economic development, new construction and redevelopment of infrastructure have become a critical issue in Nigeria. As the construction processes involved in these projects have significant impacts on the environment, people's lifestyle and local economy, sustainability issues have been high on the discussion agenda for many stakeholders.

However past research indicated that problems in pursuing infrastructure sustainability often lies with what should be done, who should do them and how mutual benefits can be delivered to those involved, these problems are compounded by lack of common understanding between stakeholders. Projects such as commercial office buildings have been more successful in raising the bar of sustainability through rating tools, innovations, and policies, with up-to-date knowledge captured and encapsulated into these measures.

The problem in the infrastructure sector is basically the lack of both feasible and timely development and expansion of the body of sustainability knowledge on infrastructure development; lack of investigation into ways of communicating with and managing it within the sector to facilitate better decision making during sustainable infrastructure development.

Aside from sustainable development problems of shortage of fresh water resources, population growth above a nation's capacity to support citizenry, emerging technology is posing a lot of problems to developing countries in that first world countries use now more and more technology for product manufacture; they no longer need the cheap labor from third world countries. Losing what little money they used to get from migrant work, third world citizens are unable to learn and catch up with the emerging technological advancement and knowledge management.

In this study, we have identified five types of knowledge management failures which are the problems associated with maintaining mutual knowledge among geographically dispersed collaborative individuals:
 (1) Failure to communicate and retain contextual information

(2) Unevenly distributed information

(3) Difficulty communicating and understanding the salience of information

(4) Differences in speed of access to information

(5) Difficulty interpreting the meaning of silence (or non-contribution of information)

In all of the literature, the prevailing theme is that project managers of development projects of all types face insurmountable obstacles which has to do with gaining and maintaining a skilled workforce. This challenge area required us to draw upon both Knowledge management and project management literature to explain the key problems associated with managing project team members in terms of recruitment, training, motivation and facilitating cross-cultural interactions.

Knowledge management within projects, across projects, and over time can improve both the efficiency and effectiveness of project management. However, it is not easy to do so. There are many types of knowledge and knowledge sharing methods. Further, many factors can encourage or inhibit sharing. The large number of possible combinations of knowledge types, sharing methods, and affecting factors has to be analyzed and understood, and the right methods deployed. Utilization and continuous creation of knowledge are the most important managerial challenges organizations face today.

While the technology for collecting, storing, and accessing information continues to grow exponentially, the ability to effectively and efficiently use this information to enhance job performance, as well as deliver quality products and services remains elusive. The social challenge of fostering human interaction in production is to encourage thinking rather than sophisticated copying has remained a constant. The management challenge is to create an environment that truly values knowledge management. The entrepreneurial challenge--often downplayed--is to be open to the ideas of others, willing to share ideas, and maintain a thirst for new knowledge.

Knowledge in organizations manifests itself in one of two forms-explicit and tacit. Explicit knowledge can be easily articulated, captured, and transferred. Tacit knowledge is intangible and not easily transferable, and therein the problem exists. How can project management activities and knowledge management skills be integrated for effective delivery of a steady stream of experts to carry out needed infrastructural development in Nigeria? In other words, how can we achieve a sustainable development at global level if we cannot monitor it in any single project?

1.4. Research Hypothesis

We argue that harnessing the development potential of project management as a structured profession with a clear Knowledge Management framework will lead to sustainable development; such that project managers can begin to take on the task of delivering sustainable infrastructural projects. Managers are to ensure that in the execution of projects, the economic role of these infrastructural projects should not be accorded 'precedence' over the other dimensions of sustainable development – the social, cultural and environmental aspects.

1.5. Limitations of the study

The key limitations of the study are as follows:

-Limitations due to the complexity of human behavior

Due to the nature of the research topic, it was a basic necessity to have a reliable sampling frame – involving individuals from many geographical locations and with diverse personal attributes, and who run industrial projects of different sizes and so on – from which to extract data. However given the very limited scale of the study, the sampling frame was not as representative as it could have been. The author recognises that a multi-stage, cluster sampling approach that selected a higher number of participants from a wider geographical area – using perhaps a grid referenced map or something similar – would have been preferable. As such, the findings from this study cannot be said to represent the opinions of all industrial project managers in developing countries today, as indeed even out of the ones sampled it was shown that their opinions differed widely.

-Limitation due to intervening variables

Not only could the sample have been bigger and more representative, but the empirical methodology could arguably have been more formal to elicit more detailed and possibly statistically significant findings. Again, this was constrained given the time and budget available but also due to the study's purpose: most of the highly-contextual information supplied by the project managers would have been lost in a more quantitative instrument. Hence, although the empirical findings are somewhat limited in terms of reliability and validity, the empirical methodology chosen to elicit these was deemed sufficient enough to compile at least an initial knowledge-base (Carron et al, 1991). The questionnaire instrument, however, could definitely have been better in hindsight. Upon reflection, we realised that providing such strict instructions – i.e. getting respondents to rank the challenge areas in a defined order of importance – was perhaps not as useful as getting them to rank the challenge areas into highly important'; moderately important; and not important' categories would have been. This would have then allowed for more comparisons to be made with the literature. As it was, limited significant differences between the literature's order of importance and the respondents' orders of importance could be identified as the questionnaires were not all answered in the same way, which we believe to be a result of our instructions.

2. Literature Review
2.0. Introduction

Many construction institutions have recently recognized the need to include knowledge management as an integral and one of the most important elements of project management (Simon et al, 1997; Kamara et al, 2002). Al-Bahar and Cradall (1990) suggested using the knowledge management processes within four to five project phases and these phases includes initiation, identification, analysis, response planning and control; these processes can be applied in general and also for specific project sizes and types. Flanagan and Norman (1993) emphasized two aspects of any construction project which comprises of; the process i.e. the project phases and the organization i.e. the project actors. From the construction perspective, the entire construction project consists of many sequential phases. Simon et al (1997) suggested effective and comprehensive Project knowledge Management processes for efficient project delivery in today's competitive environment.

2.1. Theoretical foundation of the study

The framework for this study builds on **theoretical principles of lean design and construction**. The conceptual framework emphasizes project-based learning and the creation of group knowledge in early phase project planning and design activity. "Lean Construction is a combination of operational research and practical development in design and construction with an adaption of lean manufacturing principles and practices to the end-to-end design and

construction process. Unlike manufacturing, construction is a project based-production process. Lean construction is concerned with the alignment and holistic pursuit of concurrent and continuous improvements in all dimensions of the built and natural environment: design, construction; activation, maintenance, salvaging, and recycling" (Abdelhamid 2007, Abdelhamid et al. 2008). It challenges the belief that there must always be trade-offs between time, cost, and quality. According to Koskela et al (2002), this approach tries to manage and improve construction processes with minimum cost and maximum value by considering customer needs.

