

# Uncovering the Influence Mechanism between End-User Involvement and Product Usage in Public Procurement: A Service-Dominant Logic Perspective

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## Abstract

End-user centric procurement practices, while receiving a growing scholarly and policy interest, lack solid theoretical and empirical foundations. Using service-dominant logic, this study seeks to uncover the influence mechanism between end-user involvement and product usage in public sector procurement. Primary data was gathered from 122 public organisations in a developing economy, Ghana. PROCESS macro for SPSS was used to estimate the study model. The findings suggest that end-user involvement is positively related to end-user satisfaction but not product usage. Additionally, the findings provide empirical support for our contention that the link between end-user involvement and end-user product usage is mediated by end-user satisfaction. This study adds to the end-user centric procurement literature by offering theoretical and empirical insights on the end-user satisfaction process that explains the relationship between end-user involvement and product usage.

**Keywords:** end-user public procurement, end-user involvement, end-user satisfaction, product usage, Ghana

## 1. Introduction

Consider a case involving the relationship between the procurement department of a public institution of higher learning in a developing country (Ghana) and a user department. The user department makes a requisition for the procurement of 120 desktop computers to set up a computer laboratory. Surprisingly, the user department rejects and refuses to use the procured computers on grounds that beyond the requisition stage, they were not involved in subsequent processes of the procurement of the computers. This dissatisfaction with the procurement process led the end-user to assume that the procured computers are of poor quality and not fit for purpose. Consequently, the Director of the procurement, out of frustration, remarks: "It is not envious to be a director of procurement in a public entity". More often, public procurement units are faced with challenging situations like the one described above. An intriguing question, therefore, arises: to what extent should end-users be involved in various stages of the procurement process to yield end-user satisfaction and subsequently, product usage?

As has been long acknowledged, public sector procurement is a driver of sustainable socio-economic growth and development particularly in developing economies (Ambe, 2019; Aigheyisi and Edore, 2015). However, while procurement aims at meeting the input needs of an organization for its operational activities, its optimum benefit largely depends on the effective and efficient utilization of the procured inputs by the end-user. As such, improving product usage, the extent to which end-users are willing to accept and use the procured products or services (Hubert *et al*, 2019; Dennis *et al*, 2009), is paramount in enhancing organizational efficiency.

The stakeholder principles suggest that integrating stakeholder interests into an organization's strategic decisions and activities is critical in improving business success (Danso *et al.*, 2019; Theodoulidis *et al.*, 2017; Aarseth *et al.*, 2011). Relatedly, the service-dominant logic (SDL) argues that value is created by all stakeholders and determined by the benefits gained from the use of products and services (Font *et al.*, 2021). The procurement

process encompasses a wide range of stakeholders including internal end-users with whom the process begins and ends. From the arguments of stakeholder and SDL principles, the involvement of end-users in the procurement process is expected to stimulate product usage. Furthermore, the concept of end-user-involvement reflects a core proposition of SDL that, end-user-centered services, including procurement, promote value co-creation (Vargo and Lusch, 2004, 2008), enhance end-user satisfaction, and consequently, product usage.

Accordingly, end-user involvement in the procurement process takes on instrumental relevance in enhancing product usage and has received scholarly attention (Holma *et al.*, 2020; Torvinen and Ulkuniemi, 2016; Haukipuro *et al.*, 2016). Yet, the theoretical specification of end-user involvement and product usage pathway lacks empirical validation in the procurement literature. As such, the beneficial effect of end-user involvement in the procurement service ecosystem remains unclear to practitioners. In addition, the mechanism through which end-user involvement translates into product usage has rarely been accounted for in the procurement research. This is particularly surprising considering that prior research has supported the SDL's argument that end-user involvement in the procurement process can explain end-user satisfaction (Torvinen and Ulkuniemi, 2016; Vega-Vazquez *et al.*, 2013), and ultimately product usage. Thus, a key question that remains unanswered is; how does end-user involvement drive product usage in the procurement context?

