

End Users Complaint and Design Input of Information Technology Projects in Lagos State

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Abstract: This study focused on End Users Complaint and Design Input of Information Technology Projects in Lagos State, Nigeria. The objectives of the study were to test how significantly end users' complaints of ITPs impact on the software developers understanding of the users' needs in Lagos State. The study adopted a descriptive research design. The targeted population consisted of 268 staffs of five selected firms in Lagos State distributed across various categories. Using the Taro Yamane sample size formula, a sample size of 161 was drawn from the population. The researcher adopted the convenience sampling technique to select the choice of firm by selecting them based on their closeness to the researcher. The sample was stratified to ensure that all the members of the population were adequately represented. A random sampling technique was used in each stratum. Data was collected through a self-developed questionnaire. The collected data was analyzed using inferential statistics using SPSS (Statistical Package for the social sciences). The findings revealed among others that, the regression coefficient for the 'End' variable is positive (.226), suggesting that an increase in the frequency of end-user complaints is associated with a slight increase in the perceived impact on ITP design changes for the selected firms in Lagos State, Nigeria. It was therefore recommended among others that software firms in Lagos should diversify their approaches to understanding and responding to user needs.

Keywords: Information Technology Projects, End Users' complaint, End Users' Needs, design changes, Technology Innovation

I. Background to the Study

Several reports such as that cited by Brandi (2016); Robins (2018); Zucker (2023) etc. have shown that substantial number of projects failed annually around the world for various reasons such as the passive project sponsor, insufficient resources, shifting organizational context etc. Robins further noted it's devastating cost on both an organization's business line and national economy of any nation. Schmidt (2023) noted that, Information Technology Projects (ITPs) are no exception to failures despite the enormous benefit when successful. While Lauesen (2017) believed the magnitude of these ITPs failures could sometimes be a major surprise because of the amount of brainpower (in term of specialized personnel in Information Technology Projects - ITPs) and cost involved in either/both private and public organizations. Schmidt (2023) observed from past researches that the rate of failure of ITP is higher than other project with so much wasted scarce resources as most are even terminated before their completion.

Lauesen (2017) noted that there is rarely an ITP without a plan with key deliverables set, project team and other necessary things done before work gets underway. However, ITPs still fail at an unprecedented rate which has become an expensive experience over time. Thus, stakeholders like Project Management Institute as observed by Brandi (2016) noted that, about 37 percent of projects do fail meet the stated objective(s), 17 percent outrightly failure is recorded while about 36 percent of the identified projects cost cannot be recovered. Adam (2016) observation of the same situation on ITPs shows that, about 25 percent fail outrightly, at least another 50 percent required rework while about 20 to 25 percent don't meet up with the acceptable Return on Investment (ROI).

Despite the above observation on rate of projects failures especially ITPs from literatures, project failure can be avoided. Especially if the manager and other stakeholders take cognisance of how the project are managed especially in term of what this study will regard as "trivial pitfalls" that are often overlooked. The frequency at which the managers of ITPs overlooking or misinterpret these assumed simple pitfalls like end users' complaints was also observed by MacNeil (2022). Thus, affecting how the ITPs are been managed.

One of these trivial pitfalls in managing ITPs is what and how project information are gathered, viewed, stated and measured to design the project or determine the level of success achieved. To this study, this shows one of the trivial indicators, though to Zoufa and Ochieng (2014), project is deemed a failure if the endeavor fails to achieve the stated objectives by the organization. While other researches such as; Ogohi & Umar (2019) etc. believed that some stakeholders deemed a project as a failure once the identified scope of work is not delivered on schedule, within an acceptable budget.

However, an observation of Ogohi & Umar (2019) and Zoufa and Ochieng (2014) researches shows that, their indicators of project success are not cautious of individual end user's acceptable or complaints of the ITPs. These end users are the main peculiarity between private and public investment in projects, of which the ITPs are not left out. This is because the zeal to improve end users' satisfaction and reduce complaints on each ITP platform is the competitive advantage firms sort after before taken an investment decision (Rocheleau & Wu, 2002; Tugcu, 2023).