Koskela (2000) argues that "the mismatch between the conceptual models and observed reality underscored the lack of robustness in the existing constructs and signalled the need for a theory of production in construction; using the ideal production system embodied in the Toyota Production System to develop a more overarching production management paradigm for project-based production systems where production is conceptualized in three complementary ways, namely, as a Transformation (T), as a Flow (F), and as Value generation (V).

Transformation is the production of inputs into outputs.

Flow can be defined as "Movement that is smooth and uninterrupted, as in the 'flow of work from one crew to the next' or the flow of value at the Pull of the customer."

Value is "What the Customer is actually paying for the project to produce and install."(ibid)

Koskela et al, (2002) also presented a review of existing management theory – specifically as related to the planning, execution, and control paradigms – in project-based production systems. Both conceptualizations provide a solid intellectual foundation of lean construction as evident from both research and practice (Abdelhamid 2004).

Recognizing that construction sites reflect prototypical behavior of complex and chaotic systems, especially in the flow of both material and information on and off site, Bertelsen (2003) suggested that construction should be modelled using chaos and complex systems theory. Bertelsen (2003) specifically argued that construction could and should be understood in three complimentary ways:

-As a project-based production process
-As an industry that provides autonomous agents
-As a social system

2.2. Research framework and study variables
2.2.1. Entrepreneurship Development

According to Ahmadpour (2005) entrepreneurs are those who not only seek opportunities based on economic value but also have to think about social and environmental dimensions.

As the society mature, customers demand more than just the products or services, but the impact to the social and environmental. Again, Dehghanpour (2002) argues that consumers as we look as an organization members channel their intention to consume through their environment and this intention will be converted action. "Entrepreneurs can convert this environmental and social impact issue to opportunities" (Feiz et al, 2007). "Sustainable entrepreneurship can be seen as the process of sustaining a level of entrepreneurial development as to create a paradigm shift in economic activity such that national GDP, job growth, capital investment, technology advancement, and quality of life is unmatched, unsurpassed and unequalled" (ibid).

2.2.2. Project management

According to project management institute (2008), project management is "the application of knowledge, skills, tools and techniques to project activities to meet the project requirements." Project managers must not only strive to meet specific scope, time, cost, and quality requirements of projects, they must also facilitate the entire process to meet the needs and expectations of the people involved in or affected by project activities. It is a highly structured process involving the initiation, planning, execution, monitoring, controlling, and completion of a project. In principle, project management allows the organization and integration of resources to achieve a specific goal within a designated time frame (ibid).

The essence of the practice of project management is to ensure that an organization is able to make high quality decisions at a lower cost and within a shorter duration. Hence, project management ensures that all the key issues–such as cost estimation, resources management, procurement of resources and supplies, establishment of quality standards, human resources deployment, sustainment and management, stakeholder management, risk assessment, time management, and communications management that could affect the delivery of a project are carefully and continuously considered and integrated into project implementation. Successful project management delivers the agreed outcome on time within approved budget and in accordance with the preset specifications. In the quest for achieving sustainable development, countries worldwide have adopted a project delivery approach wherein government agencies can act as enablers to private sector driven investment projects (World Bank. 2005).

Kumaraswamy et al, (2008); Gavin et al, (2008) all agree that there is need for careful selection of project team members in order to achieve desired multiple objectives, while optimizing the input resources and output infrastructure development. The Project Management Profession is particularly suited to constitute the principal human capital needed in this drive. Therefore, the educational path of the future project manager must be prioritized to ensure that legitimacy and expertise are assured.

2.2.3. Project Management Framework

A Project Management Framework consists of three parts: - a project lifecycle, a project control cycle and tool & templates to facilitate the execution of the project. Project Management Framework supports the implementation of project management within an organisation because:
It supports the development and replication of accepted practice; helps communication within the team because of a common language; streamlines the use of tools and techniques for key project management processes; establishes a consistent approach which aid customers understand the project management processes and ensures that focus is maintained on the early stage of the project lifecycle.

A project management framework defines how projects of various sizes and complexity should be managed within an organization so that all projects are managed in a consistent way. Not all projects will require every part of the framework to the same degree, for instance small or non-complex projects may not require such detailed processes but the processes they do use will be common to all projects. This framework is usually compatible with an organization's chosen project management methodology and provides the practical tools to actually do the work required for the project.

2.2.4. Project Management Knowledge Areas

Project management knowledge areas describe the key competencies that project managers must develop. Evidence from literature shows nine knowledge areas of project management.

Four core knowledge areas of project management include project scope, time, cost, and quality management. These are core knowledge areas because they lead to specific project objectives. Brief descriptions of each core knowledge area are as follows:

• Project scope management involves working with all appropriate stakeholders to define, gain written agreement for, and manage all the work required to complete the project successfully.

• Project time management includes estimating how long it will take to complete the work, developing an acceptable project schedule given cost - effective use of available resources and ensuring timely completion of the project.

• Project cost management consists of preparing and managing the budget for the project.

• Project quality management ensures that the project will satisfy the stated or implied needs for which it was undertaken.

Another four are the facilitating knowledge areas of project management which include *human resources, communications, risk, and procurement management.* These are called facilitating areas because they are the processes through which the project objectives are achieved. Brief descriptions of each facilitating knowledge area are as follows:

• Project human resource management is concerned with making effective use of the people involved with the project.

• Project communications management involves generating, collecting, disseminating, and storing project information.

• Project risk management includes identifying, analyzing, and responding to risks related to the project.

• Project procurement management involves acquiring or procuring goods and services for a project from outside the performing organization.

Project integration management which is an overarching function that coordinates the work of all other knowledge areas is the ninth one. It affects and is affected by all of the other knowledge areas. Project managers must have knowledge and skills in all nine of these areas.

2.2.5. Knowledge

Knowledge originates in the head of an individual (the mental state of having ideas, facts, concepts, data and techniques, as recorded in an individual's memory) and builds on information that is transformed and enriched by personal experience, beliefs and values with decision and action-relevant meaning. Knowledge formed by an individual could differ from knowledge possessed by another person receiving the same information.

The use of the word "knowledge" seems to mean three things. First, it refer to a state of knowing, by which we also mean to be acquainted or familiar with, to be aware of, to recognize facts, methods, principles, techniques and so on. This common usage corresponds to what is often referred to as "know about." Second, the word "knowledge" refers to "the capacity for action," an understanding or grasp of facts, methods, principles and techniques sufficient to apply them in the course of making things happen. This corresponds to "know how." Third, the term "knowledge" refers to codified, captured and accumulated facts, methods, principles, techniques and so on. When we use the term this way, we are referring to a body of knowledge that has been articulated and captured in the form of books, papers, formulas, procedure manuals, computer code and so on.