We propose that involving end-users in the procurement process can stimulate end-user satisfaction – the degree to which user departments are content with their organization's procurement process (Sun *et al.*, 2012; Kim and Lee, 2014) – and in turn lead to improved product usage. We argue that ensuring end-user satisfaction with the procurement process can help build a conceptual bridge between end-user involvement and product usage (Wixom and Todd, 2005). Consequently, we draw on SDL theory to examine how the interface between end-user involvement and end-user satisfaction drives procurement performance in terms of product usage.

Our study makes the following contributions. First, we enhance an understanding of the relationship between end-user involvement and product usage. Specifically, we show that the beneficial effect of end-user involvement on product usage may be explained by the extent to which the end-user is satisfied with the procurement process and the procured products. In doing so, our study helps address the theoretical gap in the end-user involvement-product usage relationship which has long been assumed. Second, we extend knowledge by integrating SDL theory with procurement research to enrich the discussions in an important line of inquiry regarding end-user involvement-product usage link and demonstrate that superior benefit can be extracted from a firm's procurement activities by considering the end-users as value co-creators and active participants of the procurement process rather than passive consumers. In addition, while SDL theory is widely recognized as a rich theoretical platform from which to study business outcomes, the procurement literature has yet to fully explore the role of SDL in determining procurement success; we work to rectify this gap by examining how a core aspect of SDL shapes the success of procurement activities. In the section that follows, we present the literature review and hypotheses development, methods, and data analysis. We then present the discussion, managerial implications and limitations, and suggestions for future studies.

## 2. Literature Review and Hypothesis Development

### 2.1 End-user Involvement and User Satisfaction

Customer or user involvement is one of the key characteristics of service that has received substantial attention in the literature (Anning-Dorson, 2018). Broadly, customer/market orientation literature recognises the important role of customers in creating value for themselves and the firm (see Anning-Dorson, 2018; Chan *et al.*, 2010). Firms that cultivate customer or consumer involvement in their value creation process are likely to improve performance outcomes (Anning-Dorson, 2018; Chan *et al.*, 2010). Generally, customer involvement has been defined as the ability of the service firm to create the environment for the customer to participate in the service production and delivery process through interaction (Zhang *et al.*, 2015).

In public procurement, user departments, employees, and other individuals who consume procurement outputs represent customers or end-users. The public procurement procedures require that the inputs from these users are factored into buying decisions (Kajimbwa, 2018; Keränen, 2017; Erridge and McIlroy, 2002), making the concept of customer or end-user involvement relevant in the procurement service ecosystem. The principles of value co-creation suggest that customers determine the value and co-create it with the firm by participating in developing value propositions and sharing their expectations and experiences (Zaborek and Mazur, 2019; Chakraborty *et al.*, 2014). In line with this, the notion of end-user has been conceptualised as a value co-creating process (Zhang *et al.*, 2015). For example, Sashi (2012) asserts that customer engagement is an action that seeks to expand the role of customers by including them in the value-adding process as co-creators of value. In the procurement context, the concept of end-user involvement is conceived as a continuous set of actions that aim at expanding the role of

procurement end-users by involving them in the value-adding process as co-creators of value (Torvinen and Ulkuniemi, 2016). Building on this conceptualization, the current study defines end-user involvement as the extent to which the end consumers or users of procurement outputs are involved in the procurement value creation process (Torvinen and Ulkuniemi, 2016; Zhang *et al.*, 2015). This view of end-user involvement is underpinned by the central principles of SDL which argue that involving customers in the value creation endeavor can improve service delivery performance (Vargo and Larsh, 2004). Thus, end-user involvement facilitates organizational success through interaction, exchange of ideas, and collaboration between the procurement function and the user department.

Empirically, the positive link between the user or customer involvement and firm performance outcomes has been established in the broader spectrum of customer involvement literature (Chen *et al.*, 2021; Xie *et al.*, 2021; Li *et al.*, 2020; Anning-Dorson, 2018; Zhang *et al.*, 2015). Despite these scholarly contributions on user involvement, there is a limited understanding regarding how end-user involvement in the procurement process may enhance procurement performance outcomes.