Hence, this study examines how the end users' complaints management of ITPs influence the design for the success or failure of the projects with the multiple choices available in the private sector.

Statement of the Problem

Tugcu (2023) noted from the study of McKinsey that 70% of large and complex ITPs rarely meet their stated goals especially in the digital transformed banking sectors. In developing countries especially in Nigeria, most stakeholders and researchers like Eja & Ramegowda (2020) etc. see corruption as the only factor of project failure. With the wide acceptance of corruption as a major cause of project failure in Nigeria, this study examines and considered the trivial and rarely examined factors by most researchers or stakeholders.

First, a preliminary examination of typical Nigerian work environment, the study observed the negligence of End Users who are the final consumer of the project in the design and development processes of their IT products. This is not far from the observation of Sommerville (2023) that, it's the developer and not the end users that is in control of the design, development and subsequent changes of ITPs changes. This may be due to the inability of the developer to listen or collate input data from the vast possible end users of the project. However, what most researchers and stakeholders have rarely examined is how the numerous end users complaints can influence the redesigning of the the existing ITPs or served as input to the design and development of future ITPs. Hence this study will examine level of influence the end users complaints of ITPs had on the design and subsequent changes ITPs

Second, most researchers especially in developing counties like Nigeria have rarely examined how the collated end user's complaint has helped the ITPs developers to gain a better understanding of the users' needs. This is because researchers like Vartika (2018) noted that, lack of enough stakeholders' engagement causes project failure as most project does not possess the attribute required by real problem. Thus, a critical examination will give a better understating of how the collated end users complaints influences the attributes and deliverable design into ITPs.

Research Objectives

The main objective of this study is to examine how end-user complaints influence the design and development of ITPs in selected software developing firms in Lagos state, Nigeria. The specific objectives considered the following:

- i. To evaluate the impact of end users complaints of ITPs on the design and subsequent changes of ITPs in selected software developing firms in Lagos State.
- ii. To determine the relationship between end users' complaints of ITPs and the software developers understanding of the users' needs on ITPs in Lagos State.

Research Questions

- i. What is the impact of end users complaints of ITPs on the design and subsequent changes of ITPs in selected software developing firms in Lagos State.
- ii. How significant is the relationship between end users' complaints of ITPs and the software developers understanding of the users' needs in Lagos State.

Research Hypotheses

- i. There is no significant impact of end users complaints of ITPs on the design and subsequent changes of ITPs in selected software developing firms in Lagos State.
- ii. There is no significant relationship between end users' complaints of ITPs and the software developers understanding of the users' needs in Lagos State.

Relevance of the study

The weight each variable indicator(s) has in policy formation differs among organizations. This study's assessment of the relationship between the study variables– end users' complaint, none design and changes subsequent changes in ITPs, and software developers understanding of the users' needs–via the selected indicators gives better insight to managements of IT projects organizations. It will give these managers the opportunity to assess other indicators of interest in their policy formation to get a better success factor. It also serves as a bases for other researchers or stakeholders to studying how end users and developers react to other identifiable indicators in further studies.

Scope and Limitation of the Study

This study examined the relationship between IT Projects Management and End-User Satisfaction in selected public institutions in Lagos State. Though, there are several indicators to measure this relationship, the scope of this study will be limited to exploring such indicators as end users' complaint, none design and changes subsequent changes in ITPs, and software developers understanding of the users' needs in selected firms in Lagos State.

This study will also, for convenience, cost and time constraints, be limited to four selected software developing organization in Lagos State Fintrak Software Company Limited, Vatebra Limited, BISM Software Limited, Simplex Business Solutions Limited, Advancy Technologies Nigeria Limited.

II. Literature Review

This section captures the relevant conceptual and theoretical research reviewed. This is to provide a general understanding of the relevance of end users complaint in the design of ITPs especially in the technological advance business of today.

