

MANAGEMENT OF PUBLIC REAL ESTATE FACILITIES: THE MEDIATION OF OUT-SOURCING ON STANDARDS, EFFICIENCY AND LONGEVITY

KAZEEM BOLAYEMI AKINBOLA *PhD, FCIPM, CPMP, ANIVS, RSV*
DEPT. OF ESTATE MANAGEMENT AND VALUATION,
THE FEDERAL POLYTECHNIC, ILARO, NIGERIA.
kazeem.akinbola@federalpolyilaro.edu.ng; +2348030494742

AND

TOLUWALASE GREGORY OLUWOLE *M.Tech, ANIVS, RSV*
DEPT. OF ESTATE MANAGEMENT AND VALUATION,
THE FEDERAL POLYTECHNIC, ILARO, NIGERIA.
toluwalase.oluwole@federalpolyilaro.edu.ng; +2348181535059

ABSTRACT

There are growing concerns among facilities stakeholders, which have compelled them to embrace outsourcing as a veritable tool of solving myriads of deficiencies, with which other traditional management strategies of yester-decades that were devised for managing facilities were shrouded. Hence, what remains a gap among other things, is the exactitude of the impacts of outsourcing strategy on the management of public real estate facilities, in terms of standard of delivery of FM functions and tasks, efficiency of resources being used to deliver the FM functions and most importantly the longevity of various FM outcomes, as they border on sophistication of the FM outputs and the levels of satisfaction to all stakeholders, especially users and owners of public facilities and finally the extent of durability of the FM outcomes. It is in a bid to investigate this situation, that this study was conducted. Quantitative approach was employed through administration of 390 copies of questionnaire among directly concerned individuals, such as owners, users, operators, controllers, supervisors and senior officials as well as indirectly concerned individuals, such as outsourced facilities management consultants and main / sub-contractors of 35 different federal and state owned real estate facilities, spanning educational and medical use types, across the six states of the southwestern Nigeria. A total of 346 copies of questionnaire were retrieved, translating to 88.72% of distribution-retrieval rate, out of which a total 331 copies of questionnaire were found to be valid. This research made use of smart PLS version 2.0 sandwiched with AMOS' structural equation modelling version 18.0 for analysing the data. The results showed amongst other things that all the 5 structural paths that were theorized and hypothesized for all the four variables, which are outsourcing, delivery standards, resource efficiency and longevity of FM outcomes are positively significant directionally at 99.5% confidence level, with cronbach alpha value of 0.979 and model estimate 0.985 for resource efficiency being the

variable with the highest interrelationship with outsourcing at p value of 0.013 which resultantly mediate the duo of standards of delivery and resource efficiency and thus impacts positively on the longevity of FM outcomes. The study concluded that the mediating impacts of the contemporary strategy of outsourcing on the standards of FM services that are being delivered, together with the efficiency of resources that are being employed for FM operations, as well as resultant potency on the longevity of FM outcomes are discernible and full of promise into having an expanding benefits to public real estate facilities for decades to come. Finally, it was recommended among other things that efforts should be made at making public facilities solution providers to be more compliant of statutory provisions, with a view to ensuring that outsourced facilities operations are carried out to standards, thus sustaining the efficiency of resources and ultimately longevity of FM outcomes.

Keywords: Facilities Management, Public Real Estate, Outsourcing, Standards, Efficiency, Longevity

1.0 INTRODUCTION

Incontrovertibly, there exists a correlation between the wellness of built real estate facilities and the quality of services being rendered by operational users of such facilities on the one hand, as well as level of productivity, in terms of quantum of services and creativity that are required of the facilities managers on the other hand. Emerging scenarios from the observations of stakeholders as well as empirical outputs from scholars, have sufficiently confirmed the sub-functional levels of results delivery in the management of public facilities through conventional strategies, such as directly operated facilities management units as well as other in-house bespoke management systems, albeit their below-the-desirable performances over the decades (Hightower and Highsmith, 2013). Immemorially, built real estate assets which manifest themselves in the guise of housing units, rank next to food in the order of arrangement in terms of priority among several needs of humans. Happenings of the 21st century have ushered in convoluted realities, which surround evolving multi-dimensional uses to which built real estate facilities,

which are otherwise referred to as housing are put. Among such uses is the public use with its diverse arrays of sub classifications, ranging from academic / educational, medical / health, military / security / defence, administrative / governmental, among others.

Furthermore, regrettably these built real estate facilities are often large with practice of management and maintenance, that are mostly being overloaded with varieties of requests from users and owners, to address facilities management needs through conventional in-house management units, which are largely found to be sub-functional, partly are to deploy appropriate FM solutions, increased and complex demographics of stakeholders that have one concern or the other with public built real estate, corruption and ineptitude with the associated vestiges, such as wilful delay in the discharge of facilities management functions, usage of fake or low-quality materials and / or consumables for FM services, etc (Bennett & Iossa, 2006). It is pertinent to note that shortcomings of the above situation have constantly rendered the conventional FM strategy such as in-house and

directly operated labour mechanisms very sub-functional, thus giving rise to the popularity of the contemporary strategy of outsourcing, which over the decades have proved to be of admirable performance levels, in terms of addressing some of the shortcomings of the conventional FM approach. Though, a curious mind then wonders how has public real estate facilities benefited in the areas of standard of FM services?, how has public real estate facilities been efficiently impacted by the usage of resources?, to what degree has the final FM outcome given desired level of durability and longevity in their respective finished FM products and services, as well as satisfaction to all stakeholders, through outsourcing as a strategy?.

Therefore, it is with a view to providing answers to the above research queries and ultimately, to achieving the main goal of gauging the strength of mediating roles of outsourcing, as a contemporary strategy on the trio of FM's standard of service delivery, efficiency of resources being used and ultimately the longevity of FM outcomes, with the resultant focus on addressing the litany of FM challenges that were unresolved by erstwhile FM strategy among others, that is the fulcrum around which this research revolves. Moreso, part of the objectives of this study is being operationalised, by establishing the degree to which the interrelationship among the three research variables, that is, the delivery standard, the resource efficiency and longevity of outcomes, is being mediated by the fourth variable, which is outsourcing, thus resulting into the evolution of a structural model.