User satisfaction and product usage constitute key dimensions of procurement performance (Brandon-Jones and Kauppi, 2018; Aboelmaged, 2010; Kumar *et al.*, 2005; Adotévi, 2004). However, as prior research indicates, procurement decisions have usually been driven by cost-saving and efficiency with little focus on user satisfaction and usage (Burger and Hawkesworth, 2011; Asare and Prempeh, 2016; Telgen *et al.*, 2012; Raymond, 2008). Generally, the concept of customer satisfaction (also user satisfaction) has attracted the interest of both scholars and practitioners in the marketing literature (Stock and Bednarek, 2014; Bundschuh and Dezvane, 2003). Customers are satisfied with a service when the value provided for them during the service process fulfils their needs (Sun *et al.*, 2012; Oliver, 1995). In line with this view of satisfaction, we define end-user satisfaction as the extent to which the procurement process meets the expectation of the user department (Sun *et al.*, 2012; Kim and Lee, 2014; Hunt, 1977).

Empirical research on customer satisfaction, in general, abounds in extant literature. For example, several scholars have established a positive relationship between customer satisfaction and desirable outcomes, such as repeat purchase intentions (Seiders *et al.* 2005), loyalty (Mittal and Kamakura, 2001), post-purchase attitude (Kuo *et al.*, 2009), positive word-of-mouth (de Figueiredo Marcos, and de Matos Coelho, 2021), market share (Anderson *et al.*, 1994), firm value (Luo *et al.*, 2012), and firm profitability (Pooser and Browne, 2018). While these scholarly works have justified the importance of customer satisfaction by explaining its beneficial influence on firm performance (Bindroo, *et al.*, 2020; Raithel *et al.* 2012), there is limited understanding of how user satisfaction with the procurement process may drive procurement performance in terms of product usage.

Prior research recognizes user satisfaction as a significant indicator of process success (Prakash, 2010; Myburgh *et al.*, 2005; Mahmood *et al.*, 2000). Public sector buying is mostly focused on meeting the needs of end-users or the user departments responsible for the implementation of public policy and service delivery (Bitzidis *et al.*, 2020; Patrucco *et al.*, 2019; Thai, 2017; Passera, 2013; Brandon - Jones and Carey, 2011). The procurement function's ability to meet the expectations of end-users within public organizations is key in ensuring efficient usage of procured products and services (Passera, 2013). As Kositanurit *et al.* (2011) assert, an increase in user satisfaction is expected to lead to a higher level of product or service utilization. However, whether user satisfaction may lead to product usage in the procurement context lacks empirical validity. Hence, we draw on SDL to develop and test a model that argues that end-user involvement in the procurement process may improve the usage of procured items through end-user satisfaction. This theorization is captured in the research model in Figure 1.

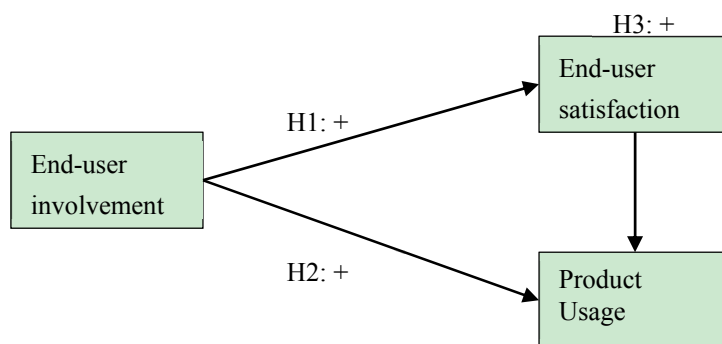


Figure 1. Conceptual model

## 2.2 End-user Involvement and Product Usage

End-user involvement reflects the extent to which the end-user or user department participates in the procurement process (Torvinen and Ulkuniemi, 2016; Zhang *et al.*, 2015). A key assumption of SDL is the recognition of customers as active co-creators rather than passive consumers of value (Vargo and Lusch, 2004). The principle of co-creation in which the customer is seen as a critically important operant resource of value creation (Saarijärvi *et al.*, 2013) can improve consumption and usage experiences (Payne *et al.*, 2008), and thus provides the premise for customer involvement in the service delivery process (Chen and Wang, 2016; Payne *et al.*, 2008).

