People Capabilities for The Integration Of Green Building Features In Facilities Management Practice In Nigeria

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ABSTRACT

Buildings in Nigeria are generally conventional because of the continuous use of outdated planning and building codes for their development. This practice is unsustainable as it promotes human and environmental damages. The integration of green building features through retrofitting, retro-commissioning, decommissioning or commissioning has been identified as a way of addressing the ruinous problems. Facilities Managers are recognized as the professionals capable of over-turning this grave trend because of their involvement in all the phases of building development. Facilities Managers in Nigeria have not been able to effectively champion the integration of green building features into buildings compared with the performance of their counterparts in developed countries. The present level of awareness and the exact knowledge and obligatory skills required to pursue the integration of green features in buildings by facilities managers may be lacking. People capability is well-thought-out as the strategic enabler in promoting the integration of green building features in facilities management practice as well as being essential to the enhancement of capability and innovation in an organization. This paper aims to identify the critical people capabilities factors that will promote the integration of green features in buildings from the view of professionals embroiled in the facilities management practice in Nigeria. Extant literature review revealed five broad categories of people capability needed for the integration of green features in building by facilities managers as: interpersonal, system thinking, anticipatory, normative and strategy capabilities. Sixty factors were identified across the five capabilities categories. These factors were used for the development of a set questionnaire. The ensuing questionnaire was personally administered to one hundred and fifty facilities managers in Lagos State through random sampling technique. The study achieved a response rate of fifty-six percent. The data collected were analyzed using frequency counts and mean item score to rank the perceived importance of these factors. Results revealed forty-one critical factors as "very significant" for promoting the integration of green features in buildings in Nigeria. These factors form the basis of a mechanism framework developed to furnish facility managers with the precise understanding, to continue education and training adept for the integration of green features in buildings in Nigeria.

Keywords: People Capabilities, Facility Management, Green Building Features, Nigeria.

1. INTRODUCTION

Most buildings in Nigeria can best be labeled conventional. This declaration is apparently due to the continuous use of outdated planning and building codes for building developments and also lack of awareness of the green building market in Nigeria (Nwokoro and Onukwube, 2011). Although, the first

National Building Energy Efficiency Code was launched in 2017 by Babatunde Raji Fashola - the Minister of Power, Works and Housing, the implementation and enforcement remain an abstract. Conventional buildings are characterized by devouring enormous amounts of natural resources such as: stones, sand, iron, gas, cements, energy, timber, and water for their construction, operation, maintenance, and redevelopment (Guidry, 2004). For instance, the United States Green Building Council [USGBC] (2009), harangue that conventional buildings are responsible for 72% of electricity consumption, 39% of energy use, 35% of carbon dioxide emissions, 40% of raw material usage, 30% waste output and 14% potable water consumption. Literature is replete on the cataclysmic consequences of conventional buildings all over the world (Guidry, 2004). These include several environmental damages such as: ozone depletion, flooding, deforestation, air and water pollution and global warming (Guidry, 2004; Hodges, 2005).

Integrating green building or sustainable building features into existing and new buildings through retrofitting, retro-commissioning, decommissioning or commissioning has been identified in literature as a way of addressing the ruinous problems of conventional buildings (Guidry, 2004). According to Environmental Protection Agency (EPA) in the US 2009, Green Building is the "practice of creating structures and using processes that are environmentally responsible and resource efficient throughout a building life-cycle from siting to design, construction, operation, maintenance, renovation, and deconstruction". Existing studies advise that the application of green features such as: energy efficiency; water efficiency; site efficiency; landscaping; recycling and material efficiency in facilities management activities can bring about direct economic benefits (i.e reduced employees' absenteeism in offices, reduced maintenance costs etc); environmental benefits (i.e prevention of global warming, protection of ozone layer, protection of biodiversity, prevention of land, air and water pollution etc) and indirect social and psychological benefits (i.e improved health and comfort of occupants etc) (Guidry, 2004).

Facility management, defined by International Facility Management Association (IFMA) in 2014 as a "profession encompassing many disciplines to ensure proper functioning of the built environment by integrating people, place, process and technology"; has been identified within the built environment as the profession that is well fortified to promote the integration of green features in buildings; this recognition stemmed from the fact that facilities managers are in a distinctive position to view, understand and influence the whole life-cycle of a building (Hodges, 2005; Sarpin, Yang and Xia, 2016), they can also create added value to an organization because of their grander ability to the link and establish the positive contributions of integrating green building features to organizational performance through their operational, tactical and strategic facilities management functions.