2.0 LITERATURE REVIEW

Traditionally, over the past distant decades, provision for FM and its numerous derivatives had been in the form of in-house by any of FM, Property or Corporate Services departments of organisations, which was at such material historical time and dependent upon the size of the buildings and the scope of services to be rendered, which bottomlined the decision of the in-house department to arrange FM services from such infinitesimal as janitorials to as complex and multi-disciplinary team as managing technical, security and cleaning staff [IFMA, 2010]. The FM service delivery is still being seen as not adequately mature in the public buildings of so many government ministries, departments and agencies, though it could be convincingly said that the potential is huge, especially with the large economic growth rate and amount of property development that are abound, within which governments' several businesses are being conducted [Akinbola and Oluwole, 2019].

Essentially, management of facilities as a practice revolves around such bespoke tasks of coordinating the physicality of workplace, as well as people and job functions, together with process of an organisation, which encapsulates approaches that are of systematic and analytical in nature, with targets such as delivery of acceptable levels of services that are necessary for management, operations, maintenance and supporting of such facilities in an environment that is both qualitative and within appropriate cost elements, towards meeting and sustaining all the business requirement of an organisation [Bernard Williams Associates, 1994]. Also, Hendrickson and Au (1988) see management of facilities as the discipline of

planning, designing, constructing and managing of space, which includes all kind of structure, involving light operational buildings such as offices to giant process complexes such as petrol chemical plant.

Furthermore, it must be recognised that management of facilities transcends beyond the ordinary level of a mere subset of general management. It is being acknowledged as an important organisational fabric which complements and supports the management in the realisation of her goals, especially as it borders on the management and maintenance of the facilities including its constituent parts, up to a required level that will not only retain and enhance the value of the facilities as a parts of the organisation, but also seeks to create a safe, secured, functional and conducive working and living environment for all stakeholders (Asiabaka, 2008). These efforts are with a view to keeping or restoring every part of the facilities, be it public or private in the most efficient working order and in good state of repair, as well a means of projecting a good appearance or image for the organisation in general and the facilities in particular.

Also, it is pertinent to note that, all the reflections on what management of facilities is all about, as drawn from above definitions, have important variables such as management, workplace, people and process in tandem. This suggests that that FM is an encompassing term which collates altogether a diverse complexion of issues, for the advantages of the organisation towards achieving of standard of delivery of services, efficiency and effectiveness of resources as well as longevity of outcomes from facilities usage at an optimal combination of cost, quality and time (Enoma, 2005). IFMA [2010] posited that, there appears a

growing trend whereby organisations are made to concentrate on their primary business, thus the growing requirement to consider outsourcing of all support services, within which all FM services are categorised. This outsourcing trend was led by the US with Europe lagging approximately 5 to 10 years. It is to be further appreciated that in the last few years, outsourcing of FM has become more common in so many countries including Nigeria, Malaysia, and especially in Hong Kong, being an early innovator of FM outsourcing in the banking and financial services sector.

Along the same vein, outsourcing as a variant of private finance initiative, wherein the overall eminence of private consultancy outfit is felt in terms of provision of fund and expertise to salvage or brighten the existence of a public organisation, with the latter meeting up with contractual terms of payments at an agreed timeline for the service rendered by the former, with a mark-up for profit [Bennett and Iossa, 2006]. As a not-so- old invention which was though developed in the UK, but has been widely accepted in the real estate and construction industry all over the world. In a report, HM Treasury (2010) has it that outsourcing contracts cover most forms of public service provision, including health, education, defence, prisons and roads. It was estimated that, over the period 1998 to 1999 and 2003 to 2004, private sector investment in public services through outsourcing was between 10 and 13.5 per cent of total investment in public infrastructure, with 451 outsourcing projects covering construction and maintenance as well as management completed the public sector's provisioning of services contracts, which included 34 hospitals and 119

other medical and health schemes, as well as 239 new and refurbished schools [HM Treasury, 2010].

Additionally, it was opined by Bennett and Iossa (2006) that there exist two striking variants of outsourcing, which seek to address the inadequacies of conventional arrangement of management of facilities, be public and / or private. Foremost, the first variant typically involves the bundling of the maintenance and management design, financial and materials planning, procurement and operation of the facilities, which are contracted out to a consortium of private firms for a desired period of time, as low as 1 year and as long as any duration of years, for the rendering of facilities management services. Secondly, the other variant is a form of system, whereby the output of specifications is used, through which the government being the public facilities' owner specifies the service it wants, and some basic standards of requirements, but it leaves the consortium with control rights over how to deliver the service. HM Treasury (2010) alluded that the consortium reserves the privilege for the infrastructure facilities during the management contract period, during which it is allowed to execute innovative approaches to service delivery, as well as using the facilities for further income-yielding undertakings, in so far as such activities are not counterproductive.

Hence, it was also being espoused in the findings of Adewunmi *et al.* (2013) that conventional arrangement to management of facilities involves such differing components as may be peculiar to different stages of an infrastructure project, based on how such management contracts are entered into, significantly by awarding different

portions of the facilities management services to separate private firms. This strategy is thereafter followed by an input specification approach, with the government MDAs keeping their ownership of the facilities, both throughout the management contract period and after the contract ends (HM Treasury, 2010). But it has been argued out by many researchers into outsourcing and conventional arrangement to management of facilities, be it public and / or private, that the former provides a more superb facility management practice, especially after the completion of the construction process of any facility, either as the short-time owner of these facilities or not. It is noted in the works of Mohammed and Hassanain (2010) and Akinsola *et al* (2012) that, the outsourced management service provider simply tends to manage the facility better than it would have been handled by a government's department or internally driven management arrangement within MDAs, because the former is profit oriented and the only way they can keep their share of the facilities management market and also achieve their profit, is by ensuring the proper maintenance and efficient management of these facilities, so as to sustain all their targets in terms of vision and mission with their clients unlike the government's MDAs which on most cases are less driven for achievement of target oriented outcomes.