Accordingly, drawing on the arguments of SDL, we propose that end-user involvement may enhance procurement performance outcomes such as product usage. As prior research suggests, customers who participate in their value creation through the co-production of a product or service are more likely to utilize the products (Chan *et al.*, 2010; Yim *et al.*, 2012). In the procurement context, value co-creation reflects the end user's involvement in the procurement process where both the procurement function and end-user jointly identify and develop needs requirements of procurement through interaction, collaboration, and exchange of resources (Navarro *et al.*, 2016). Consequently, it is argued that the involvement of end-users in the procurement process is expected to engender a high rate of product usage among end-users. The rationale is that, as prior studies suggest, end-users perception of product and service attributes (such as functionality, compatibility, and quality) influences their acceptance and usage (Sun *et al.*, 2009; Jahangir and Begum, 2008). Therefore, the involvement of user departments in the procurement activities i.e., generating inputs needs, designing specifications, and selecting suppliers or service providers, does not only provide them with a sense of quality assurance but also boost their trust and confidence in the process and outcome, and accordingly enhance acceptance and usage. In addition, since end-users see themselves as integral actors in the buying process, there is an induced sense of ownership and responsibility, which tend to increase product usage.

Also, beyond offering end-users the opportunity to incorporate their views and interest into the procurement process, end-user involvement gives them recognition as key stakeholders in procurement decisions. Such recognition of end-users as important value co-creating actors psychologically inspires users' self-attribution and commitment to the procurement outcomes. Thus, the involvement of end-users in the procurement process is expected to increase acceptance and usage of procured products and services because users perceive that their needs are met and the benefits they seek from the procurement process are attained. This expectation is in line with the assertion that customer participation in service co-creation increases service utilization (Chan *et al.*, 2010; Yim *et al.*, 2012). Accordingly, we hypothesize:

*H1: End-user involvement in the procurement process positively is related to product usage.*

## 2.3 End-user Involvement and End-user Satisfaction

User satisfaction depicts the degree to which customers perceive their expectations have been met (Sun *et al.*, 2012; Kim and Lee, 2014; Hunt, 1977). SDL argues that customer involvement in the value co-creation process can result in customer satisfaction (Vargo and Lusch, 2004). From the SDL perspective, we further argue that end-user involvement in the procurement process may explain variation in end-user satisfaction with the process.

First, involving end-users in the procurement process allows end-users to express their real needs and offer (technical) suggestions. Specifically, in collaboration with the procurement function, user departments generate need specifications, develop support budgets, participate in supplier evaluation and provide feedback on acquisition performance (Torvinen and Haukipuro, 2018). The creative and technical suggestions from end-users provide an opportunity for the procurement function to understand the expectations of end-users better to satisfy.

Secondly, the involvement of end-users improves their relevance and stimulates their commitment to the procurement process. As prior research indicates, when customers play an integral part in value creation, they take pride and exhibit high magnanimity levels in discounting service failures (Yi *et al.*, 2021). Consequently, to the extent that user satisfaction can be an expression of affect from value co-creation (Vargo and Lusch, 2004; Lindgaard and Dudek, 2003), it can be argued that end-users who are encouraged to participate in their procurement activities are likely to be satisfied with the process due to the perception that a desirable procurement outcome is assured. This proposition is supported by prior research (Malik and Ahsan, 2019; Torvinen and Ulkuniemi, 2016; Hunt *et al.*, 2012; Oliva *et al.*, 1995). We, therefore, hypothesize as follow:

*H2: End-user involvement in the procurement process is positively related to end-user satisfaction.*

## 2.4 Mediation Role of End-user Satisfaction

Combining the preceding arguments, we hypothesize that end-user satisfaction with the procurement process plays an intervening role such that the effect of end-user involvement on product usage may be channelled through user

satisfaction. As prior research suggests, end-user involvement in value co-creation processes, including the procurement process, has been observed to enhance their level of satisfaction with outcomes (Torvinen and Ulkuniemi, 2016; Vega-Vazquez *et al.*, 2013). Other scholars, on the other hand, have reported that increased satisfaction has a significant influence on the level of product acceptability and use (Hou, 2012; Bokhari, 2005; Lindgaard and Dudek, 2002).