While facilities managers in developed countries such as: USA, Canada, Denmark, Germany, Japan, Australia, United Kingdom etc have all embraced green practices in buildings through implementation of its measures, developing countries such as Nigeria still find green building development elusive in spite of associated benefits (Dahiru, Dania and Adejoh, 2014). There is therefore the possibility of the Nigerian facilities managers and building owners lacking requisite understanding of the capabilities and the skills requisite to integrate green building features into existing and new buildings. As reported in previous studies, lack of capabilities and the skills are some of the challenges of promoting sustainability in organizations (see Hodges, 2005; Shah, 2007; Elmualim, 2013; Sarpin, Yang and Xia, 2016). Therefore, the importance of the Nigerian facilities managers possessing sufficient knowledge of the potentials for promoting the capabilities and skills before integrating green features in buildings is fundamental before success can be achieved.

Based on the above, this study endeavors to identify the people capabilities factors that will promote the integration of green features in buildings from the view of professionals embroiled in the facilities management practice in Nigeria. It is therefore considered that the application of the ensuing framework will promote the integration of green features in buildings in Nigeria.

The remaining part of the paper proceeds as follows. The next section provides a brief review of the relevant extant literature on people capabilities that promote the integration of green features in buildings. This is followed by methodology after which the results of the data analysis are presented and discussed. The last section is devoted to concluding remarks.

2. LITERATURE REVIEW

2.1 Potential People Capability Factors for the Integration of Green Features Buildings

The purpose of this study is to design a people capabilities framework for promoting the integration of green features in buildings in Nigeria. Sarpin, Yang and Xia, (2016) opined that the prospects to implement sustainable practice in facilities management can be possibly released by the identification and integration of the decisive people capability elements that can promote its implementation. Wiek, Withycombe and Redman, (2011) and Sarpin, Yang and Xia, (2016) provide a comprehensive review of the literature on the aspects of people capabilities in relation to the promotion of sustainability. Sarpin, Yang and Xia, (2016) identified sixty relevant factors in her study on "developing a framework for the promotion of sustainability in facilities management in Malaysia and Australia; while Wiek, Withycombe and Redman (2011) also presented a broad literature review in their study of "key competencies in sustainability in the academic program development".

These factors were organized into five groups: interpersonal capabilities, system thinking capabilities, anticipatory capabilities, normative capabilities and strategy capabilities by Wiek, Withycombe and Redman (2011) and adopted by Sarpin, Yang and Xia, (2016). Interpersonal capabilities enable facilities managers to solve issues and respond to challenges in sustainability applications; system thinking is about being able to analyze complex systems across the three different pillars of sustainability and over different scales; anticipatory capabilities facilitate the analysis and evaluation of sustainability actions and consequences; normative thinking capabilities are used to map, apply and reconcile the personal values and principles that should be either discarded or maintained to sustain the balance of nature, and strategic capabilities contribute to the development of specific strategies towards the implementation of sustainability in an organization (Wiek, Withycombe and Redman, 2011 and Sarpin, Yang and Xia, 2016). This presents study adopted Sarpin et al., factors that comprises of sixty relevant factors for promoting sustainability in facilities management because of its comprehensiveness and also for the fact it has been successfully demonstrated in facilities management practice. A summary of the factors is presented in Table 1.0 below. Sarpin, Yang and Xia, (2016) identified twenty-three important people capability factors necessary for promoting sustainability in Malaysia and Australia as responded by facilities managers.

Table 1: Potential People Capability Factors

S/NO	Interpersonal Capabilities
1	Communication skill for constructive involvement with other professional, stakeholders and public
2	Collaboration skills for constructive involvement with other professional, stakeholders and public
3	Generosity
4	Serious engagement on sustainability agenda
5	Courage to make changes
6	Courage to express own voice/opinion
7	Advanced skill in deliberating and negotiating
8	Leadership skill
9	Empathy
10	Honest and trustworthy
11	Being open minded/openness
12	Self-motivated towards sustainability agenda and problem solving
13	Able to motivate other people towards sustainability agenda and problem solving
14	Understand and posses code of ethics or profession's responsibility towards the environment
15	Creative skill
16	Innovative skill
17	Entrepreneurship skill
18	Cooperative action skill
19	Conflict resolution skill
20	Able to work across discipline
21	Able to deal with uncertainty
22	Participatory skills
23	Competence in the planning and implementation of sustainability efforts
24	Critical thinking and reflection
25	Decision making skills
	System Thinking Capabilities
S/NO	
1	Assess the alternative concepts, designs and methods of practices which reflect holistic thinking
2	Interconnect the ecological, social and economic systems with sustainable development principles
3	Understand holistic/system thinking and analysis
4	Possess basic understanding of the interaction of natural and human system
5	Understand the bigger picture of significant aspect of sustainable development
6	Understand the meaning, goal and issues of sustainable development
	Anticipatory Capabilities
S/NO	
1	Identify the consequences of any decision/process/practice to the three pillars of sustainable development (social, environmental and economic)
2	Identify short and long term consequences of any decision or plan
3	Identify direct and indirect consequences to people and ecosystem
4	Able to think for the welfare of future generation
5	Take a long-term perspective
6	Vision for a better future
7	Able to show the degree of global consciousness as a consequence of present activities
8	Ability in foresighted thinking