Finally, for inherent issues that underpin the focus of this research to be better understood, as well conceptualised for empirical efforts to be marshalled on them, there is every need to itemise the components that are embedded within each of the variables. Essentially, this is with a view to simplify the attainment of research main aim and associated objectives, by evolving literature

and empirical taxonomy, with a view to properly showing the undercurrents as a list of variables and constructs that were sieved from numerous literature reviews and ultimately those that

survived statistical and empirical phases of this research. The following in the table 1 is the taxonomy of literature and empirical survey, thus:

Table 1: Taxonomy of Research Components in Literature and Empiricism: Four Variables and Fifteen Constructs

S/N	Variables	S/N	Constructs
A	Independent1:Delivery Standard	1	StDel9 – Market Competitiveness
		2	StDel8- Regulation-Compliance Interaction
		3	StDel6- Sophistication of Deliverables
		4	StDel5- Deployment Architecture
B	Independent2:Resources Efficiency	1	ResEf4- Inexistent / Minimal Wastage
		2	ResEf3- Input-Output Balancing
		3	ResEf2- Adaptability / Adoptability Strength
		4	ResEf1- Cost Matrices Effectiveness
C	Mediating1:Out-Sourcing	1	OutScg5- Mission / Vision Realisation
		2	OutScg3- Management’s Benchmark Fulfilment
		3	OutScg2- Excellence and Branding
D	Dependent1:Longevity of FM Outcomes	1	LngFMOut7- Durability / Maintainability
		2	LngFMOut5- Appealing Relevance
		3	LngFMOut4- Continual Sophistication
		4	LngFMOut2- Commanding Aesthetics

3.0 MATERIALS AND METHODS

3.1 METHODOLOGY

Quantitative approach was employed by this research through the administration of 390 copies of questionnaire among directly concerned individuals, such as owners, users, operators, controllers, supervisors and senior officials as well as indirectly concerned individuals, such as outsourced facilities management consultants and main / sub- contractors of 35 different federal and state owned public assets and real estate facilities of educational and medical use types, across the six states of the southwestern Nigeria. A total of 346 copies of questionnaire were retrieved, translating to 88.72% of distribution- retrieval rate, out of which a total 331 copies of questionnaire were found to be valid. This research made use of smart PLS version 2.0 sandwiched with AMOS' structural equation modelling version 18.0 for analysing the data. Furthermore, the following under listed statistical efforts were taken to properly conduct the required analysis on the data, viz:

- a) The outer model was being giving initial analysis, in a bid to affirm the validity including the discriminant convergent validity, as well as reliability of the model that was to be generated, through the measurement of the attributes of multi-item constructs, and
- b) Thereafter, the structural model of the research was then estimated so as to gauge the size of the effect of mediating variable on independent and dependent variables, denoted by R^2 .
- c) Finally, establishment of goodness-of-fit, to predict the relevance of the structural model's variables, as well as the testing of hypotheses of

the associated interrelationship among the variables of the study, through process of bootstrapping, was done. The eventual model that emanated from the analysis was comprised of 15 latent constructs, which measured items that are involved in the four variables, that are of two independent, one mediating and one dependent, emphasising one form of interrelated connections or the other among the components of this research through content validity, in a bid to establish the extent to which all the proposed items of this research, in terms of 15 constructs and 4 variables are correctly and sufficiently measured by one another.

3.2 ANALYSIS

Stipulations for the employment of smart PLS and AMOS' structural equation modelling as tools for statistical analyses, require the gauging of the measurement model to establish the internal consistency, with a view to estimating the goodness-of-fit measures for all the research components. This effort is achieved via the followings, viz: ascertaining the reliability of the major components of the research, in terms of its variables as well as their associated items of latent constructs, together with those of research items' convergent, discriminant and content validity, as contained in tables 2, 3 and 4. It must be borne in mind that two sets of requirements were recommended in the determination of the validity and reliability of the measurement model (Hair, et al, 2006), with the test on validity focusing on the estimation of the efficiency of a measure to exactly assess an inherent concept, while test on reliability is geared towards the confirmation of consistency of the

tool of measurement tool in truly estimating what it was actually scheduled to gauge (Hair, et al, 2010).

Hence, reliability is established by observing each measure of the components of outer loadings, by retaining items that fall within loadings 0.40 and 0.70 (Hair et al., 2010). Specifically, this study has 22 items that were originally calibrated for testing, 7 of them displayed loadings that are below the specified minimum range, i.e. below 0.40. Therefore,

15 items which exhibited loadings between 0.799 and 0.955 were subsequently considered. Reliability as a test is gotten by internal consistency, is described to as the extent to which the same construct is estimated by scaled items. Composite reliability and Cronbach alpha are the mostly employed estimators for assessing the reliability of any research instrument (Bliess, 2000). Meanwhile, the SEM-PLS models employed composite reliability and Cronbach alpha criteria, as their admixture is a more potency technique for screening complex mediating interrelationships

involving more than two variables and several constructs (Burke and Dunlap, 2002).

Along the same vein, the estimation of reliability for each measure of research item for this study, was done through the conduction of coefficients of composite reliability, this is with the goal of confirming further the Cronbach alpha's presumption that without observance of the specific role of each loading, all research items stand to contribute similarly to measure their constructs (Costello and Osborne, 2011). Also, Hair *et al* (2010) has suggested that a sort of rule of thumb stipulates that the coefficient of composite reliability should be equal or higher than 0.70, which is being explained by test of internal consistency via coefficient of composite reliability. Table 2 captures the coefficients for each of the research constructs, with ranges from 0.895-0.979, thus affirming the sufficiency of internal consistency which has been satisfied by the outcomes of tests on composite reliability with none of the coefficients lesser than 0.70 level for all the items of measures for the four research variables.