Extending this line of inquiry, we argue that the product usage consequence of end-user involvement will be salient when the end-user is satisfied with the procurement process. The underlying reason is that end-user involvement motivates the end-users to develop a sense of recognition as important co-creators of procurement value and confidence in the procurement process. This, in turn, is likely to enhance product acceptability and usage since users feel a sense of ownership of their procurement outcomes as well as the assurance of meeting their expectations. This is supported by Torvinen and Ulkuniemi's (2016) assertion that the involvement of users in the procurement activities creates an intrinsic satisfaction that enhances the acceptability and perceived usability of acquired items.

The preceding arguments lead to the next hypothesis:

*H3: End-user satisfaction mediates the relationship between end-user involvement and product usage.*

### **3. Methods**

#### *3.1 Study Setting*

We test our hypotheses on data from public sector organizations in Ghana, a leading democracy in sub-Saharan Africa, for the following reasons. First, the World Bank (2012) indicates that reforms in the public procurement system can contribute directly to improving a country's business, investment, and social environments. In this regard, Ghana has undertaken several reforms in its public sector procurement processes through enactments of acts, including a sectional amendment of the Public Procurement Act 2003 (Act 663) toward social and economic outcomes (Adjei - Bamfo and Maloreh - Nyamekye, 2019; Ibrahim *et al.*, 2017). In addition, Ghana is among the developing economies that spend between 20% and 70% of national revenues on public procurement acquisition (World Bank Group, 2016; World Bank, 2012; Thai, 2001). With such high levels of spending on the public acquisition, an understanding of how usage of procured items and services can be improved is important to inform procurement policies and practices. Thus, Ghana offers an ideal context to test our model to provide a typical emerging-market perspective on how end-user involvement influences public procurement outcomes.

#### *3.2 Sampling and Data Collection*

We used a questionnaire-based survey design to collect data. We selected state-owned organizations that have operated for at least five years. The state organizations include a diverse range of entities with commercial, regulatory, and other public policy objectives. We contacted a total of 353 public organizations who agreed to take part in the survey with a hand-delivered questionnaire. After a few follow-ups, 131 of the delivered questionnaires were received within 15 days of fieldwork. After analysis of the questionnaires for incompleteness/missing values, 122 were considered usable for the study. This represents a 34.56% effective response rate. The average organization had an employee size of 204 (standard deviation = 183.39). The data were provided by heads of units/departments; Operations (32.787%), Administration (27.869%), Accounting and Finance (18.852%), Human Resource Management (14.754%), and Information Communication Technology (5.738%). In all, 57.377% and 27.049% had bachelor's degrees and master's degrees, respectively, while the remaining had diploma qualifications. An average, respondent had held his/her position for 6.15 years (standard deviation = 4.68).

Table 1. Profile information

<i>Variable</i>		<i>Count</i>	<i>Percent</i>
Department type	Accounting and finance	23	18.9
	Human resource management	18	14.8
	Operation and technical	40	32.8
	Administration	34	27.9
	Information communication technology	6	4.9
	Legal	1	.8
Organization type	Tertiary education institution	69	56.6
	Health institution / facility	3	2.5
	Local and regional government	40	32.8
	Other(s)	10	8.2
		<i>Mean</i>	<i>SD</i>
Department size (number of staff)		825.98	723.872
Organization size (number of staff)		31.112	31.948
Respondent positional experience (number of years)		5.24	3.078

### 3.3 Measures and Reliability and Validity Assessment

The study constructs have received little empirical analysis in the context of public procurement, we followed recommended measurement procedures (e.g., MacKenzie *et al.*, 2011) to identify and settle on measures that capture their conceptual domains. We combined insights from end-user centric procurement literature (e.g., Holma *et al.* 2020; Torvinen and Ulkuniemi, 2016) and information system literature (e.g., Rouibah *et al.*, 2009) to capture the study constructs. Review comments from two public procurement researchers and four heads of departments in two key public organizations used to review the initial items. To reduce common method bias, several procedural remedies were implemented (Podsakoff *et al.* 2003): for example, we used different wider scale lengths and different scale anchors; we reversed the measures for product usage; we introduced other measurement items into the questionnaire to separate the measures used in the present study; our cover letter clearly explained the study purpose and benefits and assured the participants' complete anonymity. The final measures and their reliability and validity information share shown in Table 2.