S/NO	Normative Capabilities
1	Develop understanding of a variety of perspectives, value and beliefs and their implication to sustainability
2	Able to change the thought processes and values to develop ecologically sustainable culture
3	Competency in trans-cultural understanding and cooperation
4	Competency in distanced reflection on individual and cultural models
5	Value the diversity, environment and social justice

S/NO	Strategic Capabilities
1	Understand organization's financial strategy
2	Understand Life-cycle Cost (LCC) and Total Cost of Ownership (TCO) technique
3	Understand the design and construction issues related to property development practice
4	Develop organizations' sustainability strategies
5	Develop good relationship with the organization's top management
6	Familiar with the building systems manual and baseline performance of the building
7	Familiar with the method for buildings' tracking performance
8	Able to monitor and maintain equipment efficiency
9	Optimize the building and equipment operations
10	Specify the energy and environmental goals to associates suppliers and contractors
11	Familiar with local utility energy and water efficiency programs
12	Human resource development strategy
13	Environmental legislation
14	Procurement strategy
15	Corporate responsibility management system
16	Understand whole-life value concept

Adapted from (Sarpin, Yang and Xia, 2016).

3. METHODOLOGY

In this study, the questionnaire used by Sarpin, Yang and Xia, (2016) in her study on "people capabilities for the promotion of sustainability in facilities management practice in Malaysia and Australia" was adopted apparently because of its comprehensiveness. However, minor modifications were made to complement the present study. The questionnaire was validated through a pilot survey with FM practitioners and academics before distribution to the respondents. The problems identified from the pre-test were therefore corrected and the expert certified that the survey instrument was adequately designed.

The final questionnaire consists of two sections: the respondents' background and the people capability factors categorized into - interpersonal capabilities, system thinking capabilities, anticipatory capabilities, normative capabilities and strategic capabilities. The respondents are to rank the people capability factors they consider important for the integration of green building features in facilities management practice in Nigeria, the question was structured on a five-point Likert scale from "not significant to very significant". The critical rating of the factors was benchmark at 4.5 out of 5.0 points representing "very significant". According to 2008 membership directory of the International Facility Management Association in Lagos, Nigeria (IFMA), there 700 members of the association. This figure represents the sample frame, out of this figure, a total of 150 questionnaires were purposely administered to FM practitioners in the study area. As at the cut-off date, a total of 84 questionnaires were received, this represents a response rate of 56%.

It was worth stating that 82 out of the 84 questionnaires received were appropriately completed and valid for the final analysis. The data collected were analyzed using the Statistical Package for Social Sciences (SPSS) 22.0 software. The tool was used to conduct descriptive analyses in terms of percentile distribution and mean score MS. The MS was adopted in ranking the people capability factors. The approach has been adopted in the study of Sarpin, Yang and Xia, (2016) and Abidoye and Chan (2016), among others. The estimation of the MS was performed by adopting the expression in Equation (1).

$$MS = \frac{5n_5+4n_4+3n_3+2n_2+1n_1}{N} \quad (1)$$

Where n is the score given by the respondents based on a five-point scale of 1–5 and N is the number of respondents that rated a variable.

4. RESULT AND DISCUSSION

4.1 Reliability test

The Cronbach's alpha was calculated to test the internal consistency of the scale in providing appropriate ratings for the listed factors. The Cronbach alpha's score ranges between 0 and 1, and a value close to 1 depicts a high reliability and internal consistency. According to Hair et al, (2010), a Cronbach alpha value that is above .70 is adequate. In this study, the Cronbach's alpha value was 0.712, which depicts robust internal consistency of the scale used and suggests that dependable data was attained.

4.2 Profiles of Responding Facilities Managers

This section of the study presents the profiles of the respondents in terms of their background discipline, educational qualifications and experience in FM industry. As provided in Table 2, in terms of respondents background discipline, majority were Engineers, representing 22%; Estate Surveyors and Valuers and Architects, each represents 15%; respondents in the academia represent 13%; Builders and Quantity Surveyors, each represent 11%; respondents who are core Facilities Managers, represent 7%; while others [such as: Land Surveyors; Directors; Property Lawyers; Town and Country Planners] represents 6%.