Table 2: Reliability

Variables	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Explained (AVE)
StDel	0.953	0.959	0.949	0.678
ResEf	0.979	0.985	0.971	0.789
OutScg	0.895	0.919	0.931	0.875
LngFMOut	0.969	0.976	0.960	0.772

Furthermore, Hair *et al* (2010)) posits that convergent validity refers to “the explicitness with which level items represent the proposed latent construct as well as the degree to which they correlate with other measures of the same construct. A measure is definite when it is considered to be convergent as a result of item loadings being of interrelationship with latent construct that exhibits value greater than 0.50. In quantitative research,

there exist three principles for the measurement of convergent validity, they are as follows, viz:

- i. The composite reliability of each item must be greater than 0.70;
- ii. There must be adequate level of significance for factor loadings of each item;
- iii. The analysis of variance explained must be above 0.50 value.

Table 3: Composite Reliability Loadings

Constructs	StDel	ResEf	OutScg	OutLngFM
StDel12	12.049			
StDel8	12.435			
StDel5	12.843			
StDel3	10.442			
ResEf4		12.436		
ResEf3		11.983		
ResEf9		12.844		
ResEf7		12.014		
OutScg			11.721	
OutScg			12.376	
OutScg			11.970	
LngFMOut				13.484
LngFMOut				13.021
LngFMOut				13.319
LngFMOut				13.553

Furthermore, discriminant validity test was performed as suggested by Byrne (2010) to affirm the quantum of dissimilarities that exists among the various constructs of the same research’s variables.

The more the value of discriminant validity, the greater the distinction that exists among variables in terms of constructs’ strength, contents, impacts, directionality, nature, etc. The discriminant validity

for this research was obtained by assessing the square roots of the AVE, which by specifications must be greater than the correlations among the

research’s latent variables (Hair, *et al*, 2006; Brachos *et al*, 2007).

Table 4: Discriminant Validity

Variables	StDel	ResEf	OutScg	LngFMOut
StDel	0.910			
ResEf	0.866	0.877		
OutScg	0.885	0.861	0.904	
LngFMOut	0.780	0.779	0.749	0.865

Therefore, after having established a measurement model, next action is the estimation of the structural model, so as to evolve an overall relation with a model. Moreover, immediately data reproduction which necessitates the deployment of PLS for path models, goodness-of-fit criterion is considered unsuitable, as it misses the ability to differentiate among models that are valid and invalid ones. Nevertheless, latest findings have confirmed that a

two-step procedure can be performed by researchers to estimate and report the paths of PLS-SEM results (Hair *et al.*, 2010). This is thereafter being followed by the assessment of structural model for this study, by employing the process of bootstrapping among several samples, with a view to examining the significance of roles being played by the coefficients of structural paths as displayed in table 5.

Table 5: The Structural Paths of Direct Relationships Among The Variables

Variable Paths	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
OutScg -> StDel	1.285	1.277	0.057	22.163	0.001
OutScg -> ResEf	0.427	0.427	0.176	2.402	0.013
StDel-> OutLngFM	0.459	0.260	0.066	6.785	0.000
ResEf -> OutLngFM	0.185	0.189	0.177	5.055	0.005
OutScg-> OutLngFM	0.205	0.207	0.155	4.329	0.000

Thence, the power of prediction for the endogenous variables of this research can be analysed through R^2 . Those non-significant variables are the ones that are closer to 0. Accuracy and precision in the strength of prediction is exhibited within the ranges of 0 and 1 in the value of R^2 . The values of R^2 such as 0.25, 0.50 and 0.75 are considered weak, fair and considerable

respectively. It is pertinent to note that the values of R^2 evolved for this research are 0.832 and 0.368 in OutScg and LngFMOut respectively. These results indicate that there exist almost 83.2% of variation in the mediating variable OutScg as well as 36.8% of variation in the dependent variable LngFMOut, which are described by the two independent variables StDel and ResEf.

Table 6.R-square

Variables	R Square
OutScg	0.832
LngFMOut	0.368

Furthermore, it is to be stressed that this research's structural model was performed for fit statistics of the measurement model for the confirmatory and composite factor analyses of the fifteen constructs that are comprised of the four variables for this research. This step undoubtedly has indicated the capability of Smart PLS-SEM model to replicate a matrix that signposts an observed interrelationship (Frankfort-Nachmias & Nachmias, 2008). In addition to this, the indices that were evolved have shown how the goodness of the gathered data have sufficiently described the respondents that were sampled. The specifications for accepting SEM and Smart PLS's parameters were observed in generating the structural model, these were later cross-referenced for relevant theoretical standpoints for the first independent variable of this research, which is StDel and its latent constructs, these are StDel9,

StDel8, StDel6 and StDel5, together with the second independent variable and its latent constructs, which are ResEf4, ResEf3, ResEf2 and ResEf1. Also, strength of hypothesized paths and regression weight for this research was given closer consideration, as it impacts upon the overall structural model that captures the two independent variables (StDel and ResEf), one mediating variable (OutScg) and dependent variable (LngFMOut) on the one hand, together with their fifteen latent constructs on the other hand, as represented by StDel9, StDel8, StDel6 and StDel5; ResEf4, ResEf3, ResEf2 and ResEf1; OutScg5, OutScg3 and OutScg2; LngFMOut7, LngFMOut5, LngFMOut4 and LngFMOut2, which were contained in Figure 1, as well as their fit statistics that are being displayed in Table 7.

