

Effect of Government Policy on the Relationship between Organizational Resources and Construction Waste Management

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Abstract – *The construction organization contributes to the generation of large quantities of construction waste across Nigerian cities. Nigeria has been known to lack appropriate procedures for managing construction waste, and developers and their contractors are left with the collection and disposal of construction waste management, despite the fact that they are expected to embrace all administrative, financial, legal, planning, and technological functions involved in solutions to all problems of construction waste. Therefore, this leads to ineffective construction waste management. This paper examines the effect of the government policy on the relationship between organizational resources and construction waste management among construction organizations, in Abuja, Nigeria. A quantitative method of survey was used to obtain data from managers of construction project-based organizations in Abuja, Nigeria. A total of 310 questionnaires were administered and 178 usable questionnaires were returned, yielding 57.4 response rate. Partial least square Structural equation model (PLS-SEM) was used to analyse the data. The Cronbach's Alpha value for the variables ranging from 0.885 to 0.972 indicates a very good reliability of the research instrument. It was found that all the hypotheses are significant at 5% significance level. It was found that while government policy moderates the relationship between the Transformational leadership as a dimension of organizational resources and construction waste management, it does not support organizational learning and staff training. Copyright © 2016 Penerbit Akademia Baru - All rights reserved.*

Keywords: organizational resources, government policy, construction waste management

1.0 INTRODUCTION

Wastes are generated at each stage of construction, for instance, during the pre-construction, rough construction and post construction [1, 2, 3]. According to [4], a considerable amount of construction waste generated on the site relates to factors in the design works, materials handling, and procurement process. The increased amount of waste generated will take more space in the gazetted landfills. Studies have shown that 26% of landfill space in the Netherlands is occupied by construction wastes [5] and for Singapore is 50% [6]. Construction waste has been properly managed for many years in Nigeria. It is unfortunate to note that the waste collection system is either non-existent in many areas (up to 90 percent in some cases) or most towns and cities not serviced or are under-serviced. Much of the time, where the collection system exists, the waste gathered is dumped along the streets, in the drains, in the facilities or any accessible space [7].

[7] Stated that in Nigeria, recycling activities are not common and are even non-existent. In any case, the recovery of materials from wastes (scavenging) is practiced on a large scale. This type of recovery happens at illegal dump sites where scavengers hunt consistently for valuable metals, plastics, woods, and so forth to be reused or sold to buyers of various kinds of scraps. The treatment of waste in Nigeria is not often carried out. The incineration of waste or the use of approved sanitary landfill is non-existent in most cities. The most widely recognized obsession is open burning of waste at illegal dump sites [7]. Managing waste requires the participation of stakeholders concerned with various functions to help maintain a clean, safe and pleasant physical environment in human settlements in order to protect the health and well-being of the population and the environment. Effective construction waste management is, however, a growing challenge to all municipal governments, especially in developing countries.

While effective management of the construction waste in Nigeria is an issue that requires considerable attention considering the environmental effect of waste materials such as leftover paints, little attention has been directed towards it. Furthermore, [8] reported that there is a lack of human resources with the technical expertise necessary for construction waste management planning and operation in most developing countries. [9] found that the major obstacles in implementing effective construction waste management are the “insufficient support of the authority, inadequate training, weak awareness, economic consideration, immature market and barriers related to site activity” among others. In the meantime, enhanced environmental credentials; savings in disposal and transportation costs; income from reusing and recycling; and reduced cost of materials are the potential advantages of waste management [10, 11].

2.0 LITERATURE REVIEW

2.1 Organizational Resources

All Organizational resources are in the form of tangible, intangible and human. Tangible resources include assets, for example, land, labour, equipment, and capital. The non-physically seen are referred to intangible resources, for example, knowledge. Training and educating of owners and the managers are part of human resources [12]. Furthermore, [13] in their study explained organizational resources, where they referred to ‘source’ as an asset or erstwhile production input, tangible or intangible ownership, access, control, exerted by the organization. [14] Categorized organizational resources as the resources that are brought together. Different resources are used by organizations to achieve their goals. For instance, the organization’s major resources are frequently expressed as financial, human, physical, and information resources. The responsibility for acquiring and managing the organizational resources for the accomplishment of the organizational goal rests on the managers.

In addition, the organizational resources process the system and the structure of the organizations that allow for the acquisition and dissemination of training and information, also for the motivation of the members of the organization [14]. Therefore, [15] reported that organizational resources embrace the expertise of the employees, the system, policies and the management system. At the same time, [12] agreed that the financial structure, system and control system, also [16] reported that employee skills & culture of an organization were also part of the organizational culture. [14] had mentioned that most probably the system of the management, employee skills and routine are very necessary in providing a better level of services. In this study, organizational resource is conceptualized as transformational leadership style [17]; organizational learning, staff training [18]. In addition, the organizational resources

process the system and the structure of the organizations that allow for the acquisition and dissemination of training and information, also for the motivation of the members of the organization of the materials were used without further purification.

2.1.1 Transformational leadership

Na According to [19] Transformational leaders are referred to as the idea for stressing the process in which collective goals are consonant with follower values, causing followers to regard organizational goals as their own and submit the extra effort toward the goals and accomplishments". Furthermore, transformational leadership has been described as the kind of leadership where dealings with interested parties are organized "around a collective purpose" hence it "transforms, motivates, and enhances the actions and ethical aspirations of followers" [20]. Transformational leadership is regarded to have numerous patterns of actions as follows: Transformational leadership utilizes the personality of the leaders to gain the trust of the stakeholders and to respect and inspire pride in the latter. In addition, transformational leadership is the type that seeks for optimistic transformations among the followers and of the changes are required through the achievement of the organization's "strategy and structure" [17]. Furthermore, "Exemplary transformational leadership behaviour tends to be directed towards the team, like providing the team with a vision and the skills in solving interpersonal conflict, will increase the likelihood that individual followers are satisfied with their jobs" [21]. The individual level importance considered as transformational leadership is identified as having impressed at the organizational level of analysis. This assertion is based on a direct consensus model, which employs the consensus among lower level units to specify another form of a construct at a higher level. This model makes assumes that as transformational leadership (a) comprises of individual-focused as well as team-focused behaviours and as a leadership perspective style, it contributes to the mental model convergence in teams" [21]. In this study transformational leadership is preferred to be examined because it has been shown in empirical studies that it is universally effective across cultures [22]. It is thus, expected that the difference in culture will not influence the findings related to the transformational leadership examined in this study; additionally, the transformational leadership theory has been recognized as the most advanced because it encompasses the symbolic, emotional and highly motivating behaviours that produce better results than the ordinary leadership.

