

Establishing the connection between successful disposal of public assets and sustainable public procurement practice

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ABSTRACT

The disposal of assets after their end-of-use is often considered the end-stage in the procurement cycle. Assets disposal in a public organization is its capacity to attach reusable value to its assets at their end of life. It is an area where the failure of the public procurement process is most attributed yet has the most potential for sustainable procurement practice. This paper examines the factors for the successful disposal of public assets and the public purchasers' perceptions of how these factors contribute to a better understanding of sustainable procurement practice.

Using a cross-sectional survey among key actors in the public procurement process, three key success factors, namely strategic assets management, strategic planning for assets disposal, and assets disposal mechanisms are identified; their effect on successful asset disposal is examined.

The results indicate that the three broad factors studied are all important aspects for effective assets disposal. Yet, their effect on the success of the disposal of public assets process is somewhat varied. Based on the three factors' statistical significance, we conclude that strategic assets' planning is perhaps the most dominant factor for a successful assets disposal process and provides the most promise for sustainable procurement in public organizations.

This study shows that strategic assets management, strategic planning for assets disposal, and the choice of assets disposal mechanisms are all critical enablers of successful disposal of public assets in public organizations and a precursor for sustainable procurement practice. But at the microlevel, disposal planning is by far the most significant enabler for successful assets' disposal, and therefore a direct driver for sustainable procurement practice.

Introduction

Most literature on public procurement describes assets' disposal as the last phase of the public procurement process [38,33]. The disposal of public assets, irrespective of the method used, is purposed to meet the entity's needs, promote the benefits of assets value recapture, and maintain the entity's path of efficiency, effectiveness, and efficacy [18].

The urge to dispose of non-beneficial public assets¹ in public organizations is overwhelming and arguably a necessary activity to reduce the cost of holding unwanted public assets and to be more sustainable [12].

Yet as Atiga et al. [5] suggest, the disposal of non-beneficial public assets is often frustrating. They attribute the frustration to the continued holding of such assets that have no immediate usable value, affecting the total cost of ownership (TCO) of that asset. Therefore, it is essential to understand how public organizations manage the end-of-life process of public assets use, particularly what key considerations underpin the successful disposal of public assets in public organizations.

This paper's main argument is that successful asset disposal often shows the level of advancement towards sustainable procurement practice amongst public sector organizations. Agbesi et al. [2] show that the organizational factors and the regulatory structure in public procurement often determine the degree of sustainable procurement of public organizations. Zaidi et al. [45] highlight several barriers to implementing sustainable procurement, some of which they attribute to the strategic management of that public organization. So, the focus of this paper are the organizational factors in the disposal of public assets.

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¹ End Notes: Public assets- These are resources be they tangible and intangible with economic values that a public entity owns or controls with the expectation that they will provide future benefits to stakeholders. We are specifically interested on tangible assets in this study. Non-beneficial public assets- These are assets whose benefits are longer necessary to achieve organizational objectives. This can be due to depreciation, wear and tear, obsolesces and such like.

We draw empirical evidence from the public procurement system in Uganda. The Public Procurement and Disposal of Public Assets Authority (PPDA) in its annual report of 2018, that public organizations in Uganda have made little effort towards disposal of non-beneficial public assets, which adds tremendous costs to the Government [37]. The government's annual audit report by the Auditor General's office cites several cases of non-compliance to the procurement and disposal law and neglect of public assets in their possession [34].

These reports and others confirm the challenges in disposing of out-of-use public assets as a consequence of the failure in record keeping, wrong disposal methods, poor disposal planning, and poor execution of disposal plan [37,34]. These failures are organizational attributes [40]. They affect the performance of these organizations and increase holding costs to these organizations that must service, maintain, store, and insure the assets on an annual basis. This alone is not sustainable and undermines governments' capacity to recapture fair value from non-beneficial public assets.