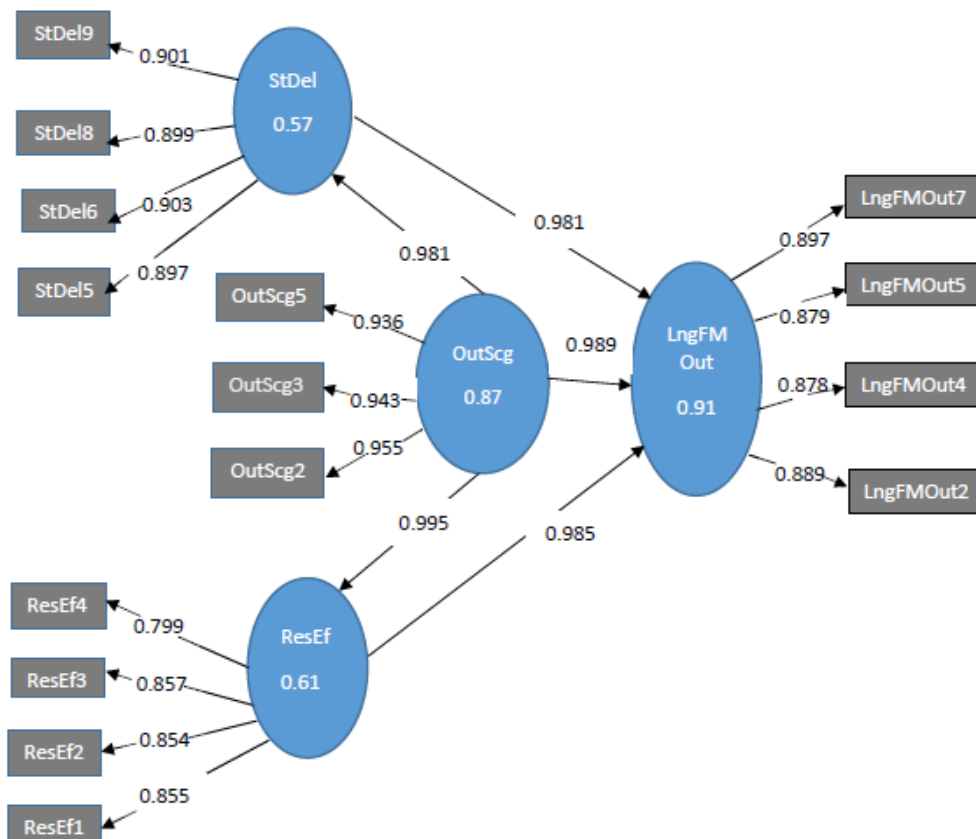


Figure 1: Full Research Structural Model

The various indices for overall structural model of this research is hereby being displayed in table 7. 1.58 was gotten for the normed chi-square of the research’s structural model, which is considered to be within the acceptable threshold. The confirmatory factor index is 0.98 which is just within the acceptable stipulation of >0.90. The acceptable requirement for RMSEA, which is < 0.08 is hereby being achieved by the 0.06 that was gotten and the

Lo90 is 0.06 which is greater than the recommended 0.05, while the PCLOSE is 0.6 which is established within threshold of >0.05. Hence, the structural model was assessed based on the statistics that were established as contained in table 7, which lead to the acceptance of the full structural model, having been found to have exhibited an acceptable model fit with all model fit indices that are well within the recommended thresholds of the literature.

Table 7: Model Fit Statistics for the Research Full Structural Model

		Acceptance Levels for						
		Model Fit Statistics.						
Model CFA Results		Remarks	Items	12-30 or >30	Model CFA Results	Remarks		
X ²	= 794.06	Admissible	X ² /df	= <3.0	X ² /df	= 1.578 Admissible		
Df	= 509	Admissible	CFI	= >0.80	CFI	= 0.986 Admissible		
P(***)	= 0.000	Admissible	RMSA	= <0.08	RMSEA	= 0.045 Admissible		
Items	= 15	Admissible	LO90	= Close to 0	LO90	= 0.066 Admissible		
			PCLOE	= >0.05	PCLOSE	= 0.055 Admissible		
Factor Loadings								
N	Items		Construct	Estimate	C.R	P	SMC	Remark
1	StDel9	<-	StDel	0.901	12.049	***	0.65	Stipulations are attained
2	StDel8	<-	StDel	0.899	12.435	***	0.62	Stipulations are attained
3	StDel6	<-	StDel	0.903	12.843	***	0.74	Stipulations are attained
4	StDel5	<-	StDel	0.897	10.442	***	0.65	Stipulations are attained
5	REGRESSION WEIGHT OF StDel CONSTRUCTS ON StDel VARIABLE = 0.57							
6	ResEf4	<-	ResEf	0.799	12.436	***	0.76	Stipulations are attained
7	ResEf3	<-	ResEf	0.857	11.983	***	0.67	Stipulations are attained
8	ResEf2	<-	ResEf	0.854	12.844	***	0.75	Stipulations are attained
9	ResEf1	<-	ResEf	0.855	12.014	***	0.71	Stipulations are attained
11	REGRESSION WEIGHT OF ResEf CONSTRUCTS ON ResEf VARIABLE = 0.61							
12	OutScg5	<-	OutScg	0.936	11.721	***	0.88	Stipulations are attained
13	OutScg3	<-	OutScg	0.943	12.376	***	0.72	Stipulations are attained
14	OutScg2	<-	OutScg	0.955	11.970	***	0.85	Stipulations are attained
15	REGRESSION WEIGHT OF OutScg CONSTRUCTS ON OutScg VARIABLE = 0.87							
16	LngFMOut7	<-	LngFMOut	0.897	13.484	***	0.83	Stipulations are attained
17	LngFMOut5	<-	LngFMOut	0.879	13.021	***	0.80	Stipulations are attained
18	LngFMOut4	<-	LngFMOut	0.878	13.319	***	0.79	Stipulations are attained
19	LngFMOut2	<-	LngFMOut	0.889	13.553	***	0.74	Stipulations are attained
24	REGRESSION WEIGHT OF LngFMOut CONSTRUCTS ON LngFMOut VARIABLE = 0.91							
25	THE STRENGTH OF RELATIONSHIP BETWEEN OutScg AND StDel							= 0.981
26	THE STRENGTH OF RELATIONSHIP BETWEEN OutScg AND ResEf							= 0.995
27	THE STRENGTH OF RELATIONSHIP BETWEEN StDel AND OutLngFM							= 0.980
28	THE STRENGTH OF RELATIONSHIP BETWEEN ResEf AND OutLngFM							= 0.985
29	THE STRENGTH OF RELATIONSHIP BETWEEN OutScg AND OutLngFM							= 0.989
OVERALL STRUCTURAL MODEL FOR THIS RESEARCH IS HEREBY ACCEPTED								

The structural model is captured to possess ability to explain 84% of the variance in the longevity of facilities outcomes, which is furthered by 77% of variance in outsourcing as an FM strategy, efficiency of resources employed in FM operations are explained 55% of variance and finally 57% is being explained in the area of standards of delivery of FM services. It must be stressed that the

observed data sufficiently and correctly represent the structural model that was birthed for the research. Therefore, the variance further explained the research challenges it focused upon, having provided evidence-based field data that bottom-lined the overall research assessment and thus supports the validity of the structural model.