*End-user involvement* explains the extent to which user departments are involved in the procurements of goods, works, and services and was measured with seven items. Each item was anchored on a seven-point scale ranging from “not at all (=1)” to “to the largest extent”. *End-user satisfaction* refers to the degree to which user departments are content with their organization’s procurement process. Five items, anchored on a seven-scale (strongly disagree =1; strongly agree =7), were used to measure this construct. Lastly, *product usage* explains the level of use of items procured for user departments. Two negatively worded items, anchored on a seven-scale (strongly disagree =1; strongly agree =7), were used to capture this construct. The responses obtained were reversed, such that higher scores indicate higher product usage and vice versa.

We included organizational type, department type, and department size as control variables since the outcomes of user involvement in the procurement process may be influenced by these firm features. The organizational size and departmental size were measured with the logarithm transformation of the number of full-time employees within an organization and a department, respectively. The organizational type was measured with a dummy variable, with “1” indicating educational and “0” indicating otherwise.

For the multi-item reflective scales used in the study, an exploratory factor analysis conducted shows that the measures explain greater variances in their theoretically underlying factors and that they load poorly on constructs they were not designed to measure. Moreover, the measures explained 60.944% of the variances in the data, with the first factor contributing 33.857% to this variance, which suggests common method bias is less likely to describe the data (Craighead *et al.*, 2011). Again, the Cronbach’s alpha values for each set of measures were above .70 (see

Table 2).

Table 2. EFA and Cronbach's alpha results

Item	Component		
	1	2	3
Electronic items and related accessories (e.g. computers, printers/copiers, and air-conditioners) <sup>a</sup>	<b>.651</b>	.180	.114
Furniture, fittings, and fixtures <sup>a</sup>	<b>.821</b>	.110	.030
Stationeries <sup>a</sup>	<b>.801</b>	.112	.029
Vehicles and related accessories <sup>a</sup>	<b>.791</b>	.142	-.175
Maintenance, repairs, and operating (MRO) materials <sup>a</sup>	<b>.721</b>	.054	.332
ICT services <sup>a</sup>	<b>.761</b>	.107	-.073
Consultancy services <sup>a</sup>	<b>.788</b>	.059	.038
The procurement unit in this organization is noted for buying items that meet our needs as end-users <sup>b</sup>	.091	<b>.672</b>	.327
Employees in my department scarcely complain about the quality of items procured for us <sup>b</sup>	-.002	<b>.784</b>	-.001
Generally, I am satisfied with the items that the procurement unit in this organization procures for my department <sup>b</sup>	.188	<b>.714</b>	.137
The quality of items that are procured for my department are normally above our expectations <sup>b</sup>	.136	<b>.627</b>	-.296
Overall, I am happy with this organization's procurement process <sup>b</sup>	.196	<b>.674</b>	.226
Employees in my department normally feel reluctant in using certain items procured for us <sup>b,*</sup>	.054	.073	<b>.835</b>
My department prefers buying certain items itself even when there are alternatives in-stock <sup>b,*</sup>	.012	.162	<b>.819</b>
Eigenvalue	4.740	2.254	1.538
% of variance explained	33.857	16.099	10.988
Cronbach's alpa	.887	.756	.747

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .791;  $\chi^2 = 713.591$ ;  $df = 91$ ;  $p < .001$

<sup>a</sup> Item preamble and scale are "For the past 2 years, to what extent has the procurement unit in your organization engaged your department while procuring each of the following items for it?"; "1 = not at all; 7 = to the largest". extent.

\* Items were reverse-coded.

<sup>b</sup>Item scale is "1 = strongly disagree; 7 = strongly agree".