2.2.6. Knowledge Management

There is no single definition of Knowledge Management (KM). It has been defined in a number of ways, but in general the thought relates to unlocking and leveraging the

knowledge of individuals so that this knowledge becomes available as an organizational resource. There are various concepts, conflicting definitions and overlapping views among the researchers and practitioners, but central theme is still the same for all of them i.e. managing the knowledge and encouraging people to share the same to create the value adding products and services (Balogun et al, 2004; Ardichvili et al, 2009; Baldi et al, 2009; and Radyng, 2009).

Different researchers have used different approaches to define KM in their literature classifying them with different theoretical perspectives namely need of KM, What KM demands, KM practices, KM and IT, KM processes, and Holistic nature of KM. The present study classifies the KM definitions further into objectives of KM and strategy, KM and Intellectual Capital, and What KM can do. We can now define Knowledge Management as the explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organizing, diffusion, use and exploitation of human environment to enhance learning and performance in organizations. It requires turning personal knowledge into corporate knowledge that can be widely shared throughout an organization and appropriately applied. KM makes knowledge independent from the particular individuals.

Exploring the literature on the relationship between data, information and knowledge, and on the evaluation of types of knowledge and knowledge management systems, we discuss the power of knowledge to transform organizations and highlight the factors that are combining to create a more strategic role for knowledge management within organizations. Since Knowledge Management is concerned with sharing and managing information, people need to be seen as the primary key to its success, as they (people) play a very crucial role. People hold substantial amount of information and they need to be encouraged to share it.

As Drucker (1995) had predicted, 'knowledge has become the key economic resource and the dominant source of competitive advantage for organizations today'. Ardichvili et al (2009) shares this view by highlighting that "top management in the US Fortune 500 firms view their knowledge resource as critical for organizational success". Knowledge has always been regarded by organizations as an important contributing factor to their success. However, it is only in recent years that they have realized the importance of managing this knowledge. Consequently, organizations have begun searching for better management practices to achieve this.

Technology is available to support knowledge sharing, but this does not mean that people will
automatically give it up. Traditionally the implementation of KM was regarded as a technical exercise. It is only in recent years that practitioners have begun to focus their attention on the softer issues i.e. the human element of KM implementation.
According to Balogun et al (2004) "KM does not equal technology and that installing Information Technology does not equal implementing KM. It is slowly emerging among academics and researchers that while KM is concerned with Information Technology, there are also many human elements that need to be addressed when implementing any change management initiative and according to Dadzie et al (2009), KM is no exception to this. While agreement is emerging that KM may be people based and not technologically based, there appears to be little research to date that supports this view. "Knowledge management's many forms of information, from structured content to the use of latent semantic indexing to interpret and build linguistic models of freeform or unstructured content, all are being reoriented by the en masse development of application, integration, and Web Services

strategies base on the Web design elements including the significant influences that are reordering how knowledge management systems are designed, implemented, measured for performance and maintained. (Bernoff et al, 2008).

Literature therefore suggests the reliance on more of collaborative levels of use and shared integration as a dynamic contribution of KM to the development specifically and Service Oriented Architectures from a strategic standpoint (ibid)."This re-orienting of knowledge management is unique in that it is being driven by a process-centric redefining of how knowledge is being captured, analyzed, and classified into ontological frameworks within highly regulated industries or those industries that rely on complex data structures for their use of knowledge overall (Baldi et al, 2009; Bernoff et al, 2008; Jeffrey et al, 2000).

Knowledge Management as a conscious strategy of getting the right knowledge to the right people at the right time and helping people to share and put the information into action in ways that strive to improve the organizational performance is desirable. The creation of entirely new ontologies and taxonomies or structures for managing knowledge is also being increasingly driven not by the convenience possible for the Information Technologies (IT) or MIS department but by the needs of a broader, more informed, and much more reliant user base than before."

2.2.7. Infrastructure

This paper is concerned with physical infrastructure, rather than 'social' infrastructure (education and health systems) or institutional infrastructure (the land use planning system). 'Infrastructure can be described generally as large social overhead capital; such as roads, ports, hospitals, bridges, sewer facilities, airports, electricity generation and distribution, and communication networks. These infrastructures provide the basic framework for a nation to support essential public services in order to achieve higher economic growth and better quality of life.

Therefore, the ability of a nation to provide and effectively maintain the availability of these infrastructures is a direct indicator of the attitude of the nation towards development. This is primarily a differentiating factor between the various levels of development worldwide. Based on this premise, the developed world is able to transform not only their domestic economic growth but also increase their competitiveness in the world market due to robust economic development policies' (Djiofack-Zebaze et al, 2009).

The provision of these infrastructures has often been perceived to be the direct responsibility of government alone due to the large social overhead costs and in part to the high degree of social and economic externalities that they generate (Quality Management and Assurance, 1990). According to Familoni (2004), the essential concept of infrastructure is a set of assets needed to supply certain desired services; it is the capital stock needed to generate electrical services, or the land transport assets needed to supply (land) mobility and access services. Familomi (2004) argued that the provision of these infrastructures by government could pose a large social overhead capital.

Adeola (2002) affirmed that public enterprises are usually perceived as drain pipes for government budget, thus creating budgetary strains and unwarranted burden on the economy. Afeikhena (2002) identified issues such as defective capital structure, excessive bureaucratic control, inappropriate technology, gross incompetence, mismanagement, blatant corruption and crippling complacency as problems facing many public owned enterprises. In many

developing countries, the mismanagement evident in many publicly owned enterprises led to huge wastage of resources and manpower giving the government no other option but to pursue reform programme (Anya, 2002). These reform programmes embarked upon by many countries brought about the emergence of the various national regulatory bodies saddled with the responsibility of promoting market liberalization through public and private partnerships.

On the other hand, Hodgson(2005) argued that successful delivery of infrastructural projects is hinged on the quality of human resources that will be assembled, and in as much as project management is the profession saddled with the specialized tools, techniques and skills needed to deliver project objectives successfully, it is important that there exists, within these countries a steady and reliable stream of project management manpower, who by training and education, delivers the essential project outcomes important to stakeholders.

2.2.8. Sustainable development

This work is located within the conceptual framework of Sustainable Development. The paradigm Sustainable development has its origins in the environmental movement but has acquired significance across all facets of human life from social, to economic and political aspects. Indeed, the last few years have witnessed its acceptance as a challenge to global development expected to be met by national governments.