In terms of educational qualifications, the prevalent highest level of academic achievement of the respondents is the Bachelor degree/HND, representing 74%; followed by Master's degree, representing 11%. For the rest of the respondents, the highest levels of academic achievement are as follows: Certificate (4%); Diploma, representing 9%; and Doctorate (2%).

Table 2: Profiles of the Respondents

S/No	Professional Roles	Frequency	Percentage
1.	Architect	12	15
2.	Builders	9	11
3.	Facilities Managers	6	7
4.	Quantity Surveyors	9	11
5.	Estate Surveyors and Valuers	12	15
6.	Academicians/Researchers	11	13
7.	Engineers	18	22
8.	Others	5	6
	Total	**82**	**100**
	Highest Academic Qualification		
1.	Certificate	3	4
2.	Diploma	7	9
3.	HND/Bachelor Degree	61	74
4.	Master Degree	9	11
5.	Doctoral Degree	2	2
	Total	**82**	**100**
	Organization		
1.	Consultants	49	60
2.	Contractor	5	6
3.	Client	4	5
4.	Authority/Government Agency	5	6
5.	Manufacturer/Supplier	4	5
6.	Research/Academic Institution	12	14
7.	Building owner	3	4
	Total	**82**	**100**
	Experience in Facilities Management		
1.	<5 years	5	6
2.	5-10 years	12	15
3.	11-15 years	34	41
4.	16-20 years	18	22
5.	>21 years	13	16
	Total	**82**	**100**

As also divulged in Table 2, in terms of the organizations respondents presently work for: 60% are consultants in private firms; 14% of the operative within the academic settings; 6% each operative in construction firms and government agencies; 5% each are clients and those from the manufacturing industry, while building owners represent 4%. Furthermore, in terms of the distribution of respondents by their experience in facilities management practice, around 41% had between 11-15 years experience in the industry; 22% had between 16-20 years experience; 16% had more than 21 years' experience, 15% had between 5-10 years experience; while only 6% of the respondents had less than 5 years experience. Summarily, 79% of the respondents have over 11 years experience in the industry. This implies that facilities management is still evolving in Nigeria.

This result reflects the summation of Adewunmi, Omirin and Koleoso (2012 p.351) that "facilities management in corporate organisations in Nigeria is a relatively new field and was introduced as a result of the relocation and space management exercises of two foremost multinational oil companies namely Chevron and Mobil in the early eighties. The authors further opine that FM is practiced in government agencies, corporations and non-profit institutions that have realized that management of corporate assets using traditional organizational structures is inadequate". Thus, the result of this present study can be assumed relatively reliable as respondents' length of working experience in the facilities management sector is a defining index of their knowledge regarding facilities management practices and reliability of the study.

4.3 Perception of the Respondents on People Capability Factors for the Integration of Green Building Features in FM Practices

This section presents the perception of the respondents on people capability factors for integration of green building features in FM practices. As stated earlier, five people capability factors were identified, these include: interpersonal; anticipatory; system thinking; normative; and strategic capabilities. There are several factors under each of the capabilities. The mean importance ratings were calculated to identify the most significant factors among the identified factors under each of the capabilities based on a five-point Likert scale comprised of 1 = "very insignificant", 2 = "insignificant", 3 = "neutral", 4 = "significant" and 5 = "very significant".

4.3.1 Respondents' Rating of Interpersonal Capabilities Factors for the Integration of Green Building Features in FM Practices

This section presents the respondents' rating of interpersonal capabilities factors for integration of green building features in FM practices. As shown in Table 3; 14 out of 25 factors under the interpersonal capabilities were perceived by the respondents as "very significant"; while the remaining 11 were perceived as "significant". Those perceived as "very significant" were: "collaboration skills for constructive involvement with other professional, stakeholders and public", it was ranked 1st with mean score of 4.7092; ranked 2nd was "self-motivated towards sustainability agenda and problem solving" with a mean score of 4.6355; "able to motivate other people towards sustainability agenda and problem solving" was ranked 3rd with a mean score of 4.6087.