2.1.2 Organizational learning

The organizational learning ability was taken into consideration as the organization and the character of the administration that enables organizational learning process to play an important role [23]. Furthermore, by means of invisible sources or abilities by the institutions' organizational learning abilities, they can create a competitive advantage in a new way, and characters or factors of the organization and management [24]. Organizations tend to have a non-stop process that improves its collective ability to accept, understand, and respond to internal and external changes. In essence, organizational learning promotes creativity. According to [25] it builds on parallels among the attribute of learning organizations and those expressed in organizations' literature designed for innovation support and the creativity of employee, organizational outcomes are promoted by organizational learning as established, where several professionals advised that getting an effective method of promoting organizational learning by making use of an appraisal tool is highly recommended. However, [26] in his study reveals that organizational learning outcomes are measured by the impact of the performance, finances, productivity, production of waste, continuous improvement, management of waste, employee behaviours, satisfaction, customer focus, and performance, especially in situations where people who get information through learning translate the learned

information at the same time develop a team-based learning. Therefore, the acquisition of the team's outcome at the conclusion of learning reflects the entire organizational behaviour, which means organizational learning happens [27]. [28] said that the individual process is a learning of itself, which is achievable for an organization to keep up their subsistence through the learning process in the international business world especially where exceptional rivalry and technological transformation leave their mark.

In this study, organizational learning is defined as “the process by which the organization develops new knowledge and insights from the common experiences of people in the organization, and has the potential to influence behaviours and improve the organization's capabilities”. According to [29], there are three stages that are involved in the learning process: knowledge acquisition, distribution, and memory. Knowledge acquisition is the process which organization uses to acquire information and knowledge. The Knowledge distribution process involves the sharing of information between employees in an organization. Knowledge interpretation involves transforming information into shared knowledge. An organization's memory is used to store information and knowledge for future use [30].

2.1.3 Staff Training

Training plays an important function in the aspect of the commitment established. Meanwhile, the workers accord greater importance on training programs and they are also highly appreciated by co-workers, managers, supervisors, managers, hence, greater commitment outcomes can be achieved where organizations that create an environment of training can be approved and appreciated by employees [18]. Furthermore, [31] alleged training as the ability of employees to work in any place, also the non-professional and the assemblage of abilities to attain the professional level. For workers to be efficient there has been an optimistic impact on job satisfaction in construction organization, commitment, and incentive. Furthermore, [31] reported that organizational performance is influenced by the significant impact of training. Hence, [31] stated that training and development increase employee performance and development, and subsequently increase the performance of the training and development activities of the construction waste organizations. [18] further found a relation between the employees' awareness towards training and organizational obligations, and that the staff perception of training is positively linked with the ability of employees, the readiness to participate, and the support from the senior managers of the organization for training. [32] categorized the importance of training as mentioned to: “improve work quality, increase productivity, skills improvement, knowledge, enhance the use of tools and machine, to improve the understanding and attitude, reduce waste, accidents, turnover, delay, and other overhead costs of the construction waste management organization, eliminate obsolescence in skills, technologies, methods, products, assets management, and many more. Simply put, it brings incumbents to that level of performance.

2.2 Construction Waste Management

[33] Defines the construction waste management as involving “the collection, transport, treatment and disposal of waste including proper handling of disposal sites”. Similarly, [34] also defines waste management as “purposeful, systematic control of the generation, storage, collection, transportation, separation, processing, recycling, recovery and disposal of solid waste in a sanitary, aesthetically acceptable and economical manner”. The environment is protected from the pollution effects of waste materials in order to protect the public's health and the natural environment. Thus, the priority of a waste management system must always lie in the provision of a cleaning service which helps to maintain the health and safety of citizens

and their environment [34]. Furthermore, [35] emphasized on the investigation on the construction industry in Egypt, where it identified the absence of waste management in the Egyptian construction industry plan before the execution stage among others as the factors responsible for material wastage. This is additionally proven by a government waste administration scheme in Hong Kong, which obliges contractors to plan and actualize a waste management and carry out on-site sorting of waste before specific payments are made [36]. Likewise, [10] submitted that appropriate waste management has significantly contributed to the elimination of the waste from the site, and approximately 50 percent cost savings for handling charges of waste, 15 percent of the volume of waste reduction on reaching the site. Meanwhile, there is about 43 percent of waste reduction in landfills. Additionally, following [36] a point by point waste management plan for building sites was recommended to accomplish a sound waste management and reduction.

2.3 Organizational Resources and Construction Waste Management

The transformational leadership style and the human resources, related to the capability of the organization are said to be very effective in relation to the construction of waste management. For this reason, the transformational leadership style is associated with organizational effectiveness and efficiency. According to [37] in his study he stated that the focus and direction towards achieving high levels of competency, and the competitiveness of an organization could be attained through the human resource management practice by contributing to the goals, quality and profitability of the vision and mission of the construction waste management organizations. In addition, the staffing, training, compensation and performance management are some of the tools for human resource management practices where these will shape the organizational role in satisfying the stakeholders' needs. Therefore, according to [37] the common rules and procedures for human resources must be adhered, by the organization that will form the basic guidelines on its practices. Also, the teamwork between the management and the junior staffs ought to be formed and sustained to be of assistance at different levels to eliminate communication breakdown and foster a better relationship between the workers of construction waste management organizations. Furthermore, [38] had opposed to the observation that categorized the top managers as an obstacle to improvement. They reported that the chief executive has an immense influence on the organizational effectiveness. In a related study, [37] observed the influence of the leadership to the members of the team, hence the outcome exposed that the clarity of leadership is associated with effectiveness. Organizational learning refers to a significant component of the process of organization's effectiveness [39]. Likewise, organizational learning is an interesting result in the creation of knowledge as it plays a helping role in the development of the effectiveness of an organization [40]. In essence, this can be realized by the transformation of knowledge and the technical ideas that will lead to competence in the construction waste management, procedure, business and services, on the basis of the interactions among diverse technology, knowledge, and the processes of internal characteristics of the organization [41].

