A VALUE HIERARCHY STUDY OF BUILDING SERVICES/COMPONENTS IN COMMERCIAL AND RESIDENTIAL DEVELOPMENTS: A COMPARATIVE ANALYSIS

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The success of any real estate investment is a function of in-depth pre-investment planning based on socio-economic and environmental considerations. The value of both commercial and residential development depends on the quantum of utility they can provide to the end users. This value is also a composite of different attributes of the respective developments, some internal and others external. This therefore calls for a need to evaluate their cost-value implications and identify user preferences in a hierarchal manner. This is an aspect neglected by most real estate developers as they fail to recognise the need for market research. Consideration of user preferences in development projects will be very useful in planning and budgeting, as emphasis will be on those building components and services that are more cost effective. Budget constraint encourages rationalisation in project planning. Using data of 150 from residential and 100 commercial tenants in areas of Lagos, Nigeria, achieving higher value-cost relationship using value hierarchy analysis was investigated. Analysis conducted using descriptive statistics and relative index revealed a hierarchy of values for different components/services and confirmed that occupiers do have prioritised preferences with respect to different building components/services in both residential and commercial developments. The study also revealed variations in preferences in both types of development.

Keywords: building services, cost effectiveness, commercial development, residential development, value-hierarchy, and willingness-to-pay.

INTRODUCTION

The excitement of identifying an unfilled human need and creating a product to fill it in a project is the stimulus that drives development. The best idea is the one that results in a product, which serves the user adequately, adds value to the community and does so at a profit (Miles, Berens, Eppli and Weiss 2007). A good developer must have a feel of the market and user preferences for building services and components. Human experience and observation contributes much in understanding real estate markets. Whatever the type of development being proposed, several fundamental questions are basic for any market research effort, which may include but are not limited to trends in the type of development, depth of the market and market perceived value. These questions become particularly important in real estate development

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because initial market research is carried out before the actual product is placed in the market and subsequently sold or leased. Several attributes must be present for real estate to command high value. Firstly, they include utility or ability to satisfy human needs and desires by providing shelter, privacy or income; secondly, effective demand must exist for the services or amenities that it produces (Shilling 2002). The level and quality of services and components that a property can produce is a major determinant of the productivity, utility and value. Mackmin (1985) classified the attributes that determine property values into those that are external and those that are internal to the property.

Real property represents not only a collection of location specific characteristics but also structural characteristics (Osagie 2006). However, the determination of value is also hinged on some environmental factors such as closeness to water bodies, amenities like hospitals, schools, recreational parks and infrastructure amongst others (Brown and Pollakowski 1977). These however, do not exhaustively represent all the variables that contribute to property values. A real property is a commodity that is heterogeneous and distinguished by a wide variety of attributes. Building services/components however, have their own contribution. This is because various, building services/components represent various users' preferences with respect to developed property. These will include factors like floor and wall finishing, façade, staircase, ventilation, lighting, toilets, electricity, water supply, parking space availability among others.

Developers need to understand that markets are created at the intersection of market participants, needs, desires (demand for space), characteristics and amenities of the built environment (Miles et.al 2007). By implication, if properties are developed without in-depth consideration of consumer preferences in terms of building services and components, marketing the developed property will be difficult and the value-cost relationship will be adverse. This paper will therefore highlight end-user preferences with respect to services/components of developed real estate in a hierarchical manner using the following objectives.

• Identify various services/components in residential and commercial development.

• Develop a value hierarchy of consumer preference using relative index.

• Compare the similarities and dissimilarities in consumer preferences in residential and commercial development.

• Make appropriate recommendations based on the findings.

LITERATURE

Both residential and commercial developments comprise of different building components/services with each of these services providing a different utility to the occupier/s, including visitors and customers of the business venture (in the case of commercial properties). It is often impossible to have unlimited resources (due to budget constraints) to provide for these services /components and this creates the need to prioritise them. Hence, emphasis should be on those items on the peak of the value hierarchy scale of these services/components as derived from market research. In this manner, priority will be given to those items that will give improved value for money to the consumer/ end user (Otegbulu and Onukwube 2008). Incidentally, most developers do not consider this important aspect of planning and in consequence they spend hugely without realising commensurate return on their investment.