Table 8: Analyses of Variance Explained for The Structural Model.

S/N	Research Main Variables Whose Paths Determine the Structural Model	SMC
1	Delivery Standards (StDel)	0.57
2	Resources Efficiency (ResEf)	0.61
3	Outsourcing (OutScg)	0.87
4	Longevity of FM Outcome (LngFMOut)	0.91

Finally, it is pertinent to note that the implications of research as well as depicted by its structural model is showcased by inherent strength that is laced within the regression weight of each structural paths of the model, which is gotten by performing the final statistical test in assessing the impact that each of the constructs and variables has over one another. Hence, table 9 shows the strength of the various paths that are encompassed in the longevity of FM outcomes (LngFMOut). Out of

5 structural paths that were theorized and hypothesized. Also, all the five theorized and hypothesized structural paths of this research are positively significant directionally at 99.5% confidence level (Vogt *et al*, 2005). Therefore, the structural model of this research is being accepted and thus being encapsulated by hypothesis testing, which reaffirms the empirical result of the overall assessment of the sample date for the structural model.

Table 9: Structural Paths of The Overall Research Model and Their Strength.

Variables	Path	Variables	Estimate	S.D	C.R	Labels
OutS	->	StDel	0.981	0.057	12.765	Significant
OutS	->	ResEf	0.995	0.176	13.167	Significant
StDel	->	OutLng	0.980	0.066	11.105	Significant
ResEf	->	OutLng	0.985	0.177	11.506	Significant
OutS	->	OutLng	0.989	0.155	11.827	Significant

3.3 INTERPRETATION OF RESULTS AND SUMMARY OF FINDINGS

1. **StDel9** which says *‘Market Competitiveness drives standards of delivery of FM services which is being impacted by the outsourcing as a contemporary FM strategy and thus resultantly helps on the longevity of FM outcomes*, with a regression weight of 0.901 and 0.65 SMC, which means that 65% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by standards of FM service delivery, which is caused by 90.1% of market competitiveness and thus resultantly mediates and plays a positively impactful role on the longevity of FM outcomes among public real estate facilities.
2. **StDel8** which says *‘Regulation-Compliance interaction drives standards of delivery of FM services which is being impacted by the outsourcing as a contemporary FM strategy and thus resultantly helps on the longevity of FM outcomes*, with a regression weight of 0.899 and 0.62 SMC, which means that 62% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by standards of FM service delivery, which is caused by 89.9% of interaction between regulation of FM and its compliance by industry players, which thus resultantly mediates and plays a positively impactful role on the longevity of FM outcomes among public real estate facilities.
3. **StDel6** which says *‘Sophistication of Deliverables drives standards of delivery of FM services which is being impacted by the outsourcing as a contemporary FM strategy and thus resultantly helps on the longevity of FM outcomes*, with a regression weight of 0.903 and 0.74 SMC, which means that 74% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by standards of FM service delivery, which is caused by 90.3% of sophistication of FM deliverables, which thus resultantly mediates and plays a positively impactful role on the longevity of FM outcomes among public real estate facilities.
4. **StDel5** which says *‘Deployment Architecture drives standards of delivery of FM services which is being impacted by the outsourcing as a contemporary FM strategy, and thus resultantly helps on the longevity of FM outcomes*, with a regression weight of 0.897 and 0.65SMC, which means that 65% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by standards of FM service delivery, which is caused by 89.7% of deployment architecture that is operated by FM industry players, which thus resultantly mediates and plays a positively impactful role on the longevity of FM outcomes among public real estate facilities.
5. **ResEf4** which says *‘Inexistent / Minimal Wastage bottomlines the efficiency of resources that are being used for FM services, which is being impacted by the outsourcing as a contemporary FM strategy and thus resultantly helps on the longevity of FM outcomes*, with a regression weight of 0.799 and 0.76 SMC, which means that 76% of the 331 respondents said that outsourcing as an FM strategy is being positively

- engendered by efficiency of FM resources, which is caused by 79.9% of inexistent / minimal wastage of resources that are being used for FM operations, which thus resultantly mediates and plays a positively impactful role on the longevity of FM outcomes among public real estate facilities.
6. **ResEf3** which says *‘Input-Output Balancing bottomlines the efficiency of resources that are being used for FM services, which is being impacted by the outsourcing as a contemporary FM strategy and thus resultantly helps on the longevity of FM outcomes, with a regression weight of 0.857 and 0.67 SMC, which means that 67% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by the efficiency of FM resources, which is caused by 85.7% of balancing between inputs of efforts and outputs of results that are obtained from FM operations, which thus resultantly mediates and plays a positively impactful role on the longevity of FM outcomes among public real estate facilities.*
 7. **ResEf2** which says *‘Adaptability / Adoptability Strength bottomlines the efficiency of resources that are being used for FM services, which is being impacted by the outsourcing as a contemporary FM strategy and thus resultantly helps on the longevity of FM outcomes, with a regression weight of 0.854 and 0.75 SMC, which means that 75% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by the efficiency of FM resources, which is caused by 85.4% of the strength of flexibility (adaptability / adoptability) of FM solutions*
 8. **ResEf1** which says *‘Cost Matrices Effectiveness bottomlines the efficiency of resources that are being used for FM services, which is being impacted by the outsourcing as a contemporary FM strategy and thus resultantly helps on the longevity of FM outcomes, with a regression weight of 0.835 and 0.71 SMC, which means that 71% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by the efficiency of FM resources, which is caused by 83.5% of the effectiveness of cost matrices of all FM solutions that were designed and being operated, which thus resultantly mediates and plays a positively impactful role on the longevity of FM outcomes among public real estate facilities.*
 9. **Outscg5** which says *‘Mission / Vision Realisation propels owners of public real estate facilities to opt for outsourcing as a contemporary FM strategy and jettisoning the old sub- functional and less optimal strategy of directly operated in-house FM service provisioning, which is being impacted so much by the standards of FM service delivery as well efficiency of resources used for FM operations, thus resultantly helps on the longevity of FM outcomes, with a regression weight of 0.936 and 0.88 SMC, which means that 88% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by the desire for standards of FM service*

delivery as well as the optimal efficiency of FM resources, which is caused by 93.6% of the rising need for realisation of mission and vision of the FM owners, which thus resultantly mediates and plays a positively impactful role on the longevity of FM outcomes among public real estate facilities.