Furthermore, in 4th position was "able to work across discipline" with a mean score of 4.5908; "participatory skills was ranked 5th with mean score of 4.5800; in 6th position was "competence in the planning and implementation of sustainability efforts" with a mean of 4.5743; ranked 7th was "critical thinking and reflection" with a mean score of 4.5708; 8th position was "cooperative action skill" with a mean score of 4.5643; ranked 9th was "leadership skill" with a mean score of 4.5590; "communication skill for constructive involvement with other professional, stakeholders and public" was ranked 10th with a mean score of 4.5180; "decision making skills" was ranked 11th with a mean score of 4.5425; "innovative skill" was ranked 12th with a mean score of 4.5355; "creative skill" was ranked 13th with a mean score 4.5200; while "understand and possess code of ethics or profession's responsibility towards the environment" was ranked 14th with a mean score of 4.5185. As stated earlier, all the remaining 11 factors under interpersonal capability were significant.

Table 3: Respondents' Rating of Interpersonal Capabilities Factors for Integration of Green Building Features in FM practices

S/No	Interpersonal Capabilities	Mean	N	Rank	Remarks
1	Communication skill	4.5180	82	10th	Very Significant
2	Collaboration skills	4.7092	82	1st	Very Significant
3	Generosity	3.9078	82	25th	Significant
4	Serious engagement on green building program	4.0878	82	22nd	Significant
5	Ability to make changes	4.3983	82	16th	Significant
6	Ability to express own voice/opinion	4.4900	82	15th	Significant
7	Advanced skill in deliberating and negotiating	4.1777	82	21st	Significant
8	Leadership skill	4.5590	82	9th	Very Significant
9	Empathy	4.0034	82	24th	Significant
10	Honest and trustworthy	4.3008	82	17th	Significant
11	Open minded	4.2850	82	18th	Significant
12	Self-motivated towards green building and problem solving	4.6355	82	2nd	Very Significant
13	Ability to motivate other people towards green building agenda and problem solving	4.6087	82	3rd	Very Significant
14	Understand and possess code of ethics or profession's responsibility towards the environment	4.5185	82	14th	Very Significant
15	Creative skill	4.5200	82	13th	Very Significant
16	Innovative skill	4.5355	82	12th	Very Significant
17	Entrepreneurship skill	4.1008	82	23rd	Significant
18	Cooperative action skill	4.5633	82	8th	Very Significant
19	Conflict resolution skill	4.1988	82	20th	Significant
20	Able to work across discipline	4.5908	82	4th	Very Significant
21	Able to deal with risk and uncertainty	4.2408	82	19th	Significant
22	Participatory skills	4.5800	82	5th	Very Significant
23	Competence in the planning and implementation of sustainability efforts in relation to green building	4.5743	82	6th	Very Significant
24	Critical thinking and reflection	4.5708	82	7th	Very Significant
25	Decision making skills	4.5425	82	11th	Very Significant

4.3.2 Respondents' Rating of System Thinking Capabilities Factors for the Integration of Green Building Features in FM Practices

This section presents the respondents' rating of system thinking capabilities factors for integration of green building features in FM practices. As shown in Table 4; there are six factors under this capability, out of these six factors, three were perceived by the respondents as "very significant" while the remaining three were "significant". Those factors that were "very significant" are: "understand the meaning, goal and issues of green building development" was ranked 1st with a mean score of 4.664; ranked 2nd was "understand the bigger picture of significant aspect of green building development" with a mean score of 4.6308; in 3rd position was "interconnect the green building features with FM practices" with a mean score of 4.6003. "Assess the alternative concepts, designs and methods of practices which reflect holistic thinking"; understand holistic/system thinking and analysis" and "possess basic understanding of the interaction of natural and human system" are all significant with mean scores of 4.4655; 4.4230 and 4.3525 respectively.

Table 4: Respondents' Rating of System Thinking Capabilities Factors for Integration of Green Building Features in FM practices

S/No	System Thinking Capabilities	Mean	N	Rank	Remarks
1	Assess the alternative concepts, designs and methods of practices which reflect holistic thinking	4.4655	82	4th	Significant
2	Interconnect the green building features with FM practices	4.6003	82	3rd	Very Significant
3	Understand holistic/system thinking and analysis	4.4230	82	5th	Significant
4	Possess basic understanding of the interaction of natural and human system	4.3525	82	6th	Significant
5	Understand the bigger picture of significant aspect of green building	4.6308	82	2nd	Very Significant
6	Understand the meaning, goal and issues of green building development	4.6664	82	1st	Very Significant

4.3.3 Respondents' Rating of Anticipatory Capabilities Factors for Integration of Green Building Features in FM practices

This section presents the respondents' rating of anticipatory capabilities factors for integration of green building features in FM practices. There are eight factors under this capability, out of these eight factors, seven were perceived by the respondents as "very significant" while the remaining one was "significant". As shown in Table 5; those factors that were "very significant" are: "take a long-term perspective of integrating green building features" was ranked 1st with a mean score of 4.7985; ranked 2nd was "vision for a better future based on green building features" with a mean score of 4.7508; this is followed by "identify the consequences of any decision/process/practice to the green building features" with a mean score of 4.6909; in 4th place was "identify direct and indirect consequences to people, process and place" with a mean score of 4.6233; occupying the 5th position was "able to think for the welfare of future generation" with a mean score of 4.5895; "ability in foresighted thinking" was ranked 6th with a mean score of 4.5350; while "identify short and long term consequences of any decision or plan for the development of green building was ranked 7th with a mean score of 4.5281. The only "significant" factor was "able to show the degree of global consciousness as a consequence of present activities", and ranked 8th with a mean score of 4.4509.