According to McMahan (1989), many developers believe that marketing is appended to a project after construction has been completed. Nothing could be more damaging to the ultimate success of a project. A sound marketing program is not an afterthought, but rather an organic extension of the entire development program. If a sound market research is undertaken initially, translated into a good physical plan by the planning and design process, and implemented by a quality construction program, the marketing program will follow logically and consistently. Most market analyses include marketability studies. The marketability study addresses a narrow market or market niche. This will enable a developer to adopt a real estate product, price, and merchandising appeal that will better fit the market and attract a group of users with particular behaviour or preferences. Market study has four steps (Miles *et al.* 2007). They are as follows:

• Profile the space user to be served by the development.

• Identify the revenue unit and the associated service necessary to capture that revenue unit.

• Fully, define the product in terms of features, functions and benefits.

• Delineate pricing strategy, including sales logistics.

USER PREFERENCES

It is often believed that different individuals hold certain things dear to themselves which is reflected in their value judgment and willingness-to-pay a certain amount for a particular property in a particular location.

Morris and Winter (1978) identify six housing norms that could influence consumer preference in housing. These include tenure, space, structure type, quality, neighbourhood and expenditure. An in-depth review of these norms indicates a link between space, structure and quality on one hand and building services/components on the other hand. It is crucial to distinguish preferences from norms. This distinction is important because preference can differ enormously among different segments of society. Whereas the norms that apply to specific individuals are quite homogenous. Morris and Winter (1978) provide a reasonable explanation of preference where they state that preference is a related norm. It should be noted that preference in development happens quickly, is temporary and is produced by the constraints of circumstances. Norms however are not altered by preference in development, but are produced by socialisation.

Whether one is dealing with commercial or residential developments, market research is essential in ranking preferences among end users of real estate development.

A number of factors may affect the rent charged by owners of a developed real estate. Physical characteristics such as the space size, age, parking-lot features, steepness of stairs, natural ventilation, lighting, elevators, and air-conditioning may help to determine the market value for property owners. (Sirmans C.F, Sirmans F. And Benjamin 1989). In order to satisfy consumers' needs in a project, it is necessary to have an intricate knowledge of the consumer and to find the best market at a particular time. It may identify what is wanted and where they are wanted, so that plans may be made to meet those requirements when they are needed (Calvert, Bartley and Coles 2003). Aligning real estate development with user preferences will improve the productivity of the development. Productivity analysis may be defined as the capacity of a property to house economic activities, supply services, and provide amenities to

meet human needs. In other words, productivity analysis examines the ability of a property to serve a market segment. It focuses on the characteristics of a property to establish its competitive position in the market (Fanning 2005).

OPERATIONAL DEFINITIONS

Budgeting

Budgeting in real estate development is established by analysing and quantifying the various elements and services and applying unit costs to them to arrive at an estimate (budget). It is a good tool for planning as those services /elements that do not give high utility to occupier could be rationalised while those with high utility are prioritised.

Value Hierarchy

This is a measure of expressed preferences presented in hierarchical (ranking) order. They need not be expressed in monetary terms but must be in order of priority. According to Famuyiwa (2007), the value hierarchy concept or analysis is a scale of services that are arranged in order of preference or need. The most prioritised need, which implies the greatest need within a study area on an aggregate level would be found at the top of the scale; the second most important need then comes after and so on till the service which is least desired is shown and such occupies the lowest point on the scale.

The Research Method

In adopting a survey for this study, two structured questionnaires were designed for occupiers of commercial developments (more specifically office developments) and residential developments respectively. The questionnaires were administered to 100 randomly selected occupiers of office developments in Abraham Adesanya Estate, Ajah, Lagos out of which 80 (80%) were returned. 150 questionnaires were administered to selected households (residents) in the same location, out of which 101 were filled and returned (66%)

The questionnaires consist of 14 variables representing user preferences or needs in both commercial and residential developments for value hierarchy analysis of building services/components. (The results are exhibited in tables 2). The respondents were required to rank the questions on a five-point Likert scale (5 for 'very important', 4 for 'important', 3 for 'not important', 2 for 'not very important' and 1 for 'don't know'). The data obtained were analysed using both descriptive statistics and the relative index technique.