10. **Outscg3** which says *‘Management’s Benchmark Fulfilment propels owners of public real estate facilities to opt for outsourcing as a contemporary FM strategy, thereby jettisoning the old sub-functional and less optimal strategy of directly operated in-house FM service provisioning, this outsourcing is being impacted so much by the standards of FM service delivery as well efficiency of resources used for FM operations, thus resultantly helps on the longevity of FM outcomes,* with a regression weight of 0.943 and 0.72 SMC, which means that 72% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by the desire for standards of FM service delivery as well as the optimal efficiency of FM resources, which is caused by 94.3% of the consistency for fulfilment of management’s benchmark for growth, progress relevance as cherished by the FM owners, which thus resultantly mediates and plays a positively impactful role on the longevity of FM outcomes among public real estate facilities.
11. **Outscg2** which says *‘Excellence and Branding propels owners of public real estate facilities to opt for outsourcing as a contemporary FM strategy, thereby jettisoning the old sub-functional and less optimal strategy of directly operated in-house FM*

service provisioning, this outsourcing is being impacted so much by the standards of FM service delivery as well efficiency of resources used for FM operations, thus resultantly helps on the longevity of FM outcomes, with a regression weight of 0.955 and 0.85 SMC, which means that 85% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by the desire for standards of FM service delivery as well as the optimal efficiency of FM resources, which is caused by 95.5% of the penchance at sustaining the excellence and keeping the uniqueness of the brand for which the FM owners has been known over the years, which thus resultantly mediates and plays a positively impactful role on the longevity of FM outcomes among public real estate facilities.

12. **LngFMOut7** which says *‘Durability / Maintainability endears owners of public real estate facilities to opt for outsourcing as a contemporary FM strategy, thereby jettisoning the old sub-functional and less optimal strategy of directly operated in-house FM service provisioning, this outsourcing is being impacted so much by the standards of FM service delivery as well efficiency of resources used for FM operations, thus resultantly helps on the longevity of FM outcomes,* with a regression weight of 0.897 and 0.83 SMC, which means that 83% of the 331 respondents said that outsourcing as an FM strategy is being positively engendered by the great extent of durability and maintainability that most times is being attained through the FM solutions and end products from service delivery on the one hand as well as

efficiency of resources being used on the other, with the durability and maintainability factors resulting to 89.7% of mediating role and positive impacts being played by FM outsourcing strategy on the longevity of FM outcomes among public real estate facilities.

13. **LngFMOut5** which says *Appealing Relevance endears owners of public real estate facilities to opt for outsourcing as a contemporary FM strategy, thereby jettisoning the old sub-functional and less optimal strategy of directly operated in-house FM service provisioning, this outsourcing is being impacted so much by the standards of FM service delivery as well efficiency of resources used for FM operations, thus resultantly helps on the longevity of FM outcomes, with a regression weight of 0.879 and 0.80 SMC, which means that 80% of the 331 respondents said that, outsourcing as an FM strategy is being positively engendered by the degree to which its relevance to truly deliver FM solutions and end products as well as efficiency of resources being used, is appealing to the FM stakeholders, which resultantly determines 87.9% of mediating role and positive impacts being played by FM outsourcing strategy on the longevity of FM outcomes among public real estate facilities.*

14. **LngFMOut4** which says *‘Continual Sophistication endears owners of public real estate facilities to opt for outsourcing as a contemporary FM strategy, thereby jettisoning the old sub-functional and less optimal strategy of directly operated in-house FM service provisioning, this outsourcing is being impacted so much by the standards of FM service delivery as well efficiency of resources*

used for FM operations, thus resultantly helps on the longevity of FM outcomes, with a regression weight of 0.878 and 0.79 SMC, which means that 79% of the 331 respondents said that, outsourcing as an FM strategy is being positively engendered by the degree to which its sophistication to truly deliver FM solutions and end products as well as efficiency of resources being used, is continually seasoned to the FM stakeholders, which resultantly determines 87.8% of mediating role and positive impacts being played by FM outsourcing strategy on the longevity of FM outcomes among public real estate facilities.

15. **LngFMOut2** which says *‘Commanding Aesthetics’ endears owners of public real estate facilities to opt for outsourcing as a contemporary FM strategy, thereby jettisoning the old sub-functional and less optimal strategy of directly operated in-house FM service provisioning, this outsourcing is being impacted so much by the standards of FM service delivery as well efficiency of resources used for FM operations, thus resultantly helps on the longevity of FM outcomes, with a regression weight of 0.889 and 0.74 SMC, which means that 74% of the 331 respondents said that, outsourcing as an FM strategy is being positively engendered by the degree to which its FM solutions and end products radiate aesthetics that are very enthralling, as well as efficiency of resources being used by FM stakeholders, which resultantly determines 88.9% of mediating role and positive impacts being played by FM outsourcing strategy on the longevity of FM outcomes among public real estate facilities.*

4.0 CONCLUSION AND RECOMMENDATION

The following below are both the conclusion drawn from the research as well as the recommendation, viz:

4.1 CONCLUSION

Drawn from series of findings from this research, it is emphatic to state as a concluding remark, that the mediating impacts of the contemporary strategy of outsourcing on the standards of FM services that are being delivered, together with the efficiency of resources that are being employed for FM operations, as well as resultant potency on the longevity of FM outcomes are discernible and full of promise into having an enlarged beneficial impacts for decades to come. This affirms further the justifications that are being advanced by FM stakeholders, about their preference for contemporary strategy of outsourcing over the conventional directly-operated in-house FM solution provisioning.