Flint, 2004 highlights two very important issues that have become the basis of a call for sustainable development on a global level: (a) much of the world is in poverty, and development is needed to meet basic human needs, although this needs to differ from previous strategies; and (b) wealthy nations must find a way of engaging development that is decoupled from growing natural resource depletion and environmental degradation. "Therefore, it is generally agreed that sustainable development targets multi-sectoral consideration of ecological integrity, social equity, and economic vitality in ways that ensure that our actions today do not limit the range of environmental, social, and economic options open to future generations" (ibid).

Sustainable development has evolved as a paradigm to balance the developmental needs of man and to ensure that economic development is achieved without compromise to the environment and with due respect to delicate social balance (Osorio et al, 2005). "Sustainable development implies development which ensures maximization of human well being for today's generation which does not lead to declines in future well being. Despite worldwide discourse of this, the definition, measurement and application of Sustainable development have been subject to various debates.

On the one hand, there are claims that the definition of the term is difficult because it is an oxymoron and therefore unattainable in real terms (Osorio et al, 2005). These authors also argued that 'sustainability' and 'development' are an antithesis and therefore cannot be measured as an integrated whole concluding that sustainable development is at best the reconciliation of two enemies with urgent need for the development of instruments that would allow for an integrated world view of the subject.

There are also opinions that because of its environmental origin, most programs directed at its implementation have prioritized environmental issues over social economic matters (Bond et al, 1998). Currently, however, there is an admission that there have been changes in the perception, scope and definition of sustainable development from mainly environmental concerns of the future to cover more holistic and integrated human development (Dooris,

1999). These authors admit the call for sustainable development arising from the desire to ensure that economic development is intrinsically balanced by environmental protection and social justice. This way, economic development is continuously adjusted to provide for inter-generational maximization of welfare according to each given sector and geographic area (Hales, 2000).

Reiss (2006); Roberts et al, (2002); Vordzorgbe (2006); Drakakis-Smith (1995) assert that third-world governments have continued to see contemporary environmental concerns of sustainable development as secondary to other concerns such as economic growth and politics. With basic infrastructures and services in acute short supply, stunted economic growth and burgeoning demography, the need for the provisioned basic infrastructures and improved services has become a primary concern for both city and national governments.

This is why even though we cannot ignore the three tripods of sustainable development (economic development, environmental protection and social justice), evidence from literature shows that economic development as the platform that is most critical for projecting sustainable development outcomes hinges on project management (figure 1).
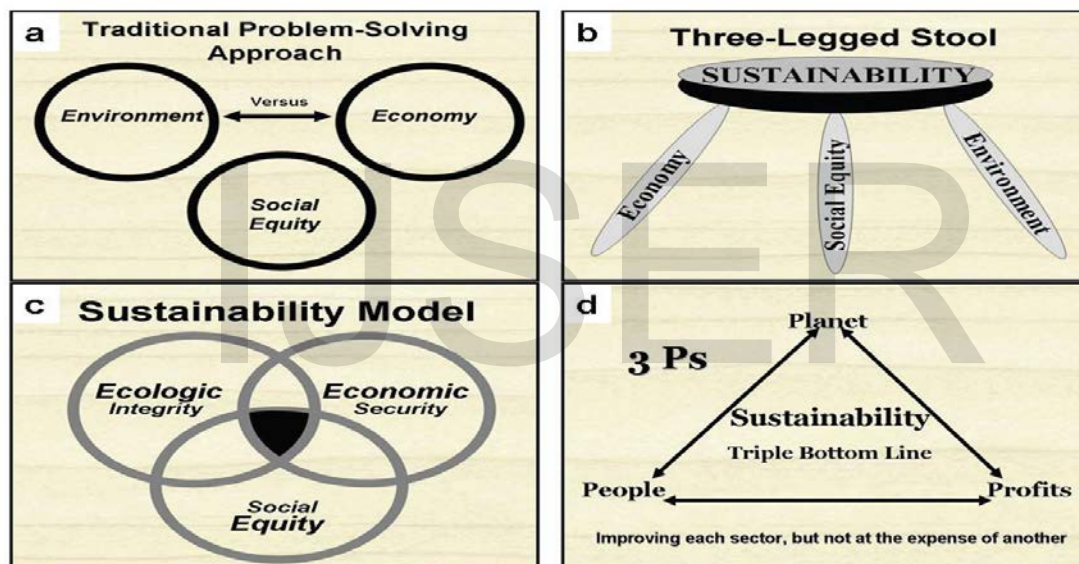

Figure 1: sustainable development framework

Attaining this path requires eliminating those negative externalities that are responsible for natural resource depletion and environmental degradation. This is where knowledge management comes in. We present knowledge Management as a fundamental strategy and sound basis for comprehensive plans towards infrastructural development of a fast developing economy- Nigeria.

The missing link between project management and knowledge management formed the basis for this study. The socio-economic potentials of effective knowledge management indicate the potentials of contributing significantly to the national GDP and will also ensure that project development is in harmony with the environment. Therefore, to ensure rapid growth, evidence from literature points to development theory for neo-liberalism which is epitomized by government pulling out from direct provision in favor of emerging as a facilitator or enabler of private sector driven participation as the preferred delivery mechanism for major infrastructural projects.

Our purpose here is to show that there is a need to create a strong, structured educational path for the project management profession in Nigeria such that the nation can achieve sustainable infrastructural development. This is necessary because there is currently a gap in the educational system for the training of project management professionals. The linear career path which is in operation in several other professions (-such as accounting, engineering, law and medicine) is not currently enjoyed by project management professionals. Neither is there a clearly delineated expert career path which will allow undergraduate specialization followed by incremental learning and refinement to produce expertise.

2.3. Linking Project Management with knowledge Management

The International Standard Organisation (ISO-8402) define project as "a unique process, consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements including constraints of time, cost and resources". The Project Management Institute (PMI) in their Project Management Body of Knowledge (PMBOK, 2008) define project as "a temporary endeavour undertaken to create a unique product, service, or result". Though, no single definition of a project will meet or suit all cases; all projects share several attributes, namely: objective, uniqueness, complexity, temporary nature and uncertainty. The essence of project management is to create change (Reiss, 2006).

Many scholars and writers have defined project management from different perspectives. Rosenau (2008) said project management, in large part, is the management of interpersonal conflict, which is inherent in complex organisational situations. Successful project management means meeting the performance specification (that is, objective or technical goals), on schedule, and within the budget (Rosenau, 2008). In the business and industrial fields, project management involve managing and directing time, material, personnel, and costs to complete a particular project in an orderly, economical manner, and to meet established objectives in time, dollars, and technical results (Spinner, 1992).