2.4 Moderating effect of Government policy

Some studies have been conducted on the government policy in different fields, and its component as either dependent, independent, and moderating variables with different results, for instance, the study of [42] investigated the "Effect on the Government's Manufacturing

Automation Promotion Policy” in Taiwan, where government policy stands as the dependent variable. They used two hundred and thirty-one enterprises as their sample size and the primary data was collected using the structured questionnaire and “SPSS 8.0” served as a statistical tool of analysis tool. The findings reported on a significant relationship between automation adoption and government policy. However, in the assessment of the relationships between the Selected State Government Policy Measurements and Sustainable Development, [43] indicated that, the existing waste control ordinances (government policy) allow for the skewed distribution of commitments and responsibilities of controlling construction waste among project stakeholders. [44] examined the moderating role of the Government Policy on Entrepreneurship, using two hundred and seventy-five SMEs, also the PLS and it was found that government policy is not significant (path coefficient = -0.080), meaning that the effect of entrepreneurship Orientation on Business Performance was not moderated by the government policy. In this study, ‘government policy’ is the policy, rules, regulation and action programmes guiding the conduct, functions and operation of the construction waste management. This is operationalized as the construction waste management policy, and it serves as a moderating variable.

2.5 Objectives

- a) To examine the relationship between transformational leadership and construction waste management.
- b) To examine the relationship between organizational learning and construction waste management.
- c) To examine the relationship between staff training and construction waste management.
- d) To examine the moderating effect of government policy on the relationship between transformational leadership and construction waste management.
- e) To examine the moderating effect of government policy on the relationship between organizational learning and construction waste management.
- f) To examine the moderating effect of government policy on the relationship between Staff training and construction waste management.

2.6 Conceptual Framework

The framework presents the relationship between organizational resources dimensions and construction waste management moderated by the role of the government policy.

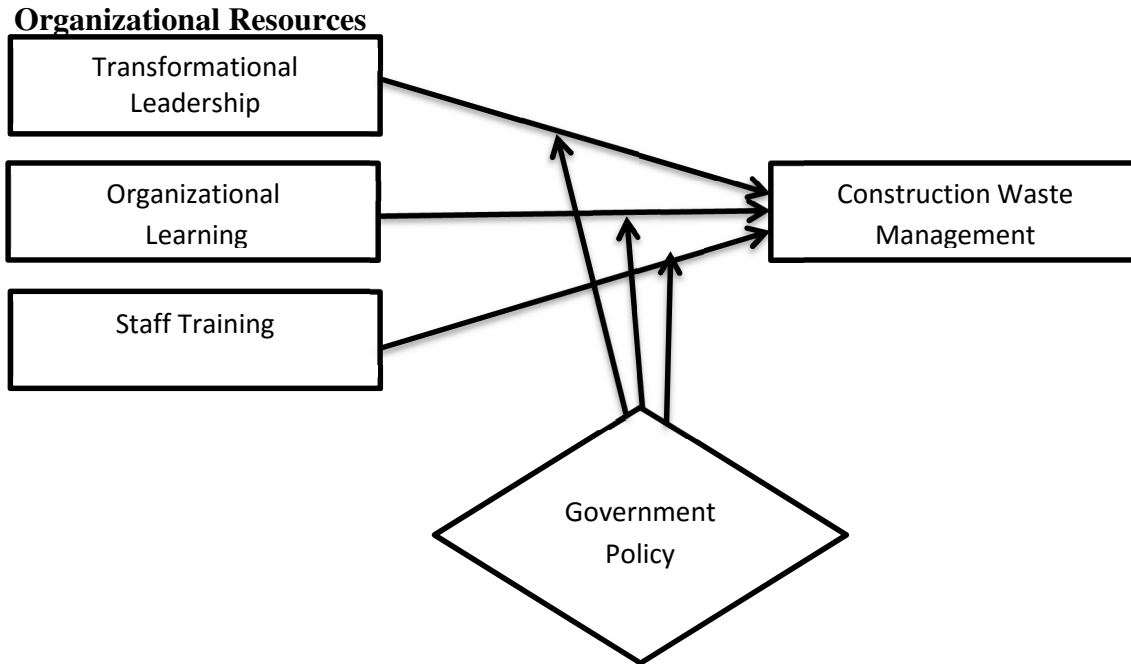


Figure 1: Conceptual Framework

3.0 HYPOTHESES DEVELOPMENT

H1:Transformational leadership is significantly related to construction waste management in Nigeria

H2:Organizational learning is significantly related to construction waste management in Nigeria

H3:Staff training is significantly related to construction waste management in Nigeria

H4:Government policy significantly moderates the relationship between transformational Leadership, organizational learning, staff training and construction waste management in Nigeria

H5:Government policy significantly moderates the relationship between organizational Learning, staff training and construction waste management in Nigeria.

H6:Government policy significantly moderates the relationship between staff training and construction waste management in Nigeria.

4.0 METHODOLOGY

Noted that a research design is considered as the directions for conducting a research project [45]. This study adopts a cross sectional and quantitative approach following [46]. Hence, going by the guideline for the stratified random sampling, following [47] the research population was divided into mutually exclusive groups. Among the four categories or category

A, category B, category C and Category D respectively of the construction organizations in Abuja, Nigeria each was regarded as a stratum. For easy understanding of the research objectives the researcher did not prefer to choose the open-ended questions over the close-ended questions to ensure that the accuracy of the data analysis is enhanced [46] the data collection was performed using a structured survey questionnaire from the managers of construction organizations in Abuja, Nigeria. A total of three hundred and ten questionnaires were administered, out of which 178 were duly completed and returned, yielding (57.42%) response rate.

Organizational resources, conceptualized as Transformational leadership, organizational resources were adapted from [48]. Staff training was adapted from [49], Government policy was adapted from [43], and the construction waste management was adapted from [50] all of which were measured in the 5-point Likert scale following [51, 52].

The present research chooses to use PLS for the following three main reasons; 1) PLS is a distribution-free approach [53] PLS results in a more accurate analysis when the sample size is small. 2) The minimal recommended range for PLS is 30 to 100 cases, while for the component-based SEM, at least 100 to 800 cases are needed [53]. 3) PLS seeks to best explain the variances of the factors, for instance, to examine the significance of the relationships and their resulting R-square. Therefore, it is more suitable for predictive applications when the objective is theory building, and an a priori model is not available [54]; [53].