Concept of Study Variable

End Users Complaints of ITPs

Amit and Kaur (2020) noted the recent significant increase in the area of complaint mechanism and management especially among European nations as an important strategy for competitive placement. Amit & Kaur also present end users' complaint as a multi-dimensional concept as depending on the discipline or perception of the researcher and in term of the pre and/or post used of the data gathered from the complaints. But irrespective of the differs views that may occur, Amit & Kaur believed complaints are actions or expression of dissatisfaction caused by the gap created between expectation and actual experience of a project outcome, product or service. Luise & Elisabeth (2017) conceptualised complaint as a formal opportunity for victims, witnesses of a system's wrong or shortcomings report their observation of a misconduct for redress. These concepts of end users complaints from differs researchers and stakeholders which differentiat it from the concept of feedback as observed by the Commonwealth Ombudsman (2023) guild maybe the reason most mnagers of projects especially ITPs don't used complaints as design inputs. To Commonwealth Ombudsman while complaints are implied or express statements of dissatisfaction to seek for reasonable response or extent legal action if required, feedbacks are seen as compliments, criticisms, comments or suggestions where reasonable responses are not sought, or expected. However, to this study a statement that will express the dissatisfied gap(s) observed between the end users' expectation(s) and the actual experience(s) of the project(s) is/are likely to contain the end users' requirements of the project. In ITPs these requirements form the basis for design input or redesigning of existing software by developers. Thus, in this study, ITPs end users' complaint is an expected expression or feedback of the observed gap between the end users' expectation(s) and the actual experience(s) due to dissatisfaction.

Information Technology Project (ITPs)

To have a better understanding of the concept of ITP, this study examined briefly the concept of the various words that formed the construct-information, technology and project. This is because peculiarity of the construct to this study. While the scientific view of the term information according to Mathur (2022) is simply processed data that gives relevant meaning and communication to all stakeholders, Olabode (2018) noted that, technology could be seen as the application of software, i.e., knowledge, techniques, crafts, or methods of organizational usage of (hardware) tools, systems machines, etc. in order to solve a problem, for better output or perform a specific function. Thus, this study opinioned that IT can be a driving force of communication that uses both hardware such as computer, and software in data collation, processing and distribution of data to add value that can improve the wellbeing and productivity of a system.

Though, there has not been a direct definite definition of ITPs as most conceptualisation of the construct has been indirect. Its either stated in the form of who an IT project manager is as done by some stakeholders like Coursera (2021) or trying to show the importance of IT to project management as seen in the work of Dube & Chimog (2022). However, project according to PMI-PMBOK- been a temporary endeavour organised within the limited constraints such as time, cost and resources to produce a unique product, this study conceptualized ITPs as "The product of knowledge, skills, tools, and techniques to enhance a scientific force of communication that uses both hardware such as computer, and software in data collation, processing and distribution of data to meet the requirements of a unique output or expected deliverables". Though, this concept may not be all encompassing enough but can serve as a bases for improve conceptualization of the construct. Based, on this concept, this study is of the opinion that, how an IT project is been manage determine the possibility of attaining the desirable deliverables of the project. Though, theoretically researchers and stakeholders are very conversant with the basic management functions of planning, controlling, organizing staffing etc. but the trivialization of the managers' end users' complaints, needs, attitudes, ego and other implicit behavior that impeded their management of projects success have been an issue that have not been truly addressed.

Thus, several stakeholders and researchers have examined the effectiveness of managing projects to success through end users' engagement. Yuri, Ayokunle, & Sutrisna (2022), identified three phases where engagement of end users improved the expected deliverables. These are in early design phase, design process phase and post-design phase. This means almost all through the project life cycle the engagement of end users should be encouraged. Though, their study was examined in the construction sector, this study will deviate slightly by studying this situation among public sector users of IT projects.

Theoretical Review

Technology Acceptance Model (TAM)

This is a model that explains how people accept information technology. And the frequency of users usage or complaint can determine the level of acceptance of an existing or a new information technology product (Sun and Zhang, 2006).

According to Marikyan & Papagiannidis (2023) TAM explains the acceptance of information systems by individuals. TAM postulates that the acceptance of technology is predicted by the users' behavioral intention, which is, in turn, determined by the perception of technology usefulness in performing the task and perceived ease of its use.