Table 5: Respondents' Rating of Anticipatory Capabilities Factors for Integration of Green Building Features in FM practices

S/No	Anticipatory Capabilities	Mean	N	Rank	Remarks
1	Identify the consequences of any decision/process/practice to the green building features	4.6909	82	3rd	Very Significant
2	Identify short and long term consequences of any decision or plan on green building development	4.5281	82	7th	Very Significant
3	Identify direct and indirect consequences to people, process and place	4.6233	82	4th	Very Significant
4	Able to think for the welfare of future generation	4.5895	82	5th	Very Significant
5	Take a long-term perspective of green building features	4.7985	82	1st	Very Significant
6	Vision for a better future based on green building features	4.7508	82	2nd	Very Significant
7	Able to show the degree of global consciousness as a consequence of present activities	4.4509	82	8th	Significant
8	Ability in foresighted thinking in line with the benefits of green building	4.5350	82	6th	Very Significant

4.3.4 Respondents' Rating of Normative Capabilities Factors for Integration of Green Building Features in

FM Practices

This section presents the respondents' rating of normative capabilities factors for integration of green building features in FM practices. There are five factors under this capability, out of these five factors, three were perceived by the respondents as "very significant" while the remaining two were "significant". As shown in Table 6; those factors that were "very significant" are: "develop understanding of a variety of perspectives, value and beliefs and their implication to green building development", this factor was ranked 1st with a mean score of 4.5554; ranked 2nd was "able to change the thought processes and values to develop green building culture" with a mean score of 4.5308; ranked 3rd was "value the diversity, environment and social justice in relation to green building development" with a mean score of 4.5003. Factors that were "significant" were: "competency in trans-cultural understanding and cooperation", this was ranked 4th with a mean score of 4.3853; in 5th place was "competency in distanced reflection on individual and cultural models" with a mean score of 4.2890.

Table 6: Respondents' Rating of Normative Capabilities Factors for Integration of Green Building Features in FM practices

S/No	Normative Capabilities	Mean	N	Rank	Remarks
1	Develop understanding of a variety of perspectives, value and beliefs and their implication to green building development	4.5554	82	1st	Very Significant
2	Able to change the thought processes and values to develop green building culture	4.5308	82	2nd	Very Significant
3	Competency in trans-cultural understanding and cooperation	4.3853	82	4th	Significant
4	Competency in distanced reflection on individual and cultural models	4.2890	82	5th	Significant
5	Value the diversity, environment and social justice in relation to green building development	4.5003	82	3rd	Very Significant

4.3.5 Respondents' Rating of Strategic Capabilities Factors for Integration of Green Building Features in FM practices

This section presents the respondents' rating of strategic capabilities factors for the integration of green building features in FM practices. There are sixteen factors under this capability, out of these sixteen factors, thirteen were perceived by the respondents as "very significant" while the remaining three were "significant". As shown in Table 7; those factors that were "very significant" are: "understand Life-Cycle Cost (LCC) and Total Cost of Ownership (TCO) technique", was ranked 1st with a mean score of 4.8509; "understand whole-life value concept" was ranked 2nd with a mean score of 4.8419; in 3rd place was "understand the design and construction issues related to green building and FM practice" with a mean score of 4.8265; ranked 4th was "procurement strategy for green building development" with a mean score of 4.8111; in 5th place was "develop organizations' green building integration strategies" with a mean score of 4.7365; ranked 6th was "understand organization's financial strategy" with a mean score of 4.7180; "develop good relationship with the organization's top management was ranked 7th with a mean score of 4.6983; in 8th position was "optimize the building and equipment operations" with a mean score of 4.6834; in 9th position was "able to monitor and maintain equipment efficiency" with a mean score of 4.6345; ranked 10th was "familiar with the building systems manual and baseline performance of the building" with a mean score of 4.5987; "familiar with the method for buildings' tracking performance" was ranked 11th with a mean score of 4.5562; "familiar with local utility energy and water efficiency programs" was ranked 12th with a mean score

of 4.5450; while in 13th position was "environmental legislation" with a mean score of 4.5087 and "specify the energy and environmental goals to associates suppliers and contractors" was ranked 14th with a mean score of 4.5008. The last two factors were "significant". These are: in 15th position was "human resource development strategy" with a mean score of 4.3355; and in 16th place was "corporate responsibility management system" with a mean score of 4.2895.