In line with the given discussion, this study employed the smart PLS 2.0 statistical package for the data analysis.

5.0 ANALYSIS AND RESULT

Smart PLS 2.0 was used in assessing the validity and reliability measures of the construct. The model consists of Transformational leadership, organizational learning, and government policy and construction waste management.

5.1 Measurement Model (Outer Model)

The measurement model mainly is used, for the assessment and confirmation of the constructs validity and reliability before the goodness of measures is established. 0.7 level is accepted for internal consistency, using the composite reliability and Cronbach alpha. The average variance explain (AVE) must be 0.5 and above for the convergent validity [55] and using the factor loading for discriminate validity, any item loading on the other constructs higher than their loadings should be deleted [55, 56]. Consequently, to satisfy the measurement model, TRL01, TRL02, TRL03, TRL05, OGL01, OGL03, OGL06, ST01, ST03, WREC 03, WREC06, WRED02 WRED04 WRED 06 were dropped because they did not meet with the minimum benchmark [55-56] Similarly, WD01-04 and WRE01-06 were dropped because of multi-collinearity. Therefore, the instruments adapted in this study are reliable, since all the items are above 0.4. All items loaded on their respective construct range from 0.747 to 0.934, which is acceptable because they are above the cut-off mark value of 0.4 which is in line with [55] ; [45]. Similarly, the composite reliability value ranges from 0.933 to 0.973 which is greater than the benchmark value of 0.7[45]. The AVE was used to determine the convergence validity. The AVE ranges from 0.635 to 0.871 which is above the minimum cut-off value of 0.5 [45]. Finally, in determining the discriminate validity, the average variance extracted (AVE) is compared to the correlation squared of the interrelated variables of concerned constructs which

indicated adequate discriminate validity. Below is Table 1 showing the factor loading and Table 2 showing the discriminate validity.

Table1: Factor Loading

Items	Factor Loading	Composite Reliability	Cronbach's Alpha	AVE
TRL04	0.900	0.886	0.744	0.796
TRL06	0.884			
OGLO2	0.900	0.887	0.747	0.798
OGLO5	0.887			
ST02	0.934	0.931	0.852	0.871
ST04	0.933			
GP01	0.870	0.884	0.741	0.793
GP06	0.911			
WRED01	0.744	0.923	0.923	0.635
WRED03	0.798			
WRED05	0.791			
WREC01	0.748			
WREC02	0.888			
WREC04	0.847			
WREC05	0.753			

Note: TRL= Transformational leadership, OGL= Organizational learning, ST=Staff training GP= Government policy, CWM=Construction waste management, WREC= Waste recycling, WRED= Waste reduction

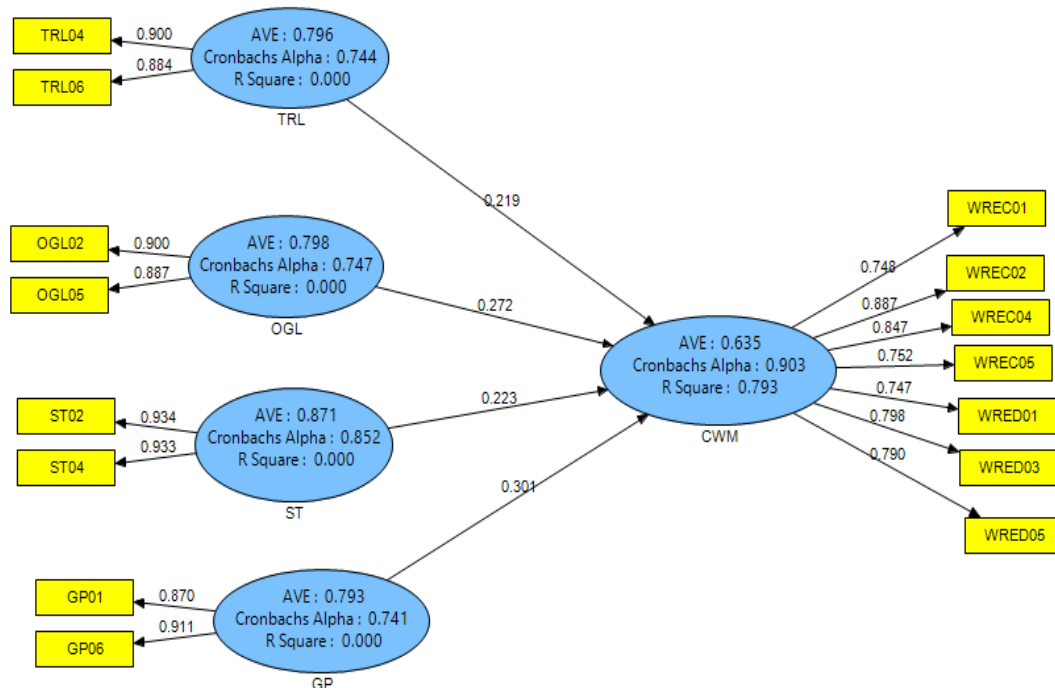


Figure2: Measurement model

Table2: Discriminant validity

	GP	OGL	ST	TRL	CWM
GP	0.890				
OGL	0.661	0.893			
ST	0.720	0.684	0.933		
TRL	0.686	0.717	0.688	0.892	
CWM	0.792	0.781	0.776	0.744	0.797

5.2 Structural Model (Inner Model)

After achieving the construct validity and reliability as required in the measurement model, the next step was running the PLS algorithms and Bootstrapping to test the proposed hypotheses of the study in smart PLS 2.0. Table 3 presents the hypothesis testing results.