Study Area

Abraham Adesanya Estate, along Lekki-Ajah expressway was originally designed to house residential developments, but over the years, the original residential status has been intruded with commercial activities. Some developments have been converted from residential to commercial. There is thus a mix of mainly commercial and residential developments. Most of the residential buildings are on at most two floors and mainly flats, bungalows and terraced houses. The multi land use nature of the study area implies different land development potentials and associated market analyses. As such the comparison aspect seeks to educe similarities or variations made between both types of developments on user preferences in order to guide developers to work optimally in line with their budgets.

Table 1: Respondents' Characteristics

Residential Development	Frequency	(%)	Commercial Developments	Frequency	(%)
Gender of respondents			No of years of occupation in property		
Male	72	71.3	1-5	22	27.5
Female	29	28.7	6-10	42	52.5
			11-15	16	20
Age group of respondents			Space size occupied by establishment		
18-30yrs	47	46.5	20m²-100m²	36	45
31-40yrs	24	23.8	101m²-200m²	27	33.8
41-50yrs	9	8.9	201m²-300m²	8	10
51-60yrs	17	16.8	301m²-400m²	7	8.8
61-70yrs	4	4.0	401m²-500m²	1	1.3
			Above 500m²	1	1.3
Marital status			Number of floors in building		
Married	54	53.5	1	2	2.5
Single	37	33.6	5	27	33.8
Other	10	9.9	11	51	63.8
Number of years of occupation in property			Status in Establishment		
1-5	48	47.5	Business Owner	37	46.3
6-10	35	34.7	Shareholder/ Partner	5	6.3
11-15	18	17.3	Managerial		
			Supervisory Staff	30	37.5
			Administrative Staff	8	10
Status in household					
Head	78	77.2			
Spouse	23	22.8			
Household size					
1-3	32	31.7			
4-6	42	41.6			
7-10	27	26.7			
Level of education					
Primary school	4	4.0			
Secondary school	19	18.8			
First degree/diploma	48	47.5			
Postgraduate degree	30	29.7			
Household income per annum					
Less than N1,000,000	30	29.7			
N1,000,000-N1,499,999	34	33.7			
N1,500,000-N1,999,999	15	14.9			
N2,000,000-N2,499,999	4	4			
N,500,000-N2,999,999	7	6.9			
Over N4,000,000	11	10.9			
Employment status					
Private formal sector	9	8.9			
Civil servant	19	18.8			
Professional	24	23.7			
Practitioner	-	-			
Self employed	36	35.6			
Service sale worker	6	5.9			
Others	7	6.9			

Thus, this investigation elicits the rankings of various factors (building services/ components) in both commercial and residential buildings, which affect property values based on several features like socio-economic considerations of users and physical attributes of the developments respectively.

DATA ANALYSIS

Results in Table 1 show that all of those interviewed in residential developments are adults as they are all above 18 yrs. They are also educated (most of them have at least a degree or diploma) and are therefore in a more reliable position to give valid responses to the questions.

For the commercial developments, the largest proportion of the respondents (46.3%) are business owners who are assumed to be directly concerned about the welfare and condition of the buildings they occupy and ancillary services (if only for the duration of their interest). About 73% of the respondents have occupied the commercial properties for more than 6 years and 52% in the residential properties hence, they consequently have a good knowledge of the services in them. 63% of the commercial buildings' respondents occupy low-rise office developments and this will influence the ranking of services like lifts in their value hierarchy

Table 2: Preference Hierarchy for building Components

Residential development			Commercial development		
Variables	Relative index	Rank	Variables	Relative index	Rank
Constant electricity	0.912	1	Constant electricity	0.944	1
Reliable water	0.900	2	Reliable Water	0.908	2
Amount of space	0.889	3	External/Internal design	0.906	3
External/ Internal design	0.849	4	Toilet quality	0.899	4
Window type/ ventilation	0.771	5	Parking space	0.893	5
Floor finishing	0.752	6	Mobile phone reception	0.860	6
Natural lighting	0.744	7	Archiving/storage facilities	0.851	7
Wall finishing	0.723	8	Elevator/lift	0.843	8
Security	0.721	9	Security	0.820	9
Mobile phone reception	0.716	10	Amount of space	0.815	10
Parking space	0.708	11	Floor finishing	0.811	11
Toilet quality	0.708	12	Wall Finishing	0.809	12
Archiving/Storage facilities	0.699	13	Window type/natural ventilation	0.688	13
Elevator/ lift	0.654	14	Natural lighting	0.732	14