#### 4. Hypothesis Testing

The statistics and correlation results for the study variables are shown in Table 3. Per our 7-point measurement scales, results show that product usage is slightly above average while end-user involvement and satisfaction are both slightly below average. Results also show that increases in end-user involvement are significantly associated with increases in end-user satisfaction but not product usage and that increases in end-user satisfaction are significantly associated with increases in product usage. In analyzing these results further, while controlling for department size, type, and organizational size, we used PROCESS (version 2.16) for SPSS given its capacity to

simultaneously test direct and mediation effects (Hayes 2018). The results shown in Table 3 support *H1* (i.e., end-user involvement is positively related to end-user satisfaction) ( $\beta = .226$ ;  $t = 3.454$ ) but not *H2* (i.e., end-user involvement is positively related to product usage) ( $\beta = .105$ ;  $t = 1.072$ ). Additional results support *H3* (i.e., end-user satisfaction mediates the relationship between end-user involvement and product usage): indirect effect = .0582; 95% bootstrap confidence interval: .0034 to .1791. Among the control variables, the results indicate that only organization type significantly affects product usage; specifically, product usage is significantly lower in tertiary education institutions.

Table 3. Descriptive and correlation results

Variables	1	2	3	4	5	6
1 Product usage	1					
2 End-user satisfaction	.223*	1				
3 End-user involvement	.100	.284**	1			
4 Organizational size (log)	-.155	-.018	.244**	1		
5 Department size (log)	-.110	-.048	.162	.365**	1	
6 Organization type (Education = 1)	-.248**	-.060	.112	.290**	.336**	1
Mean	4.77	3.75	3.79	6.15	3.04	.57
Standard deviation	1.57	1.10	1.52	1.42	.95	.50

\*  $p < .05$  (2-tailed); \*\*  $p < .01$  (2-tailed).

Table 4. Direct and indirect effects results

<i>Direct effects:</i>	End-user satisfaction	Product usage		
	$\beta$ (t-value)	$\beta$ (t-value)		
End-user involvement	.226(3.454)	.105(1.072)		
End-user satisfaction		.257(1.958)		
Tertiary education institutions	-.130(-.621)	-.676(-2.272)		
Organizational size	-.043(-.574)	-.126(-1.166)		
Department size	-.067(-.599)	-.007(-.042)		
$R^2$	.097	.121		
F	3.129*	3.202**		
<i>Indirect effects:</i>				
	Effect	BootSE	BootLLCI <sup>a</sup>	BootULCI <sup>a</sup>
Involvement → Satisfaction → Product usage	.0582	.0418	.0034	.1791

1. Hypothesized and control paths are evaluated at  $t$ -value  $\geq 1.645$  (5%, 1-tailed) and  $t$ -value  $\geq 1.96$  (5%, 2-tailed), respectively.

2. <sup>a</sup> Number of bootstrap samples for bias corrected bootstrap confidence intervals: 5000; level of confidence for confidence intervals.

## 5. Discussions

The notion of end-user involvement has increasingly received scholarly attention in the procurement literature (Holma *et al.*, 2020; Torvinen and Ulkuniemi, 2016; Haukipuro *et al.*, 2016). Yet, how end-user involvement drives



product usage remains largely assumed. The purpose of this study was to provide an empirical analysis of the direct relationships between end-user involvement in the procurement process and product usage and to explain the intervening role of end-user satisfaction.

Contrary to our proposition, we found that end-user involvement does not have a direct positive effect on product usage. This may be attributed to the perceived transactional and reactionary syndrome characterizing buyer-user engagements in the procurement process at the firm level such that users are recognized as requisitioners while buyers simply react to users' orders. In other words, although the public procurement procedures encourage collaborative engagement between the procurement function and the user departments in the procurement process, such engagements may be *ceremonial conformity* with the public procurement principles – where there is inconsistency between what is practised and what is claimed by procurement entities. Thus, merely engaging end-users in the procurement process may not be enough to guarantee product usage. Rather, as SDL suggests (Vargo and Lusch, 2004), end-users should be seen as co-creators of their procurement value which should reflect in their active participation in the buying process rather than being passive consumers.