A number of situations, including healthcare-Holden & Karsh (2009), e-learning Moon and Kim (2001), and social media Alalwan, Rana, Dwivedi, & Algharabat (2017) have been studied using the TAM to examine the adoption of information technology. It has also been used to comprehend the adoption of particular technologies, such as mobile apps and cloud computing (Venkatesh et al., 2012).

Expectation Confirmation Theory (ECT)

The theory explains of how people's expectations about acquired goods, services, and other experiences is and upheld. According to the hypothesis, people are more likely to continue using a good or service, if it lives up to their expectations and less likely to do so if it falls short (Hsu & Lu, 2004). The theory contends that people build pre-consumption expectations about a good or service based on past experiences, advertising, word-of-mouth, and other information sources. People judge their experiences based on their initial expectations after using the product or service. They are more likely to continue using the product or service if their expectations were met or exceeded. They are less inclined to use it again if the experience doesn't live up to their expectations.

The significance of controlling end users' expectations is one of ECT's major contributions. Businesses that continuously meet or exceed their end users' expectations are more likely to keep them as end users develop better preference for their goods or services (Baharum & Jaafar, 2015). Positive or negative correlations between expectations and performance serve as a mediating factor for this preference. In the event that a product performs better than anticipated (a positive confirmation), pleasure will follow. When a product doesn't live up to expectations, the customer is probably going to be complain (Baharum & Jaafar, 2015; Hsu & Lu, 2004).

Relevance of Theories to the study

The widely used Technology Acceptance Model (TAM) is a theoretical framework for predicting and comprehending the variables that affect end-users' acceptance and utilization of technology (Venkatesh et al., 2012). TAM places a strong emphasis on the significance of perceived value and perceived usability in determining users' attitudes which is reflected in this study as the end users' complaints toward embracing both an existing or new ITPs. TAM can aid in the creation of interventions that encourage the adoption of ITPs and raise end-user complaints by assisting software developers to pinpoint the variables that affect end-users' readiness to accept and utilize the ITPs the developed.

According to the Expectation Confirmation Theory (ECT), the degree to which end users' complaints of the ITPs are addressed affects how satisfied they are (Hsu & Lu, 2004). ECT can aid the ITPs developers in the identification of end-user expectations and the creation of interventions that meet or surpass those expectations in the context of IT project management. Project managers may increase end-user happiness and encourage the adoption of new ITPs by addressing end-user complaints.

III. Research Methods

This section highlights the process and procedure (which includes: research design, study population, the study sample and sampling techniques, sources of data and method of analysis) that will be used in this study, and also presents important information (data) on specific fields where the survey was carried out.

The study adopted descriptive research design. The population of the study comprised of the Customer Implementation officers and ITPs developers of five selected IT firms. This is because incoming complaints to most ITPs' development organization in Nigeria is first examined, analyzed and documented by the Customer experience and Implementation officers. It's then sent to the developers to raise the complaints tickets after detailed analysis.

These firms were selected using convenience. This is because of the researcher's familiarity with the firms and invariably the ease of data collection. The firms and population are Fintrak Software Company Limited - 96, Vatebra Limited - 84, BISM Software Limited - 28, Simplex Business Solutions Limited - 42, Advancly Technologies Nigeria Limited - 18. The population of the study is thus 268. A sample of 161 was drawn from the population using Yamane (1969 as cited by Anokye, 2020). The sample will be stratified as shown in table 3.1 to ensure that all the firms will be adequately represented. A random sampling technique was used in each stratum because, online questionnaires links were sent directly to the staffs through the HRs of the selected firms. And first fully filled questionnaires that make up the acceptable sample size in each stratum is what was used. And as identified earlier in the study's scope and limitation, convenience sampling technique was used to choose the five (5) selected firms based on the proximity and accessibility for the researcher and the field officers.

Data was collected through self-developed questionnaire. A five-point Likert Scaled online questionnaire was used to assess how the indicators adopted in this study for the respondents of the five selected private firms. Copies of questionnaire was taken to the offices and distributed to the staff through the HRs with minimal persuasion within two weeks.