Table 7: Respondents' Rating of Strategic Capabilities Factors for Integration of Green Building Features in FM practices

S/No	Strategic Capabilities	Mean	N	Rank	Remarks
1	Understand organization's financial strategy	4.7180	82	6th	Very Significant
2	Understand Life-cycle Cost (LCC) and Total Cost of Ownership (TCO) technique	4.8509	82	1st	Very Significant
3	Understand the design and construction issues related to green building development practice	4.8265	82	3rd	Very Significant
4	Develop organizations' green building development strategies	4.7365	82	5th	Very Significant
5	Develop good relationship with the organization's top management	4.6983	82	7th	Very Significant
6	Familiar with the building systems manual and baseline performance of the building	4.5987	82	10th	Very Significant
7	Familiar with the method for buildings' tracking performance	4.5562	82	11th	Very Significant
8	Able to monitor and maintain equipment efficiency	4.6345	82	9th	Very Significant
9	Optimize the building and equipment operations	4.6834	82	8th	Very Significant
10	Specify the energy and environmental goals to associates suppliers and contractors	4.5008	82	14th	Significant
11	Familiar with local utility energy and water efficiency programs	4.5450	82	12th	Very Significant
12	Human resource development strategy	4.3355	82	15th	Significant
13	Environmental legislation in relation to green building development	4.5087	82	13th	Very Significant
14	Procurement strategy for green building development	4.8111	82	4th	Very Significant
15	Corporate responsibility management system	4.2895	82	16th	Significant
16	Understand whole-life value concept	4.8419	82	2nd	Very Significant

5. DISCUSSION

From the results above, and as expected the respondents ominously rank the factors necessary to integrate green building features in FM practices as "significant and very significant". These results suggest that FM practitioners are aware of the lack of people capabilities as a challenge to the integration of green building features in the Nigerian FM industry. The critical rating of the factors was benchmark at 4.5 out of 5.0 points representing "very significant". From the 60 factors included in the questionnaire under the broad classification of people capabilities, the respondents ranked 41 factors as "very significant". Overall, the top 5 ranked factors were: "understand the LCC and TCO technique" ranked 1st, followed by "understand the whole-life value concept" ranked 2nd, ranked 3rd was "understand the design and construction issues related to green building development practice", followed by "procurement strategy for green building development" in 4th position and the 5th ranked factor was "take a long-term perspective of green building features". Interestingly, the top 4 ranked factors were under the strategic capability factors. These results corroborate with the findings of Hodges (2005); Sarpin, Yang and Xia, (2016); and Khiyou and Mohamed (2015; 2018), where the authors recognized the key roles performed by LCC and the Whole Cycle Costing Analysis at the design, operation and maintenance life of building assets. The outcome of this study also supports the yearnings of Adejumo, Adewunmi and Omirin (2009) and Adewunmi Omirin and Koleoso (2012) that for integration of environmental management, facilities managers must develop their practices at the strategic level. Adejumo, Adewunmi and Omirin (2009) however opined that a substantial number of facilities managers do not have a seat at board level in the Nigerian corporate organizations and this also constitute a major barrier to the integration of green initiates to organizations by facilities management practitioners. Since, there are 41factors that were "very significant in this study", it is imperative to develop a framework for the Nigerian facilities management industry to serve as a training guide for facilities management practitioners in Nigeria. It is hoped that the framework will improve the integration of green building features in facilities management practice in Nigeria.

Based on the questionnaire survey results, a conceptual framework for integration of green building features in facilities management practice in Nigeria is developed, as shown in Figure 1. In the framework, the critical factors are grouped into five categories, namely, strategic capabilities, anticipatory capabilities, interpersonal capabilities, normative capabilities and system thinking capabilities. Thus, facilities managers can use this framework to enhance people capability in their quest towards ensuring the integration of green building features in facilities management practice in Nigeria.