From the above, apart from electricity, water and security, user preferences for building services differ and vary in both residential and commercial developments. (Though electricity, water and security have varying indices). Electricity and water as essential as they are were included in the ranking because along the Lekki-Ajah axis, a number of locations lack these infrastructure and in spite of this, developers still go ahead to erect buildings, concentrating more on aesthetics, facade and less fundamental services. E.g. some parts of the elitist Lekki phase 1 estate lacks government supplied water services.

Electricity and water ranked highest in both residential and commercial developments. In some other areas in Lagos state, Nigeria both residential and commercial tenants sometimes do not have electricity for up to several months and in consequence spend huge sums of money in providing alternative power through informal and private

sources. These have serious implications on their budgets. Without power supply, the household will not be able to make use of domestic appliances like televisions, boilers, air-conditioners; e.t.c. unsatisfactory electricity supply affects productivity in offices and constrains households from maximising their domestic welfare. They (the household members) could suffer from a number of things including heat rash and contamination of food stored in their refrigerators.

Water shortages have adverse effects on sanitation in both commercial and residential developments. It also determines whether conveniences will be usable in offices or not. In residential developments, residents lose productive hours trekking to fetch or buy water from informal sources which more often than not are unhygienic and expose households to water related diseases.

Studies carried out by Otegbulu (2009) show that residential households spend between N21,000 - N35,000 ($U.S. 1 is currently equivalent to about N 200) monthly in fuelling electricity generating sets. Building developments that have regular electricity and water supply provided by the developers will therefore enjoy relatively high rental values. Some developers have achieved this by providing high voltage generators and boreholes in their developments. In the same study it was established that electricity influences the amount of rent payable by residential households to the tune of 29.9% while water influences rent by 28.77%.

In residential developments, water is followed by the amount of space, external design, and fenestration/ventilation. The ranking is thus influenced by needs of households. These are factors to be considered in planning and choosing sites for new developments.

For commercial developments water is followed by external and internal design, good toilet facilities, and parking spaces. Internal and external design will boost the corporate image of organisations, while good toilet conditions remains very important. Public toilets are rare in Nigeria and where they exist, they are in deplorable conditions. Parking space availability is also important to both staff of organisations and their customers. Parking in prohibited places many attract fines or towing of vehicles.

In residential developments, amount of space and aesthetics ranked among the top five. This undoubtedly indicates a high-ranking position of these features or services among building service components. The relative index impact of building services/ components reveals that there is little or no preference for the provision of elevators in the study area, which is a medium cost housing estate. The situation could be different in a high cost residential area.

Down the line, we still find variations in the index for both types of developments. E.g. while the amount of space came as the third for residential developments, external design was ranked third for commercial developments.

Developers should therefore bear the variations in preferences for residential and commercial buildings' components/ services in mind, as well as their similarities in order to plan properly. Those services and components that have priority in their value hierarchy should be given more attention while the others could be rationalised. This is very important development budget management. Paying attention to users' preferences will attract high market values in and for developments. By doing this, resources will be efficiently utilised and value for money achieved by both developers and occupiers. This could be achieved with good market research.

CONCLUSIONS

All of the respondents are residents within the study area and have been assumed to have a working knowledge of their buildings in relation to their needs and preferences. According to Janssen and Soderberg (2008), a number of property characteristics affect value in important ways and a direct association is formed between property characteristics and market value. This has been explicitly displayed in this work. Based on the findings, certain characteristics of buildings were found to have a greater impact on the value of their corresponding properties, than others.

It is therefore recommended that developers should take into cognisance the above stated factors that have greater influences on property values and command a higher willingness to pay for properties. As such, they will be working rationally within their budgets.

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