The problem of assets' disposition is ubiquitous and therefore not unique to Uganda alone. Elsewhere, the literature reports the lack of capacity at the strategic and tactical levels to prepare public assets disposal registers, the basis of which disposal planning is made [8]. In Malaysia, Abdullah et al. [1] cite the lack of proper management procedures as one of issues affecting government assets' use and management. In Kenya the problem has been attributed to the lack of required documentation, the failure to create competition in the disposal process and disposing of for selfish purposes [41]. In Tanzania, the lack of, among other things, policies and procedures, a management plan and training have been cited in public asset disposition [21].

Against this background, the purpose of this research is to examine the factors for the successful disposal of out-of-use public assets in public organizations. This is an area of study where very little research has ventured into. In fact, we identified only a couple of scientific papers (e.g. [5,8,21,23,41]) and a host of non-scientific literature on this subject. We hope that this study's results will explain the link between the disposal process and the benefits of sustainable procurement, which is an area of significant importance in the public assets management debate [2,45]. In particular, the disposal by auction method or the sale of out-of-use assets sale contributes to better assets reusability and value capture: it saves the taxpayer large amounts of money hence sustainable governance.

Therefore, this paper contributes to a better understanding of the public assets disposal problem by delineating the factors for successful public assets disposal. The paper's empirical results are used together with the available literature to argue for the role of successful public assets disposal processes in sustainable public procurement practice.

This paper is organized as follows. First, a review of relevant literature on the subject is presented. This is followed by the methods section. Then the empirical results of the study follow. At the tail end, the discussion and conclusion of the study is provided with some limitations and direction for further research.

A review of the literature

Asset disposal

The disposal of out-of-use public assets entails the act of derecognizing a public asset that has reached the end of useful life and has no future economic benefit or service expected from its use for that organization [42]. The disposal process is often part of a protracted procurement process. The asset management literature suggests two broad areas whose misunderstanding often results in sub-optimal performance of an asset, which directly affects that asset's disposition [23]. These include strategic asset management on one hand and operational asset management. The strategic asset management concerns the governance and long-term utilization of an asset. In contrast, operational asset management involves the asset's on-going maintenance

The assets disposal literature further deconstructs the operational assets management into two phases. These include: the strategic planning for assets disposal and choice of assets disposal mechanism [23,41]. Refer to Fig. 1. So this study focuses on these 3 main areas: (1) strategic assets management to address the on-going utility of an asset, (2) the strategic planning for assets disposal to address the monitoring and maintenance of an asset, and (3) the choice of asset disposal mechanism to address the value recapture aspects of an asset.

From this conceptualization, it appears successful assets disposal requires one to understand the literature on the long-term governance of an asset and the short-term view of what happens to the asset when it approaches its end-of-use (see Fig. 1). This multidisciplinary approach proposed by Amadi-Echendu, et al., [3] is used in this study and aligns with the sustainability thinking that we discuss later in this paper.

This study approaches factors for successful public assets disposal through two lenses: the asset management lens and the public procurement lens as mentioned above. Both these lenses are relevant for sustainable procurement practice. Rather than investigate particular variables like rates of disposal or compliance to statutory requirements from disparate literature, this study focuses on the three broad areas from the two literature streams as in Fig. 1, and then investigates the embedded factors on the disposal of public assets as proposed by Laue et al., [23]. Like Wahome and Marende [42], we could not find a single comprehensive theoretical framework explaining success factors for public assets disposal in public organizations. So, this conceptualization provides a good starting point to this challenge.

Public assets disposal and sustainable procurement practice

Disposition of assets or assets disposal as used in this study, refers to the act of selling or disposing of assets whose usage and value has depreciated over their useful life. It is often in the public interest for public organizations to conduct this process in a safe and ecologically responsible manner [22,45]. According to Mihaju et al. [28], public assets disposal is conducted in order to free up resources that a public entity needs to perform efficiently by holding cash in assets deemed beneficial to its operation. Such performance can be gauged in terms of efficiency, effectiveness and efficacy to public entity [41]. In support Mensah [46] contends that disposal of non-beneficial public assets can lead to lower cost of production, deployment of assets in the proper use, reduction in non-beneficial assets, employee motivation and increased productivity. This paper adds to this argument that the disposal of assets should also be seen to advance the sustainability goal at the organizational level.