Table 3: Hypotheses Testing Results

Hypothesis	Hypothesized Paths	Beta	Std. Error	T- Statistics	P - Value	Decision
H1	TRL -> CWM	0.300	0.045	6.61	0.01	Supported
H2	OGL -> CWM	0.330	0.055	5.91	0.01	Supported
H3	ST -> CWM	0.344	0.050	6.75	0.01	Supported

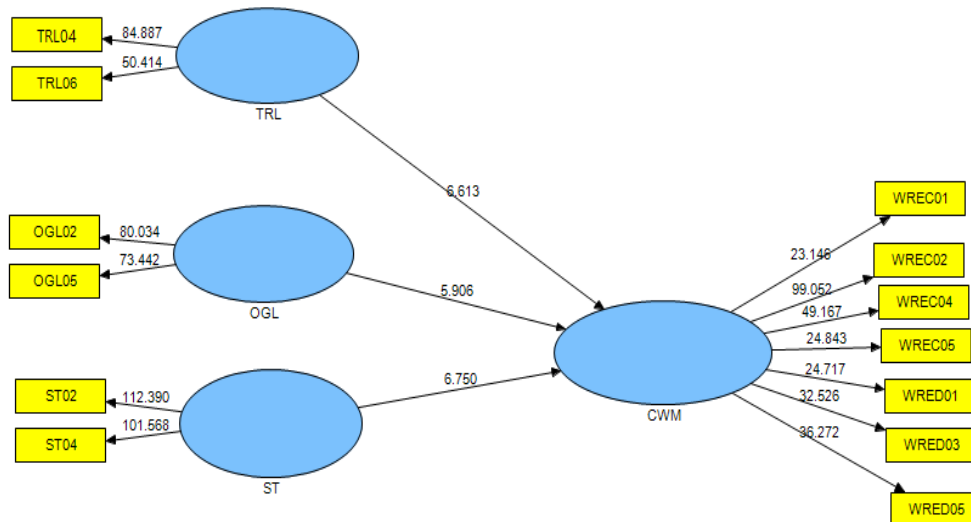


Figure 3: Structural Mode

5.2.1 Moderating effects of Government policy

Transformational leadership, organizational learning and staff training as (organizational resources) and construction waste management, the Smart PLS was used for this study to estimate the direct effects among the variables. As shown in Table 4, the results indicate that government policy (GP) has a significant moderating effect between Transformational leadership (TRL) and Construction waste management (CWM) at 1% significant level. Meanwhile, the Government policy does not have any significant moderating effect between

organizational learning (OGL) and construction waste management (CWM), and also between staff training (ST) and construction waste management (CWM).

Table4: Moderation Hypotheses

Hypothesis	Relationship	Beta	Std. Error	T-Statistics	Decision
H4	TRL*GP-> CWM	0.030	0.263	1.99*	Supported
H5	OGL *GP-> CWM	0.035	0.286	0.10	Not Supported
H6	ST* GP -> CWM	-0.233	0.259	0.88	Not Supported

**p< 0.01, *p< 0.05

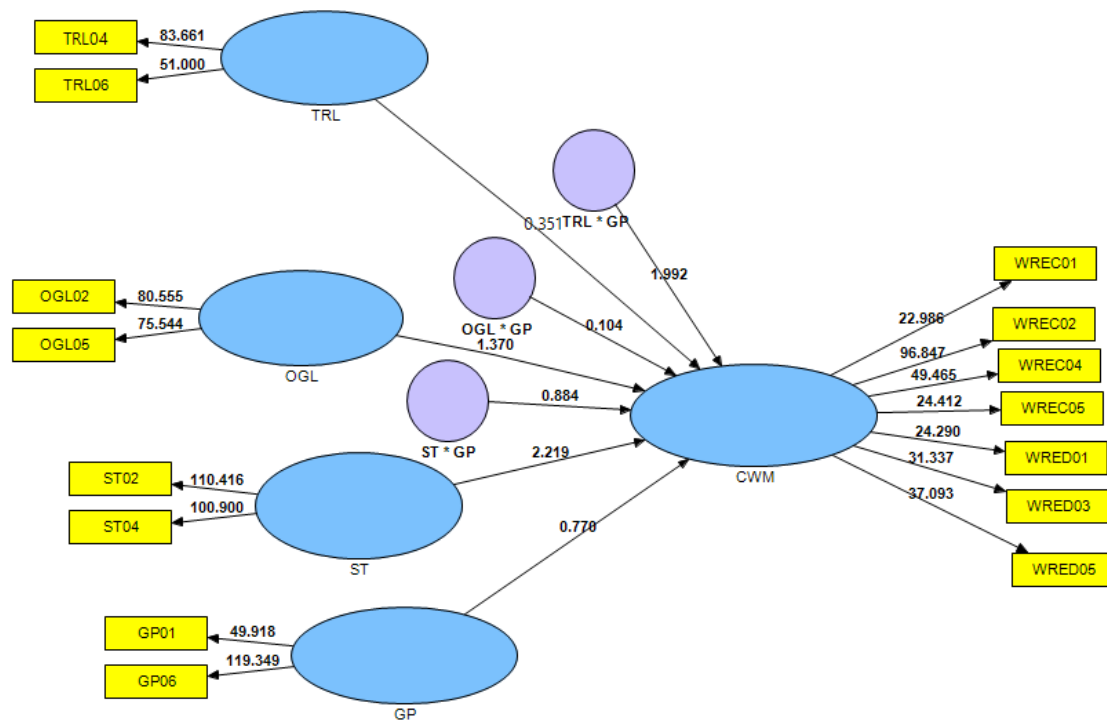


Figure 4: Moderation Model

From Figure 4, only the 3 interactions terms were interpreted. The cut-off value for this particular test will be 1.645 ($\alpha = 0.05$) and 2.33 ($\alpha = 0.01$). As can be seen from Figure 4, the OGL*Government policy showed ($t < 0.103$) so it is not significant, TRL*Government policy showed ($t > 1.99$) so it is significant at the 0.05 level, whereas the ST*Government policy read ($t > 0.88$) thus it is not significant.

5.3 Predictive Relevance of the Model

The predictive relevance of a model is evaluated by using the cross validated redundancy. This is by running Smart PLS blindfolding procedures which cross-validated the communality and cross-validated the redundancy. Therefore, the value of cross-validated relevance of this model is 0.487, which is in line with [57-58], who stated that any model with Q^2 above zero has predictive relevance. Also [55], gave some bench mark standards of judging model predictive relevance using the value of cross validated relevance of: 1) 0.02 which is small; 2) 0.15 as

medium; and 3) 0.35 as Large. Therefore, based on [55, 57, 58], the model does have its predictive relevance.