To establish the validity of the research instrument, the study gathered opinions of experts in the field of study (content validity). Also, to establish the validity of the research instrument, the study used Cronbach's Alpha Reliability Statistics, showing the internal consistency with an initial data collected. The collected data was analyzed using descriptive statistics (frequency table) and inferential statistics (correlation, regression, coefficients of determination) with the aid of a statistical software called IBM SPSS (Statistical Package for the Social Sciences).

Yamane Formula

$$n = \frac{N}{1 + N(e)^2}$$

Where;

n is the sample size,

N is the population size which is **268**, and

the level of precision. Taken to be **5%** in this study

Applying this formula, we get $n = \frac{268}{1 + 268(.05)^2} = n = 160.50 \approx 161$

The sample size for each stratum was represented by n^f . This was determined by getting the fractional contribution of each stratum to the entire 268, and multiplying it by the sample size. This formula is thus; $n^f = (\frac{N_f}{N_t}) * n$

where n^f is the sample size in each stratum; N_t is the population in each stratum

N_t is the population of the study; **n** is the sample size from the Yamane formul

The result is approximated to the nearest whole number. For example, Management Sciences sample size will be $(96/268) * 161 \approx 58$ as shown in table 1.

The final summation of the sample size column resulted in 234. Since this figure is higher than the 233 from the Yamane formula it can represent the system adequately.

Table 1: Distribution of Samples in Strata

S/N	Category	Population		Sample
		N_f	Source	
1	Fintrak Software Company Limited	96	Firm's HR department (2024)	58
2	Vatebra Limited	84	Firm's HR department (2024)	51
3	BISM Software Limited	28	Firm's HR department (2024)	17
4	Simplex Business Solutions Limited	42	Firm's HR department (2024)	25
5	Advancly Technologies Nigeria Limited	18	Firm's HR department (2024)	10
	TOTAL (N)	268		161

IV. Findings and Discussions

Hypotheses Testing

H₀₁: There is no significant impact of end users complaints of ITPs on the design and subsequent changes in ITPs in selected software developing firms in Lagos State.

Model Summary						
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	
1		.155 ^a	.024	.018	.56232	
a. Predictors: (Constant), End						
ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.236	1	1.236	3.907	.050 ^b
	Residual	50.277	159	.316		

	Total	51.512	160			
a. Dependent Variable: CDesign						
b. Predictors: (Constant), End						
Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.411	.486		7.015	.000
	End	.226	.115	.155	1.977	.050
a. Dependent Variable: CDesign						

Analysis of the Model

The presented model examines the relationship between the frequency of end-user complaints (End) and the perceived impact of these complaints on Information Technology Project (ITP) design changes (CDesign). The model's objective is to test the null hypothesis (H01) that there is no significant impact of end-user complaints on ITP design changes.

The model explains a minimal amount of variance in ITP design changes, as indicated by the low R-squared value of .024. This suggests that other factors beyond the frequency of end-user complaints are more influential in determining the extent of design changes.

The ANOVA results show a marginally significant F-statistic ($p=.050$), indicating that the model as a whole is on the brink of being statistically significant. However, this result should be interpreted cautiously due to the low explanatory power of the model.

The regression coefficient for the 'End' variable is positive (.226), suggesting that an increase in the frequency of end-user complaints is associated with a slight increase in the perceived impact on ITP design changes. While this relationship is positive, its magnitude is small, and the statistical significance is marginal.

Implications for the Study

The findings of this analysis provide limited support for the notion that end-user complaints directly influence ITP design changes. The weak relationship between the two variables suggests that other factors, such as the severity of complaints, the specific nature of the complaints, or organizational factors, might play a more critical role in driving design modifications.

It is essential to acknowledge that the model's limitations, particularly its low explanatory power, restrict the strength of conclusions that can be drawn. Further research with a more comprehensive set of variables and a larger sample size is necessary to gain a deeper understanding of the complex interplay between end-user complaints and ITP design changes. Additionally, exploring qualitative data to understand the nuances of how end-user complaints are perceived, interpreted, and acted upon by software development teams could provide valuable insights that complement the quantitative findings.