Peltoniemi et al, (2003) studied the project management education of some international universities and identified a gap in the educational offering concluding that the availability of project execution training is limited. However, the experience of the project manager is one of the critical success factors of project management. However, Hodgson (2005: 65) draws a distinction between the traditional view of the profession as a purely productive organization of experts possessing skills and knowledge vital to society and the critical view of the profession as the mobilization of monopoly power to secure power and influence for a privileged minority.

Professionalism lays claims to competence and the establishment of a code of behaviour of people to be addressed as professionals within a specific application area. In the literature reviewed, a debate on the legitimacy of the claim of project management to being a profession is uncovered in the work of Hodgson (2005). Hodgson applies the critical view of professionalism to the discipline of project management, and therefore views the discipline as a 'pseudo-profession' mainly because it is an 'insecure, emergent professionalizing' occupation, while also admitting that it has spread across diverse fields of human endeavour such as technology, health, social services and education far from its origins in engineering.

Hodgson's work presented an opportunity to establish the linkage between education and professionalism and while the conclusions arising from this piece of research will be re-examined shortly, attention must be drawn to the work of Brown, Adams & Amjad (2007).

Brown et al. (2007) focus on the relationship between human capital and time performance in project management. They developed 4-four typologies of project management human capacity profiles, each with clearly defined career paths, based on the level of educational attainment and experience gathered by the practitioner.

This typology is summarized below:
1. Type 'A' personae with tacit knowledge arising from experience, general educational background, no formal project Management (PM) qualifications.
2. Type 'B' personae with ample tacit knowledge, general educational background, little industry specific knowledge, and no PM qualifications
3. Type 'C' personae who possesses industry specific knowledge, experience and qualification but no formal PM qualifications
4. Type 'D' personae with tacit knowledge and experience, general educational qualification and formal PM qualifications.

Literature suggests that knowledge without specific project management education and project management experience will reduce the initial potential for successful performance and conversely that individuals educated and trained specifically in the subject of project management will deliver better performance. Education encompasses all the cumulative processes of mastering (months of training, induction into the professional, daily performance). Hodgson (2005) has established a certain difficulty in the transformation of project staff into project management professionals-that is the transformation of practitioners who have not acquired project management education into project management professionals, thereby supporting Brown et al.(2007) that "the typical attitude among staff in the face of powerful inducements to adopt a 'professional' identity is a complex mixture of attraction, fear and a profound ambivalence towards this role, played out through the assumption and tentative transformation of professional identity over time" (Hodgson, 2005).

The link between education and professionalism is therefore clear. Professionalism demands deference to the 'strictures and structures' of a discipline, which according to Hodgson(2005) is developed from the creation of a mindset, mastering of the set of skills, acceptance of these skills, reproducing them and embodying rituals of action. The panacea to this is to increase project management professional capacity through the establishment of Project management as a structured discipline of learning, so that there exists a pool of potential staff already schooled in the professional ethics, knowledge, and behavior (ibid).

Therefore, here lies the link between education and professionalism, and here also lies the major shortcoming of Hodgson's work, which has relied on the use of respondents, who are working as project teams but did not begin their careers as project managers with both qualifications and experience in project management.

Thus, following the four career paths presented by Brousseau et al.(1996), as cited in Brown et al.(2007), the ideal path toward establishing oneself as a project management professional is through the expert route. The expert route allows one to adopt an initial discipline choice (usually as a first degree), after which added knowledge in that same discipline is expected as well as accumulation of experience, which will expectedly- refine and refocus the individual, to become an 'expert'. Project management as a discipline is built upon an abstract and objective body of rules; with specific ontology and rules of practice specific to its practitioners.

A system and method for project optimization, including methodologies, processes, measures, and tools for facilitating the management processes throughout the life-cycle of the project , including conception, planning, execution, and post-implementation review. Various embodiments include a project management system comprised of four separate processing steps including portfolio management, value planning, customized project management, and post-implementation review. Other embodiments include an integrated governance paradigm configured to globally manage the four processing steps described above.

2.4. Balancing Sustainability with Economic Development

Various scholars (Hales, 2000; Roberts et al, 2002; Familoni, 2004; **Gibson**, 2006;) agree that "while corporations making these and other economic development investments are critical drivers of growth in developing countries, their focus must also be rooted in drivers that in turn enhance sustainability. Irrespective of geography, the focus of a company's sustainability program most readily ties to the company's core business. The twin needs of economic development and sustainability make effective program development and implementation in developing countries a particular challenge. In the end, the same drive, dedication and collaboration evidenced in the private sector will also lead the effort to innovate lasting improvements for developing countries".

Other scholars (Adeola, 2002; Vordzorgbe, 2006; Kumaranswamy, 2008; Bernoff**, 2008) opine that "for Sustainability to be in tandem with economic development, c**orporations in third world countries must provide direct private investment in country programs that support education, skills-training, some provision of medical care, entrepreneurial community enterprises and disaster relief, which often make a dramatic and immediate impact on the lives of the people who need it most". Clearly, literature reveals that "it is important that these corporations evaluate where these investments are earmarked and the fact remains that many of these organizations in the developing world are the true drivers of change and positive growth for populations who are otherwise underserved".

2.5. Sustainable Development and Project Management

Scholars have described a dichotomous nature of sustainability where the linkages between sustainable development and project management may be spotted (Drakakis-Smith, 1995; Hales**, 2000;** Flint, 2004; Osorio et al, 2005; **Gibson, 2006;** Vordzorgbe, 2006; Kumaranswamy, 2008). The famous dichotomy is that "Sustainability is about both short term and long term orientation". This dichotomous nature of sustainability describes well the linkage between sustainable development and project management. In fact, the project nature is mostly short-term though the wish is to get it flowing in the long term orientation of the organization. The question that needs practical solutions is how processes and results of the project, which is a temporary organization, flow and are integrated in the business/organization ongoing operations which are by nature for long term orientations or relatively permanent? Alignment to the beneficiary institution's strategic orientations, organizational structure and procedures are sine quoi none conditions for the sustainability of project's results.

However, they recognize that sustainability issues are rarely thought about in a systematic way in his project due to lack of adequate tools and techniques. The project management team is, for the most of time, occupied by the delivery of project results at the output and outcome level with limited focus on sustainability or long term impact after the project closure. Scholars argue that "there is no body in the project management team clearly

responsible for sustainability issue. Normally questions about sustainability are left to heads of departments or units who are the bearers of the holistic and long-term vision" (ibid).

According to Kumaranswamy (2008) "Stakeholder Management and communication are good approaches to tackle sustainability issues in the project". "Sustainability must be thought about during project formulation by keeping the focus on impact. "Thinking about sustainability is thinking about impact and this might not be a work of one individual in the project but rather a collective work".