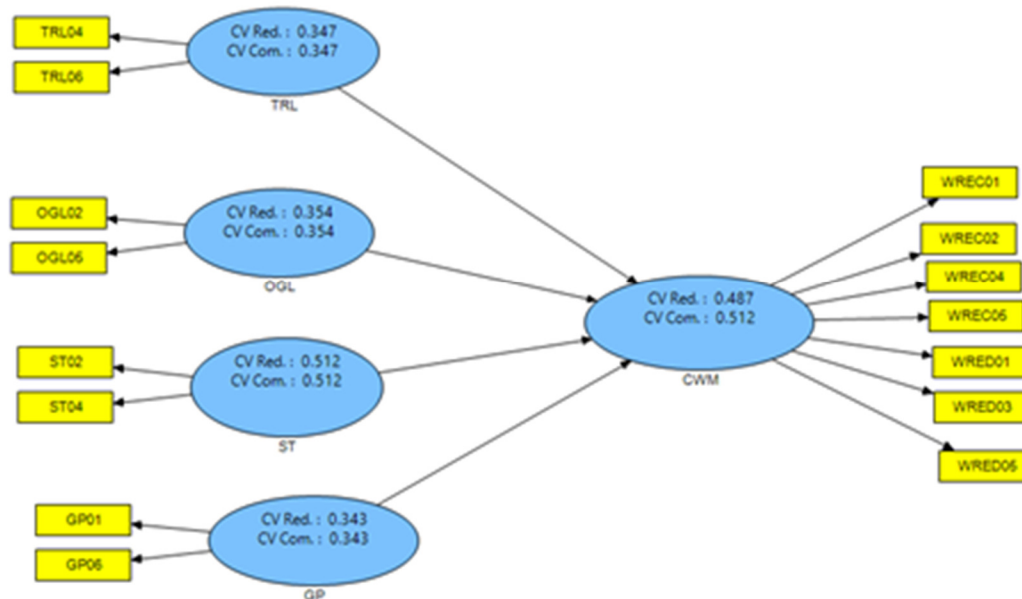


Figure 5: Predictive Relevance

6.0 DISCUSSION

The objective of this study is to examine the effect of the relationship between the organizational resources operationalized by transformational leadership (TRL), organizational learning (OGL) staff training (ST) and construction waste management (CWM). In this study the statistical findings showed that all the hypotheses were supported. In the first hypothesis, TRL – CWM was significant ($\beta = 0.300$, $t = 6.612$, $P\text{-Value} = 0.01$), and this was consistent with the earlier finding of [22] and [59] which was significant and positive, though another concept was used for transformational leadership but in different context, the finding is in consonant with the current study. This implies that, the higher level of transformational leadership will bring about maximum level of efficiency and effectiveness of the construction waste management organization. The second hypothesis supported that (OGL- CWM) organizational learning and construction waste management relationship is significant ($\beta = 0.331$, $t = 5.906$, $P = 0.01$), and `similarly this is in line with the previous outcome of [59-61] who had reported that there was positive relationship between organizational learning. The third hypothesis also supported that staff training and construction waste management (ST-CWM) was significantly related ($\beta = 0.345$, $t = 5.906$, $P = 0.01$). However, the findings of [18] and [49] showed a significant relation among the employees' awareness towards training and organizational obligation, also that the staff perception of training is positively linked with the ability of employees, readiness to participate, and the support from the managers of the construction organization for staff training. Thus, by implication of the rightness of government policy to transformational leadership it brings maximum efficiency and effectiveness in the performance

of the construction waste management organization ($\beta = 0.523$, $t = 1.99$, $P\text{-Value} = 0.005$). Likewise, both the second and the third hypothesis do not support the argument that GP moderates the relationship between OGL and CWM, ST and CWM ($\beta = 0.030$, $t = 0.103$, $P\text{-Value} = 0.00$), ($\beta = -0.232$, $t = 0.88$, $P\text{-Value} = 0.00$) respectively.

7.0 CONCLUSION

Some previous studies had focused on adoption of construction waste management, thereby examining construction waste management from different perspective at different context and countries there are many studies on construction waste management and minimization strategies done by researchers in many countries (examples are [62] in the UK; [63] in the United States; [1] in Hong Kong; [64-66] in India; [67] in China; and [68] in Vietnam, [69], and among others, but the extent to which organizational factors influence implementing construction waste management among construction organizations in Nigeria has not received, considerable attention.

The study assessed the effect of government policy on the relationship between organizational factors and construction waste management among construction organization in Nigeria, thereby, the notion was refuted that the construction waste management organizations are generally lagging behind in terms of efficiency and effectiveness [70-71]. The present study succeeded in positioning the construction waste management organization in Nigeria as far as organizational efficiency is concerned.

Both theoretical and practical contributions have been made by this study- the theoretical contribution of this study is the extension of the existing literature about TRL – CWM, OGL – CWM and ST- CWM. Furthermore, this study is among the few studies that examine the moderating effect of the government policy on the relationship between organizational resources and construction waste management. The result of this study will practically help stakeholders (i.e. Agencies, both governmental and non-governmental organizations) in policy-making and in making appropriate decisions in regard of the efficiency and effectiveness of the construction waste management practice. These will help the managers in understanding the importance of an efficient, effective and integrated waste management practice. Finally, a larger sample should be used for the future research using the Smart PLS-SEM so the model will be re-validated as has been suggested.

REFERENCES

- [1] Anantha Rama, V., and M. Lokeshwari. "Management of Construction And Demolition Waste." *Journal of Environmental Research And Development* Vol5, no. 1 (2010).
- [2] Kofoworola, Oyeshola Femi, and Shabbir H. Gheewala. "Estimation of construction waste generation and management in Thailand." *Waste management* 29, no. 2 (2009): 731-738.
- [3] Wahab, A. B., and A. F. Lawal. "An evaluation of waste control measures in construction industry in Nigeria." *African Journal of Environmental Science and Technology* 5, no. 3 (2011): 246-254.
- [4] Ekanayake, L., and George Ofori. "Construction material waste source evaluation." (2000): 0-0.