H₀₂: There is no significant relationship between end users' complaints of ITPs and the software developers understanding of the users' needs in Lagos State.

Model Summary						
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	
1		.014 ^a	.000	-.006	.38434	
a. Predictors: (Constant), End						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.004	1	.004	.030	.863 ^b
	Residual	23.487	159	.148		
	Total	23.491	160			
a. Dependent Variable: CDev						
b. Predictors: (Constant), End						

Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.315	.332		12.986	.000
	End	-.013	.078	-.014	-.172	.863
a. Dependent Variable: CDev						

Analysis of the Model

The second model investigates the relationship between the frequency of end-user complaints (End) and software developers' perceived understanding of user needs (CDev). The null hypothesis (H02) posits that there is no significant relationship between these two variables.

The model exhibits an extremely weak relationship between the frequency of end-user complaints and developers' understanding of user needs, as evidenced by the negligible R-squared value of .000. This indicates that end-user complaints explain virtually no variation in developers' perceived understanding of user needs.

The ANOVA results strongly support the null hypothesis, as the F-statistic is insignificant ($p=.863$). This implies that there is no evidence to suggest that the frequency of end-user complaints is associated with changes in software developers' perception of their understanding of user needs.

The regression coefficient for the 'End' variable is very small and negative (-.013), indicating a negligible and practically insignificant decrease in perceived understanding of user needs with an increase in complaint frequency. However, given the overall insignificance of the model, this coefficient should be interpreted with extreme caution.

Implications for the Study

The findings of this analysis provide strong evidence against the hypothesis that end-user complaints influence software developers' understanding of user needs. This suggests that the mechanisms through which developers acquire knowledge about user requirements might be independent of the complaint process.

It is crucial to explore alternative factors that might shape developers' understanding of user needs, such as formal user requirements gathering processes, user interviews, and usability testing. Additionally, investigating the role of organizational culture, communication channels, and developer experience in influencing user understanding could provide valuable insights. The results highlight the need for further research to uncover the complex factors that contribute to effective user needs identification and incorporation into software development processes.

V. Conclusions

The findings of this study indicate a limited relationship between end-user complaints and both ITP design changes and software developers' understanding of user needs in selected Lagos-based software firms. While a marginal association was found between complaint frequency and ITP design modifications, the overall effect size was negligible, suggesting that other factors likely play a more significant role in driving design changes. Moreover, the absence of a discernible relationship between complaints and developers' perception of user needs challenges the notion that complaint management is a primary mechanism for improving user understanding. These results underscore the complexity of the factors influencing ITP design and development and emphasize the need for a more nuanced understanding of how end-user feedback is integrated into the software development lifecycle. Future research should delve deeper into organizational, processual, and individual-level factors that mediate the impact of end-user complaints on ITP outcomes.

Recommendations

Given the limited influence of end-user complaints on ITP design and development observed in this study, it is recommended that software firms in Lagos should diversify their approaches to understanding and responding to user needs. While complaint management systems remain essential, they should be complemented by proactive user research methodologies such as usability testing, user interviews, and surveys. Furthermore, establishing formal channels for user feedback beyond complaint mechanisms can foster a more continuous and comprehensive understanding of user expectations. It is also crucial to invest in developer training on user-centered design principles and techniques to enhance their ability to translate user insights into effective ITP solutions. By adopting a multi-faceted approach to user engagement and feedback, software firms can improve the quality and relevance of their ITPs and ultimately enhance user satisfaction.

Suggestions For Further Studies

Given the limited understanding of the relationship between end-user complaints and ITP outcomes, future studies could benefit from adopting a more comprehensive research design. This could involve longitudinal studies to track the evolution of ITPs over time in response to user feedback, incorporating a wider range of ITP types and industries, and delving deeper into the organizational and contextual factors influencing the management of user complaints. Additionally, qualitative research methods could provide rich insights into the perceptions and experiences of both end-users and software developers regarding the complaint process and its impact on ITP development. By expanding the scope and depth of research in this area, a more comprehensive understanding of the complex dynamics between end-user feedback and ITP outcomes can be achieved.

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