Literature shows that there are three major factors of project results' sustainability, namely effective communication, proper stakeholder management and ownership of the project results and project management processes by the beneficiaries. As long as stakeholder management is concerned, political environment in some development projects may not be supportive of sustainability. "Political will including enacting national policies paves the way for sustainability, given that project implementation will be carried out in clearly stated framework." (Drakakis-Smith, 1995; Hales, **2000;** Flint, 2004; Osorio et al, 2005; **Gibson, 2006;** Vordzorgbe, 2006; Kumaranswamy, 2008).

2.6. Integrated Perspective of Sustainability
The quality of human life in the future is about the choices we make. For our choices and actions to be sustainable, they must be ever elastic, adaptable, and creative; for biophysical research and ecosystem science have demonstrated the interdependent functions in nature, as well as between nature and humans, and how recognition of these interconnections is important to preventing harm from our actions (Jacobs, 2000; Norton, 2005). But the difficulty that arises from the complex issue of sustainable development is considering the following: we may have equal or better economic opportunities than our ancestors, but do we have more social and environmental benefits or opportunities?

Sustainable development involves the carrying out of activities that offer economic benefits in the present without negatively affecting social and environmental choices that are available to people in the future, or in other places. Most discussions about the meaning of sustainable development are usually reduced to the fact that we should be concerned about the "needs of the future" in our thinking about sustainability. Sustainable futures, however, are not clear in advance. Instead of attempting to understand the potential needs of the future, which is really impossible to do, present societal members, through a program of participatory social experimentation and learning, are instead concerned about making sure that the opportunities they have to achieve their own values, the things important to them, are not in any way constrained for other places or the future by actions they might take. And this process must encourage the connection of scientific information with cherished human values.

To hold options open requires the complicated and difficult process of a community attempting to conscientiously specify what obligations toward people in other places and the future it accepts, which require protection of the stuff so designated as long as present society's costs are bearable, and to compare those ideals its members would like to project into the future with the very real and present needs of people in the present generation (Norton, 2005). If individuals fulfill their needs in such a way as to destroy important options, for example individuals in earlier generations over-consume and do not create new opportunities, changing the environment that subsequent generations

encounter, than this leaves more constraints and reduces opportunities, making survival more difficult.

In other words, people should be concerned about making sure the opportunities they have to achieve their own core values, the things important to them (range of environmental, social, and economic opportunities), are not in any way constrained for other places or people in the future by actions taken today. When we state a set of ideals (values) for what we want our community to be like, we identify those options and opportunities that give meaning to life in a place (Norton, 2005) for the present and for as much as we know about the future. "Important options" represent a variable to be specified as particular communities articulate their values and decide what is important to save for posterity. "An action or a policy is not sustainable if it will reduce the ratio of opportunities to constraints on people in the future" (Norton, 2005).

All people today should have sufficient resources (human, financial, environmental) to meet their needs, provided in a way that does not interfere with the ecological integrity of natural systems (options always depend upon having healthy environments and productive natural resources), so that similar options will be open to future generations. Our task ahead is to shape a sustainable future, using resources less intensively, where "resources" includes those things that support our economic and social productivity while also absorbing our waste products, by combining social, economic and environmental strategies that produce opportunities and minimize constraints for future generations (Norton, 2005) and people in other places through the practice of sustainable development.

The bottom line: communities themselves are responsible for choosing what is important to monitor and what is important to protect, not inhibited by some kind of sustainability definition established somewhere else. Acting sustainably, assuring sufficiency and opportunity, guarantees a resource will not fall below a threshold required to perpetuate it through time as a foundation to insure all people have sufficient resources to achieve a decent life and that everyone has opportunities to seek improvements in ways that do not compromise future generations (Gibson, 2006). In many instances it comes down to differentiating "needs" from "wants." Decision-making should encourage equitable distribution of resources to create a sense of fairness, identifying and satisfying real needs before wants and leaving options open for future generations.

Living sustainably is maintaining the important mix of options and opportunities while creating no new and burdensome constraints; living unsustainably is losing them, narrowing the range of options that people in other places or subsequent generations can choose among in their attempt to adapt, survive, and prosper (Flint, 2006). Sustainability is most fundamentally equality over time and place, making sure we consume less than Earth's natural resources can provide. Economic development that is sustainable must be both environmentally sound and shared fairly among all societal members. Not to meet this objective is to open the doors of conflict.

2.7. Issues from the review of literature
In their critique of sustainability **Flint, (2004); Norton (2005); Gibson** (2006); assert that "While much discussion and effort has gone into sustainability indicators, none of the resulting systems clearly tells us whether our society is sustainable. At best, they can tell us

that we are heading in the wrong direction, or that our current activities are not sustainable. More often, they simply draw our attention to the existence of problems, doing little to tell us the origin of those problems and nothing to tell us how to solve them" (ibid).

Nevertheless other authors (Familoni, 2004; Gavin et al, 2008; Ardichvili, 2009; Baldi et al, 2009 posit that a set of well defined and harmonized indicators is the only way to make sustainability tangible. Those indicators are expected to be identified and adjusted through empirical observations (trial and error). The most common critiques are related to issues like data quality, comparability, objective function and the necessary resources. However a more general criticism comes from the project management community.

3. Research methodology
3.0. Introduction
In order to clearly examine the research problem and to achieve the desired objectives, we adopted descriptive, correlation method in order to establish the relationship of the research variables. Our research framework highlighted the elements to be investigated in the study which were constructs from both knowledge management tools and entrepreneurship functionalities presented as independent and dependent variables.

3.1. Research design
This research was done with survey design in the categories of descriptive, correlation and applied research to best capture real-life perceptions of respondents. Thus, we used various qualitative research methods including observations, a preliminary questionnaire and semi-structured interviews. Such a multi-method approach is believed to cancel out the different effects any one technique may have on a study, thereby minimizing bias and increasing rigor. These three empirical methods comply with the hermeneutical and dialectical methodology suggested by Guba et al, (1994) to use within a constructivism research paradigm.

However, to a lesser extent the preliminary questionnaire focused on interactive techniques between respondent and researcher in order to effectively draw out the highly-individualized and contextual constructions of reality experienced by respondents. In this study therefore, the questionnaire is fundamental in initially getting the respondents to think about the topic, after which the interview technique was used to more effectively elicit respondent feelings about the topic.

Since we could not find previous survey or study upon which we could build, we designed our own. The survey consists of questions that provided demographic data, determined familiarity with execution of Projects, and elicited opinions on knowledge management requirement for project delivery. All responses were self-reported. The survey was distributed via e-mail on a Microsoft Excel database file to the respondents.