- [5] Bossink, B. A. G., and H. J. H. Brouwers. "Construction waste: quantification and source evaluation." *Journal of construction engineering and management* 122, no. 1 (1996): 55-60.
- [6] Hwang, Bon-Gang, and Zong Bao Yeo. "Perception on benefits of construction waste management in the Singapore construction industry." *Engineering, Construction and Architectural Management* 18, no. 4 (2011): 394-406.
- [7] Afun, S. "Government Regulations and Legislations Will Ensure Sustainable Waste Management in Nigeria." *Solid Waste Management Services Limited* (2009).
- [8] Schübeler, Peter, Jürg Christen, and Karl Wehrle. *Conceptual framework for municipal solid waste management in low-income countries*. Vol. 9. SKAT (Swiss Center for Development Cooperation), 1996.
- [9] Yuan, Hongping. "A dynamic model for assessing the effectiveness of construction and demolition waste management." PhD diss., The Hong Kong Polytechnic University, 2011.
- [10] McDonald, Bruce, and Mark Smithers. "Implementing a waste management plan during the construction phase of a project: a case study." *Construction Management & Economics* 16, no. 1 (1998): 71-78.
- [11] Teo, Vincent. "Integrated thinking: Solid waste management in Singapore." *Waste Management World B* (2007): 95.
- [12] Inmyxai, Sengaloun, and Yoshi Takahashi. "Firm resources and business performance in the Lao PDR: Implications for SMEs in the LDC context." *Journal of Indian Business Research* 1, no. 2/3 (2009): 163-187.
- [13] Amirtham, P. L., V. Lavanya, and J. Nithya. "Strategic Management: Formulation and Implementation." *Imperial Journal of Interdisciplinary Research* 2, no. 6 (2016).
- [14] Dollinger, Marc J. *strategies and Resources*. Singapore: Pearson's Educational, 2005.
- [15] Ropo, Arja, and James G. Hunt. "Entrepreneurial processes as virtuous and vicious spirals in a changing opportunity structure: A paradoxical perspective." *Entrepreneurship: Theory and Practice* 19, no. 3 (1995): 91-112.
- [16] Brush, Candida G., and Radha Chaganti. "Businesses without glamour? An analysis of resources on performance by size and age in small service and retail firms." *Journal of business venturing* 14, no. 3 (1999): 233-257.
- [17] Peter, Geib, and Swenson James. "China: Transformational Leadership for Policy and Product Innovation." *Advances in Management* (2013).
- [18] Bartlett, Kenneth R. "The relationship between training and organizational commitment: A study in the health care field." *Human resource development quarterly* 12, no. 4 (2001): 335-352.
- [19] Hoffman, Brian J., Bethany H. Bynum, Ronald F. Piccolo, and Ashley W. Sutton. "Person-organization value congruence: How transformational leaders influence work group effectiveness." *Academy of Management Journal* 54, no. 4 (2011): 779-796.
- [20] Simola, Sheldene, Julian Barling, and Nick Turner. "Transformational leadership and leaders' mode of care reasoning." *Journal of business ethics* 108, no. 2 (2012): 229-237.

- [21] Braun, Susanne, Claudia Peus, Silke Weisweiler, and Dieter Frey. "Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust." *The Leadership Quarterly* 24, no. 1 (2013): 270-283.
- [22] Zagorsek, Hugo, Marko Jaklic, and Stanley J. Stough. "Comparing leadership practices between the United States, Nigeria, and Slovenia: does culture matter?." *Cross Cultural Management: An International Journal* 11, no. 2 (2004): 16-34.
- [23] Chiva, Ricardo, Joaquin Alegre, and Rafael Lapiedra. "Measuring organisational learning capability among the workforce." *International Journal of Manpower* 28, no. 3/4 (2007): 224-242.
- [24] Chiva, Ricardo, and Joaquín Alegre. "Organizational Learning Capability and Job Satisfaction: an Empirical Assessment in the Ceramic Tile Industry*." *British Journal of Management* 20, no. 3 (2009): 323-340.
- [25] Ramus, Catherine A., and Ulrich Steger. "The Roles of Supervisory Support Behaviors and Environmental Policy in Employee "Ecoinitiatives" at Leading-Edge European Companies." *Academy of Management journal* 43, no. 4 (2000): 605-626.
- [26] Pace, R. Wayne. "The organizational learning audit." *Management Communication Quarterly: McQ* 15, no. 3 (2002): 458.
- [27] G. Aksoyturk, "The effect of organizational culture on organizational learning," Post Graduate Thesis Marmara University, Institute of Social Sciences,, Istanbul, 2008.
- [28] Akgün, Ali E., Halit Keskin, John C. Byrne, and Selim Aren. "Emotional and learning capability and their impact on product innovativeness and firm performance." *Technovation* 27, no. 9 (2007): 501-513.
- [29] de Weerd-Nederhof, Petra C., Bernice J. Pacitti, Jorge F. da Silva Gomes, and Alan W. Pearson. "Tools for the improvement of organizational learning processes in innovation." *Journal of Workplace Learning* 14, no. 8 (2002): 320-331.
- [30] Jiménez-Jiménez, Daniel, and Raquel Sanz-Valle. "Innovation, organizational learning, and performance." *Journal of business research* 64, no. 4 (2011): 408-417.
- [31] Stavrou, Eleni, Chris Brewster, and Chris Charalambous. "Human resource management as a competitive tool in Europe." (2004).
- [32] Oguntimehin, A. "Teacher effectiveness: Some practical strategies for successful implementation of universal basic education in Nigeria." *African journal of educational management* 9, no. 1 (2001): 151-161.
- [33] A. Gbektor, Domestic waste management, Ghana Environmental Protection Agency (EPA) Newsletter 47 (5) (2003)
- [34] Gilpin, Alan. *Dictionary of environment and sustainable development*. John Wiley & Sons Ltd, 1996.
- [35] Garas, Gihan L., Ahmed R. Anis, and Adel El Gammal. "Materials waste in the Egyptian construction industry." *Proceedings IGLC-9, Singapore* (2001).
- [36] Poon, Chi Sun, Ann Tit Wan Yu, Sze Wai Wong, and Esther Cheung. "Management of construction waste in public housing projects in Hong Kong." *Construction Management & Economics* 22, no. 7 (2004): 675-689.