4.2 RECOMMENDATION

1. It is advised that increased competition among public facilities solutions providers is sustained, with a view to deepen the relevance of outsourcing as contemporary strategy that drives standards of delivery, efficiency of resources and ultimately longevity of FM outcomes.
2. Efforts at making public facilities solution providers to be more compliant of statutory provisions are necessary, with a view to ensure that outsourced facilities operations are carried out to standards, thus sustaining the efficiency of

resources and ultimately longevity of FM outcomes.

3. Strict adherence to sophisticated application of supply chain dynamics, which optimises available resources to its peak in delivery standard of FM services, and ultimately contributes to achieving durable FM solutions packages via contemporary outsourcing strategy is key.
4. There should be a more active mechanism through which the use of FM resources in such a manner that limits the level of wastage is controlled, with a view to ensuring efficiency and standards in the delivery of FM solutions as well as lengthen the FM outcomes.
5. Cost elements of an outsourced FM service provisioning should be self-checking, so as to truly deliver an FM service that is effective and efficient, which ultimately contributes greatly to FM outcomes that are durable.
6. Public facilities stakeholders are enjoined to always evolve outsourced facilities solution provisioning around the mission and vision of the owner's organisation, with a view to advance an FM operation that is truly delivered with standards and efficiency that lengthens the outcomes of FM.
7. There is need to consistently measure the success of an outsourced FM service, in terms of its delivery standards and resource efficiency in terms of the extent to which the outcomes of the FM solutions packages are durable and maintainable with moderate lifecycle commitments.
8. Public facilities provisioning that is driven by contemporary strategy of outsourcing, should be gauged upon the degree to which its

procurement falls within the most promising and endearing appearance, which supports the core and peripheral businesses of the owners,

based upon admirable standards and efficiency of delivery that contribute to elongated lifespan of the FM outcomes.

5.0 REFERENCE

- Adewunmi. Y., Omirin, M., & Koleoso, H. (2013). The Use of Benchmarking in Facilities Management in Selected Cities in Nigeria. *Journal of Facility Management*, 3(1), 82–98.
- Akinbola, K. B., & Oluwole, T. G. (2019). Improving The Real Estate and Facilities Management System of Public Institutions Through Appropriate Provisioning Decision Criteria. In Sustainable Environment and Economic Development: Challenges, Options and Prospects. *Proceedings of the 7th National Environmental Research Conference*, organised by The School of Environmental Studies, held at the International Conference Centre of The Federal Polytechnic, Ilaro between 22nd and 25th April, Ilaro, Nigeria.
- Akinsola, O. E., Hussaini, P. O., Oyenuga, S. O., & Fatokun, A. O. (2012). Critical Factors Influencing Maintenance Management of Tertiary Institutional Buildings in South West Nigeria. *Mediterranean Journal of Social Science*, 3(11), 57–72.
- Asiabaka, I. P. (2008). The Need for Effective Facility Management in Schools in Nigeria. *New York Science Journal*, 1(2), 10-21.
- Bennett, J., & Iossa, E. (2006). Building and Managing Facilities for Public Services. Department of Economics and Finance, Brunel University, UK, 2(8), 1-32.
- Bernard William Associate (1994). Facilities Economics. Building Economics Bureau Limited, Bromley.
- Bliess, P. D. (2000). Within group agreement, non-independence and reliability. In: Klien, K. J. and Kozlowski, S. W. J. (eds) *Multilevel theory, research, and methods in organisations: Foundations, extensions, and new directions*. San Francisco: Jossey-Bass.
- Brachos, D., Kostopoulos, K., Soderquist, K. E., & Prastacos, G. (2007). Knowledge effectiveness, social context and innovation. *Journal of Knowledge Management*, 11(5), .31-44.
- Burke, M. J., & Dunlap, W. P. (2002). Estimating interrater agreement with the average deviation index: A user's guide. *Organizational Research Methods*, 5(2), 159-172.
- Byrne, B. M. (2010). *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming*. Multivariate Applications Book Series, Lawrence Erlbaum Associates, Mahwah, N.J.
- Enoma, A. (2005). The Role of Facilities Management at the Design Stage. In Khosrowshahi, F (Ed.), 21st Annual ARCOM Conference, 7th-9th September 2005, SOAS, University of London.

- Association of Researchers in Construction Management, 1, 21-30.
- Costello, A. B., & Osborne, J. W. (2011). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. 2005 Practical Assessment Resource Evaluation, Manual 10.
- Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences*. New York: Worth Publishers.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate Data Analysis*, 6th Ed, Pearson Prentice Hall, Upper Saddle River, N.J.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspective*. (7th Edition) New Jersey, Prentice-Hall, Upper Saddle River, NJ.
- Hendrickson, C., & Au, T. (1988). *Management for Construction's Fundamental Concept for Owners, Engineers, Architects and Builders*. New Jersey. Prentice Hall Inc.
- Hightower, R. Jr., & Highsmith, J. (2013). Investigating the Facility Management Professional Shortage. *International Journal of Facility Management*, 4(3), 29–43.
- HM Treasury (2010). *Partnerships for Prosperity: The Private Finance Initiative*. HM Treasury, London.
- International Facility Management Association (2010). *Strategic Facility Planning: A White Paper on Strategic Facility Planning*. International Facility Management Association. Houston, USA.
- Mohammed, M. A., & Hassanain, M. A. (2010). Towards Improvement in Facilities Operation and Maintenance through Feedback to the Design Team. *The Built & Human Environment Review*.
- Vogt, C. A., Winter, G., & Fried, J. S. (2005). Predicting homeowners' approval of fuel management at the wildland–urban interface using the theory of reasoned action. *Society and Natural Resources* 18(4): 337-354.