3.2. Population of the study
The survey was administered to professionals who are senior enough to make decisions in their respective offices because we placed emphasis on the potential for decision-making. Due to the short timeline in this study, we used convenience sampling, volunteer sampling as well as snowball sampling when possible. Therefore, the population of this study included all administrators, deputies and employees of industrial projects numbering 90 members.

3.3. Procedure

Survey: We designed a pretest-posttest survey for this study for two primary reasons. The first is to test our hypothesis with a view to measuring the dependent variable before the treatment group is exposed to the stimulus. After the stimulus is given, the dependent variable is measured once again in exactly the same way with the same participants. In this study, the **independent** variable is the knowledge management tool created by the team. The **dependent** variables are the degree to which entrepreneurs will use the tool and the degree to which the tool is beneficial to them. Our survey technique differs from the traditional pretest-posttest format in that we did not conduct the posttest on the same sample that underwent the pretest. We believe that since the questions on the survey that indicate what content on a knowledge-based initiative the participants would use are being used to create the knowledge model, using the same participants in the posttest would bring up questions of generalisability.

3.4. Data Collection:

In line with the objectives of this study, we considered that the best way to collect data was through questioners. After different studies we identified two questioners for this research.

• Knowledge Management questionnaire includes 22 questions in 5 sections, each question on a scale of five items were encoded as in table 1.

Table 1: Coding questions based on Likert scale of five alternatives

Very High	High	Medium	Low	Very Low
5	4	3	2	1

• Individual entrepreneurs questionnaire includes 15 questions, each question coded based on three alternatives, the 15 questions identified the rate of individual entrepreneurship.

Validity: As regards to standardized questionnaires and also through the preliminary sample, reliability was examined again, so its validity is confirmed.

Reliability: Reliability of the used questionnaire in this study is evaluated by Cronbach's Alpha and the alpha estimated coefficients for questions regarding the internal validity of the questionnaire have been approved.

Test of Variables Normality: We used the parametric test of Kolmogrov Smirnov test to check normality of the research variables and the results showed that all the variables are normal.

Content Analysis: Another step required in this study was to conduct a content analysis of our research tools in order to categorize them and bring out key words with a view to identifying specific characteristics of the messages as well as integrating both data collection method and analytical techniques to measure the occurrence of identifiable elements in the questionnaire. Our content analysis differs from the typical sense of the term by relying on a more qualitative approach. While traditional content analysis uses established categories, and the characteristics are mutually exclusive, these do not fully apply to the circumstances of this study. Instead, each member of our team was given a portion of the questionnaire accessible on the web. Each member was to identify key words and themes. Together the team tracked natural patterns in the data and formed categories based upon those patterns.

Materials: The materials for this study included the use of Microsoft Excel to design the survey and capture the survey data. In addition, Microsoft Front Page was employed to design the knowledge-based website. Microsoft Word was used to compile the key words and transfer them to the web. We obtained and employed a simple search engine to allow the user to search for key words on the website.

4.0 Data Analysis and Results

4.1. Hypothesis Testing

We examined the relationship between the dependent variable with moderating variables. After assessing the data from the distributed copies of the questionnaire and their analysis, it was found, that *there is significant relationship between knowledge management and individual Entrepreneurship development*. Correlation between 2 studied variables was 0/275 and the likelihood amount of significant level is equal to 0/017. Also, since the coefficient of Equivalent was 0/24, so its size is acceptable. On the other hand, Watson statistic is equivalent to 1/929. So the final model fit and residuals are independent. Analysis of Dependent variable individual and independent entrepreneurship and aspects of knowledge management is as in Table 1 above.

As can be seen from Table 5 there is a regression model for the above defined variables. The result of the coefficient regression of these two variables is given in Table 2.

Table 2: Result of individual entrepreneurship basis of test scores

Score	Scores of individual entrepreneurship
30 or less	Quite in contrast to entrepreneurial
35-31	Somewhat in contrast to Entrepreneurship
40-36	Somewhat in the direction of entrepreneurship
45-41	Fully entrepreneurs

Table 3: Reliability Testing Variables of Cronbach's alpha coefficients

Alpha coefficient	Heading questions	Row
8852/0	Knowledge management	1
8117/0	Leadership and Management	1-1
7325/0	Ideas and missions	2-1
8742/0	strategy	3-1
7137/0	Learning organization	4-1
7194/0	teamwork	5-1
7901/0	level of individual entrepreneurship	2

Table 4: Results of Kolmogrov Smirnov variables test

Variables	Z statistic Kolmogrov – Smirnov results		Significant level
Knowledge management	0/481	0/975	Normal
Leadership and Management	1/024	0/245	Normal
Ideas and missions	1/039	0/218	Normal
Strategy	1/082	0/192	Normal
Learning organization	0/963	0/312	Normal
Teamwork	1-Jan	0/178	Normal
Individual Entrepreneurship	1/003	0/267	Normal

Table 5: Results of Analysis of the dependent variable Variance and independent

Model	Sum of squares	Freedom rate	Mean Squared	F statistics	Significant level	R	R^2
Regression	123/413	10	12/341	2/083	0/039	0/495	0/246
remaining	375/253	64	5/926				

Total	502/667	74					

According to the results in Table 6 can be commented that the idea and mission, organizational culture, of such size knowledge creation and teamwork have a linear relationship with individual entrepreneurship development.

Table 6: Results of the regression coefficients of independent and dependent variables

Index Variable	Regression coefficient	Coefficient Standard deviation	Standardized Regression coefficients	T statistics	Significant level T statistics
Constant	26/934	4/012		6/714	0/000
Ideas and mission	0/615	0/203	0/459	3-Mar	0/004
teamwork	0/335	0/164	0/324	4-Feb	0/045

According to the results in Table 7 the relationship between leadership and management and entrepreneurial development of individual employees of infrastructural development projects is not significant. (The correlation coefficient between two variables is equal to 0/19 and the probability associated regarding to significant level is 0/103).

Table 7: Pearson correlation test to investigate the relationship between leadership and management development and individual entrepreneurs.

Leadership & management dimension		
Individual entrepreneurship	Pearson correlation	Significant level
	0/19	0/103

According to the results in Table 8 there is a relation between ideas and the organization's mission and business development staff of Infrastructural development projects. (Correlation coefficient between two variables is 0/361. and the probability associated with a significant level is equal to 0/001).

Table 8: Pearson correlation test to investigate the relationship between missions and ideas the development of individual entrepreneurship

The dimension of ideas & of missions in organization		
Development Individual entrepreneurship	Pearson correlation	Significant level
	0/361	0/001

According to the results in Table 9 the relationship between strategy and employees individual entrepreneurship at the Infrastructural development projects is not significant. (The correlation between two studied variables is 0/084 and the probability associated with a significant level equal is to 0/474).