We further argued that end-user involvement may lead to user satisfaction and in turn drive product usage. In line with the SDL line of reasoning (Vargo and Lusch, 2004), our findings offer support to this proposition by showing that, in addition to the positive and significant end-user involvement-user satisfaction association, user satisfaction plays a mediation role in the end-user involvement-product usage link. Thus, the product usage benefit of end-user involvement becomes salient when the involvement of end-users results in self-fulfilment and a sense of ownership such that the end-users become satisfied because they perceive themselves as proud and important co-producers of their procurement-related values. This means that organisations that make effort to create satisfaction among end-users, particularly internal employees and user departments, by actively involving them in their procurement processes are more likely to experience improved utilisation of procured products. This is because end-user satisfaction reflects their sense of confidence in the procurement process and the perceived quality of the outcome. The finding offers credence to the prior insight that end-user involvement in the buying process does not only create an intrinsic satisfaction among the users but also enhance the acceptability and usage of procured products and services (Torvinen and Ulkuniemi, 2016; Hou, 2012; Yim *et al.*, 2012; Chan *et al.*, 2010).

A major theoretical implication of this study is its ability to account for the mechanism that explains the relationship between end-user involvement and product usage. To this end, we extend public procurement research by examining the importance of end-user satisfaction in the end-user involvement-product usage relationship. Additionally, by theorizing end-user satisfaction as a process through which the benefit of end-user involvement is channelled to product usage, we offer a nuanced insight that has not yet been sufficiently considered in the extant literature and hence opens a new direction for empirical work. Thus, findings broaden an understanding of the interrelationship between end-user involvement, end-user satisfaction, and product usage, particularly from the context of developing economies.

Overall, the finding suggests that it is worthwhile for firms seeking to improve their procurement performance outcomes (such as product usage) to tap into the expectations and expertise of end-users through their involvement in the procurement value creation processes, especially in an era when value-for-money-procurement is increasingly becoming an operational strategy for enhancing efficiency and organizational success. This is particularly important in resource constraint economies in that, public sector organizations in such contexts usually operate on tight budgets, and that efficient use of procured products and services is key for enhancing procurement performance.

## 6. Managerial Implications

The study provides implications for procurement practice. Managerially, our findings indicate that channelling end-user involvement into product usage goes beyond the *window dressing* and *ritualistic* engagements of end-users. In other words, while end-user engagement in the procurement process, (i.e., from need identification, designing specification, supplier selection through to the contract management phase of the procurement cycle) can be of valuable approach toward achieving maximum usage of procured inputs, it may not necessarily lead to product usage directly. Rather, it requires conscious efforts from the procurement function to build a collaborative environment where procurement is seen as a shared responsibility through interaction and exchange of ideas.

As the results indicate, end-user involvement should result in user satisfaction to reflect product usage, supporting the view that user satisfaction with the procurement processes is vital in enhancing procurement performance (Chan *et al.*, 2010; Yim *et al.*, 2012). This is because engaging the user departments in the procurement makes them active co-creators of their procurement values: the process that does not only enable users to address their procurement needs but also make them satisfied and proud owners of procured inputs or services. Consequently,

procurement functions are encouraged to create an end-user centric procurement environment by developing a strategy for involving end-users and other relevant stakeholders in the procurement decisions and processes.

### 7. Limitations and Suggestions for Future Research

Despite its contributions, our study has some limitations that offer opportunities for future research. First, the study did not account for other potential mechanisms and boundary conditions of the end-user-product usage relationship. As such, there is a need for further studies to identify and explore additional intervening and contingency variables. For example, procurement quality and ethical procurement can be tested as mediating variables while conditioning variables such as top management support, supplier involvement, the culture of inclusiveness, and organizational structure, can be tested to offer a more grounded and comprehensive explanation of end-user involvement and its impact on product usage.

Second, the study selected public organizations to test the study's proposition, meaning that firms in the private sector were excluded from the study. This limits the generalization of the study's findings to such firms. Future empirical investigation may include firms from both public and private sectors to enrich scholarly understanding in this field and importantly contribute to the generalizability of findings. On a similar front, the public sector procurement activities are governed by National Public Procurement Directives which may differ across economies. Future studies may consider comparative study within the legal context possibly across national boundaries to ascertain if new insight may emerge.

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