- [37] West, Michael A., Carol S. Borrill, Jeremy F. Dawson, Felix Brodbeck, David A. Shapiro, and Bob Haward. "Leadership clarity and team innovation in health care." *The Leadership Quarterly* 14, no. 4 (2003): 393-410.
- [38] Yadav, Manjit S., Jaideep C. Prabhu, and Rajesh K. Chandy. "Managing the future: CEO attention and innovation outcomes." *Journal of Marketing* 71, no. 4 (2007): 84-101.
- [39] Oerlemans, LEON AG, MARIUS TH Meeus, FRANS WM Boekema, R. McNaughton, and M. Green. "Innovation and proximity: Theoretical perspectives." *Industrial networks and proximity* (2000): 16-47.
- [40] Caballé, Santi, Angel A. Juan, and Fatos Xhafa. "Supporting effective monitoring and knowledge building in online collaborative learning systems." In *Emerging technologies and information systems for the knowledge society*, pp. 205-214. Springer Berlin Heidelberg, 2008.
- [41] Guadamillas, Fátima, Mario J. Donate, and Jesús D. Pablo. "Knowledge management for corporate entrepreneurship and growth: A case study." *Knowledge and Process Management* 15, no. 1 (2008): 32-44.
- [42] Chang, Tien-Hsiang, Chyou-Huey Chiou, Hsin-Pin Fu, and Pei Chao. "The effect of the government's manufacturing automation promotion policy in Taiwan." *Journal of Manufacturing Technology Management* 17, no. 1 (2006): 73-88.
- [43] Tam, Vivian WY, L. Y. Shen, Ivan WH Fung, and J. Y. Wang. "Controlling construction waste by implementing governmental ordinances in Hong Kong." *Construction Innovation* 7, no. 2 (2007): 149-166.
- [44] I. T. Leste, Effect of Entrepreneurial orientation on business performance moderated by Government Policy (Study On SMEs,
- [45] Hair, Joe F., Christian M. Ringle, and Marko Sarstedt. "PLS-SEM: Indeed a silver bullet." *Journal of Marketing theory and Practice* 19, no. 2 (2011): 139-152.
- [46] Sekaran, Uma. "Research methods for business: a skill building approach." *Journal of Education for Business* 68, no. 5 (2003): 316-317.
- [47] Sekaran, Uma. *Research methods for business: A skill building approach*. John Wiley & Sons, 2006.
- [48] Garcia-Morales, Victor J., Francisco J. Llorens-Montes, and Antonio J. Verdú-Jover. "Antecedents and consequences of organizational innovation and organizational learning in entrepreneurship." *Industrial Management & Data Systems* 106, no. 1 (2006): 21-42.
- [49] Adeyoyin, Samuel Olu, B. O. Ajiboye, A. Isau Adegun, and S. Oluyinka Tomomowo-Ayodele. "Division of Labour and Job Specialization as Catalysts for Better Job Performance among the Staff of a Nigerian University Library."
- [50] Vleck, R. E. "Advanced construction and demolition waste management for Florida builders." University of Florida, Gainesville, Fla (2001).
- [51] Dawes, Christopher T., James H. Fowler, Tim Johnson, Richard McElreath, and Oleg Smirnov. "Egalitarian motives in humans." *nature* 446, no. 7137 (2007): 794-796.
- [52] Likert, Rensis. "A technique for the measurement of attitudes." *Archives of psychology* (1932).

- [53] Chin, Wynne W., and Peter R. Newsted. "Structural equation modeling analysis with small samples using partial least squares." *Statistical strategies for small sample research* 2 (1999): 307-342.
- [54] Gefen, David, Detmar Straub, and Marie-Claude Boudreau. "Structural equation modeling and regression: Guidelines for research practice." *Communications of the association for information systems* 4, no. 1 (2000): 7.
- [55] Chin, Wynne W. "The partial least squares approach to structural equation modeling." *Modern methods for business research* 295, no. 2 (1998): 295-336.
- [56] Hair, Joseph F. "Multivariate data analysis." (2010).
- [57] Stone, Mervyn. "Cross-validatory choice and assessment of statistical predictions." *Journal of the royal statistical society. Series B (Methodological)* (1974): 111-147.
- [58] Geisser, Seymour. "A predictive approach to the random effect model." *Biometrika* 61, no. 1 (1974): 101-107.
- [59] Kamaruddeen, Ahmed Mohammed, Y. Aini, and Ilias Said. "The Relationship Between Organizational Structure and Innovativeness of Malaysian Housing Developers." *IUP Journal of Architecture* (2011).
- [60] Anna, Alexandra L., Gaylen N. Chandler, Erik Jansen, and Neal P. Mero. "Women business owners in traditional and non-traditional industries." *Journal of Business venturing* 15, no. 3 (2000): 279-303.
- [61] Forbes, Daniel P. "The effects of strategic decision making on entrepreneurial self-efficacy." *Entrepreneurship theory and practice* 29, no. 5 (2005): 599-626.
- [62] Lawson, Nigel, Ian Douglas, Stephen Garvin, Clodagh McGrath, David Manning, and Jonathan Vetterlein. "Recycling construction and demolition wastes-a UK perspective." *Environmental Management and Health* 12, no. 2 (2001): 146-157.
- [63] Yates, J. K. "Sustainable methods for waste minimisation in construction." *Construction Innovation* 13, no. 3 (2013): 281-301.
- [64] Yean Yng Ling, Florence, and Dinh Song Anh Nguyen. "Strategies for construction waste management in Ho Chi Minh City, Vietnam." *Built Environment Project and Asset Management* 3, no. 1 (2013): 141-156.
- [65] Arif, Mohammed, Deepthi Bendi, Tahsin Toma-Sabbagh, and Monty Sutrisna. "Construction waste management in India: an exploratory study." *Construction Innovation* 12, no. 2 (2012): 133-155.
- [66] Osmani, M. "Construction waste minimization in the UK: current pressures for change and approaches." *Procedia-Social and Behavioral Sciences* 40 (2012): 37-40.
- [67] Lu, Weisheng, and Hongping Yuan. "A framework for understanding waste management studies in construction." *Waste Management* 31, no. 6 (2011): 1252-1260.
- [68] Yean Yng Ling, Florence, and Dinh Song Anh Nguyen. "Strategies for construction waste management in Ho Chi Minh City, Vietnam." *Built Environment Project and Asset Management* 3, no. 1 (2013): 141-156.
- [69] Wang, Yu Lin. "Sustainable Infrastructure and its Application in Singapore." *InAdvanced Materials Research*, vol. 450, pp. 1069-1073. Trans Tech Publications, 2012.

- [70] Koskela, Lauri, and Ruben Vrijhoef. "Is the current theory of construction a hindrance to innovation?." *Building Research & Information* 29, no. 3 (2001): 197-207.
- [71] Hassell, Scott, Anny Wong, Ari Houser, Debra Knopman, and Mark A. Bernstein. *Building better homes: government strategies for promoting innovation in housing*. Rand Corporation, 2003.