Table 9: Pearson correlation test results to investigate the relationship between strategy and individual entrepreneurs

The strategy		
Individual entrepreneurship	The Pearson correlation coefficient	Significant level
	084/0	474/0

According to the results in Table 10 the relationship between learning organization and development of individual of employee of Infrastructural development project entrepreneurship is not a significant. (Correlation coefficient between them is 0/159 and the probability associated with a significant level is equal to 0/174).

Table 10: Pearson correlation test to investigate the relationship between learning organization and individual entrepreneurship

The strategy		
Individual entrepreneurship	The Pearson correlation coefficient	Significant level
	474/0	084/0

According to the results in Table 11 there is a relationship between individual entrepreneurship of employee of Infrastructural development projects and the teamwork. (Correlation coefficient between them is 0/266 and the probability associated with a significant level equal is to 0/021).

Table 11: The results of Pearson correlation test to investigate the relationship between teamwork and individual entrepreneurs

The strategy		
Individual entrepreneurship	The Pearson correlation coefficient	Significant level
	0/266	0/021

4.2. Discussion of Results

The results of the T- test and according to the hypothesis test results, at the Pearson correlation test where we examined the relationship between variables, with knowledge management and entrepreneurship showed that there are no significant differences among the people perception of knowledge management and its dimensions as well as individual entrepreneurs in men and women.

Again, results of the study showed that there is no significant relationship between age and understanding of knowledge management, its size and individual entrepreneurs. Also, there is no relationship between people understanding of knowledge management and its dimensions as well as individual entrepreneurs with experience and income. Finally, in examining the relationship between people's understanding of knowledge management and its dimensions as well as individual entrepreneurs with the education level results, only between education level and digital sophistication had a significant relationship; in other cases there is no relationship. Furthermore, the beginning of the study showed that there is no relationship between leadership / management and entrepreneurship development. Data results also showed that there is a relationship between ideas and the organization's mission to develop a sense of entrepreneurship and that there is no significant relationship between the strategies in an organization with individual entrepreneurship.

Results showed that there is no meaningful relationship between learning organization and individual entrepreneurs in the sample studied. Accordingly, there is a meaningful relationship between teamwork and development of individual entrepreneurship.

5. Conclusion

In present era of globalization, knowledge creation and management has been the key question that has attracted the interest of the researchers from different areas. Literature review shows that research, both of qualitative and quantitative nature, have yet not taken the final shape, numerous articles, books have been published on a theoretical level. This proliferation of study has led to the fact that presently only at the very basic theoretical level of KM there is clear consensus. This is because KM does not belong to one area; people from different disciplines are working on it. Approaches to KM process are at still at emerging state and the process is ongoing, till we get a complete formal approach which shall be universally accepted.

The main aim of this study can be accomplished in threefold: the first is the compilation of diverse fundamentals related to the concept of knowledge management, which gives idea about the historical background, contribution of different authors & researchers, fundamentals & concepts, definitions of knowledge and knowledge management. The second aim is to produce and connect the different perspectives on approaches to knowledge management processes by giving its conceptual outline and finally doing its critical comparison.

Lastly, another relevant contribution of this study has been focus on the numerous benefits that can be achieved through implementing knowledge management to deal with issues like products and processes complexity, increased relevant knowledge base both technical and non-technical, shorter product life cycles, increased focus on the core competencies, etc. We have come to conclusion that KM is tool which helps to utilize our resources in a smarter and efficient way to achieve higher business goals in a productive way. Its aim is to develop new opportunities, creating value, obtaining competitive advantages and improve performance to attain the organizations objectives and emerging needs. This work has examined the role of project management in the process of infrastructural development through the instrumentality of the notion of sustainable development. We have established that despite the potential market for project management professionals, there is a gap in the educational path that would lead to the emergence of project managers as a profession to be reckoned with.

We therefore present a framework with which project management education can be used as a catalyst for sustainable infrastructural development, highlighting potential challenges and opportunities. We advocate for the intervention of International Project Management Institutions to increase awareness about the profession in a bid to 'market' it to the Universities. With an expansion of universities offering project management at the undergraduate level, there will naturally be a gradation to the establishment of post-graduate studies in Project management in Nigeria University.

However, to ensure that tacit knowledge (experience) is integrated to the learning process (which, if located in a college of engineering or built environment would be five years), attention must paid to the mode of learning. We advocate for a direct linkage between Project-based organizations and these tertiary institutions that will accommodate student's participation in some form in project delivery over a reasonable period of time.

We advocate for a work-based learning approach that would see undergraduate students attached to high powered projects to gather hands-on expertise before graduation. Exchange programmes with peers outside the country would also provide an avenue for garnering exposure, testing leadership skills and team working-all integral to the personae of a project manager. A graduate of Project Management would therefore come ready with a suite of skills, knowledge and experience, which would be industry specific, and this would make him/ her more useful in the delivery of infrastructural projects.

Undergraduate study will also serve as the critical entry point for future expert education. Further studies will include certifications and post-graduate studies. We strongly urge for the inclusion of a special category of certification for graduate Project Managers to provide a psychological linkage with the profession. A clear path towards expertise will ensure that infrastructural projects are populated at every stage, with professional Project Managers who are trained to deliver the expectations of all stakeholders.

7. Implications and suggestions

According to the results obtained from testing the main hypothesis that there is a significant relationship between knowledge management and individual entrepreneurs, we recommend as follows:-

1. Managers to enhance their employees' dimensions of knowledge management and use these strategies to help the development of employees' individual entrepreneurship with regard to:

a) The establishment of digital library system for information distribution in high volume and low time.

b) Creating the conditions for doing research in organizations for academic circles and participating in scientific meetings.

c) Conferences and seminars to exchange information about the activities of the staff work and about success and good ideas.

d) Establishing research Center, with good facilities for research.

2. Managers follow policies and procedures in the organization that has highlighted Management and leadership roles in organizations more and specify the duties of directors. This requires the cooperation of senior management to understand the culture of the organization and planning based on it.

3. Managers support of new and entrepreneurial thoughts and ideas and they welcomed the new changes in the organization and Employees exchange good ideas about business activities with each others.

4. More research to be carried out in the area of the relationship between strategy and entrepreneurship wherein the organization should be closely examined.

5. Researchers make clear the concept of learning organization for employees as well as broaden studies to be done in this area. Staff should be encouraged to carry on activities that provide their development and learning needs as well as hold training courses that meet the learning needs of staff.

6. Team learning and encouragement of staff to teamwork. Also forming the multi specialized teams for projects, can have high effects. This provides the opportunity that people with different specialties come together and because of diversity of expertise, skills and experiences it will provide informal learning opportunities and create new ideas.

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