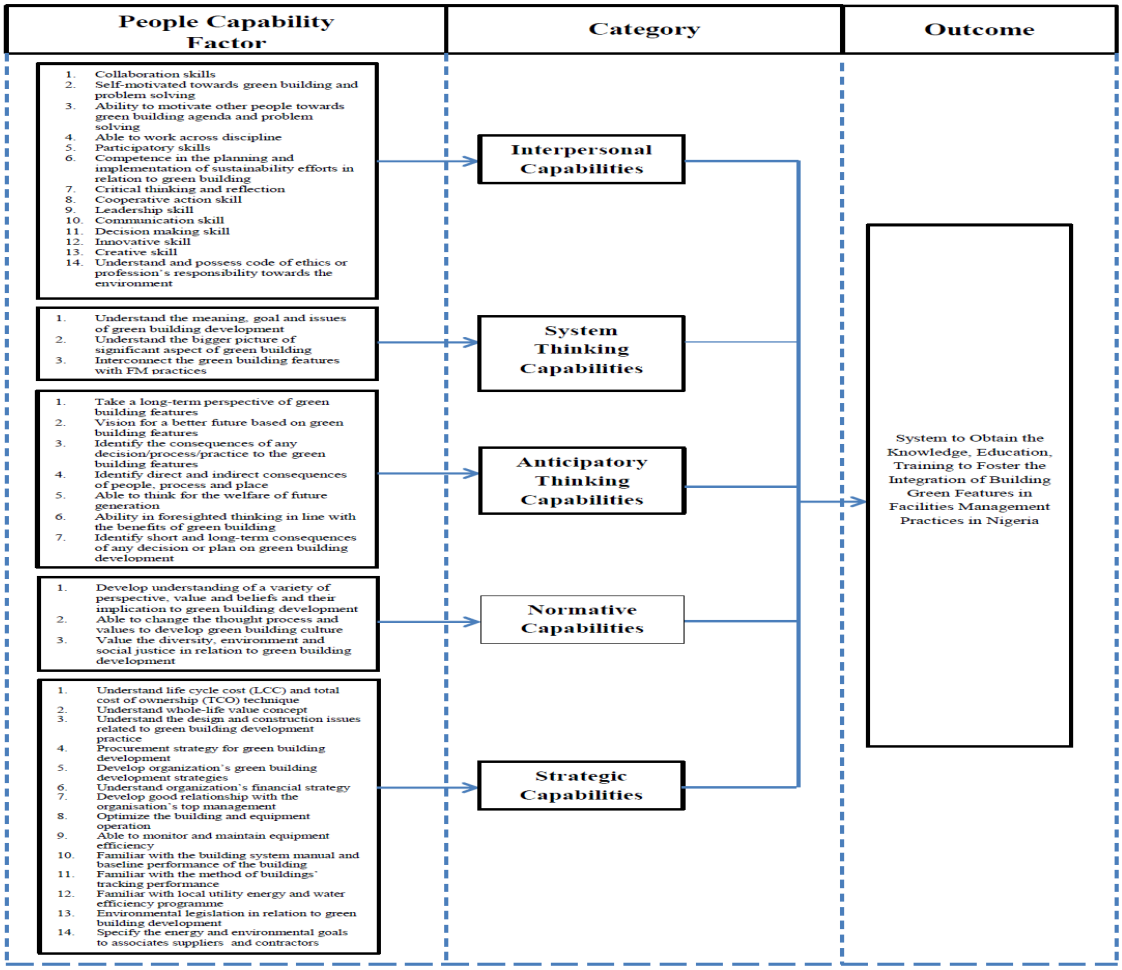

Figure 1: A People Capability Conceptual Framework for the Integration of Green Building Features in Facilities Management Practice in Nigeria

5. CONCLUSION AND FURTHER RESEARCH

This study set-out to identify the critical people capabilities factors that will promote the integration of green features in buildings from the view of professionals embroiled in the facilities management practice in Nigeria. Extant literature review revealed five broad categories of people capability needed for the integration of green features in building by facilities managers as: interpersonal, system thinking, anticipatory, normative and strategy capabilities. Sixty factors were identified across the five capabilities categories. These factors were used for the development of a set questionnaire. The ensuing questionnaire was randomly administered to facilities managers in Lagos State. Results revealed forty-one critical factors as "very significant" for promoting the integration of green features in buildings in Nigeria. The factors were encapsulated into a conceptual people capability conceptual framework to furnish facility managers with the precise understanding, to continue education and training adept for the integration of green features in buildings in Nigeria. Further research is still required, especially the examination whether all of the respondents ranked the 41 critical people capability factors in a similar manner.

The Kendall's Coefficient Concordance will be calculated to address this issue. Kendall's Coefficient Concordance can establish the level of agreement of facilities manages with the critical factors but cannot investigate whether there were major differences in the respondents' rankings of the significant level. Research is therefore still needed; the Kruskall-Wallis one way ANOVA is best fit to address this issue.

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