Because asset management is closely associated with an asset's lifecycle, the notion of sustainability becomes vital in this discussion [7,25]. Maslennikova and Foley [26] demonstrate with an example of Xerox corporation where products are designed with a mechanism for value recapture for users – through recovery and end of life plans. They suggest that sustainability and assets disposal can be closely linked concepts. Norum [32] shows that user behavior towards disposal of an item, in this case clothing, depends on the level of knowledge they have of that item's entire value chain and what disposal alternatives they have. Babbitt et al., [7] argue that disposal methods are often price and value focused and therefore tend to increase institutional risk because of the unknown asset usage once out of their system. In this sense, asset disposition can also be seen as return-to-life of an asset, rather than the end-of-life of an asset [39].

This discussion therefore suggests that asset disposal is closely related to sustainable procurement practice, where disposal of an asset inherently provides both economic and environmental benefits for the public organization.

Successful disposal of public assets focuses most on the last end of the procurement process. It is articulated through execution of a disposal plan (e.g. end-of-life assessment), defining the method to be used for disposal (e.g. auction, recycling, donating) and then implementing

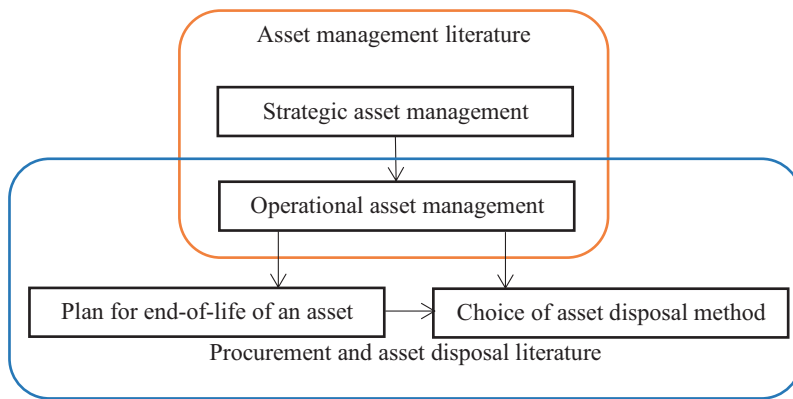


Fig. 1. Assets disposal at conceptual junction of asset management literature and procurement process literature.

that method (e.g. value audit and recovery). This gray area is not a straightforward process and varies from organization to organization [31]. Susan and Namusonge [41] report that public officers believe the disposal process is riskier and takes a long period of time compared to doing “nothing about those assets”. Krent and Zeppos [22] agree that incidences of abuse and graft are highest in the asset disposal process due to the fuzziness around the process. In their study of the statutory compliance in assets disposal practices in Ghana, Atiga et al. [5] found legal and management impediments as the main challenge in the disposal of public assets. Yet, as Mensah [46] claims, the disposal process’s coherency is key to the effective disposal of public assets. Azzi et al. [6] indicate the higher the consistency the public entity applies in the disposal process, the more likely the entity can succeed in the disposal of public assets. However, left unattended to, public asset disposal could lead to unsustainable procurement

Strategic assets management

Strategic assets management refers to an end-to-end process that combines different ways of efficiently integrating the asset operations, assets information, the entity’s environment, and skills in the long-term use and management of that assets [10]. Apart from increasing long-term performance of an asset, strategic assets management draws on the characteristics of an asset in achieving an entity’s objective.

Munyao and Moroonge [30] argue that an organization must consider strategic assets management as a core activity because the functions inherent in strategic assets management are often essential in successfully disposing of public assets. They concluded that the success of public assets’ disposal is mostly dependent on paying particular attention to managing long-term utility of those assets, developing maintenance plans for the assets, setting assets performance standards, and careful management of risk in strategic assets portfolio. Laue et al., [23] list the following process activities of strategic asset management: asset management, asset management policy, asset management strategy, asset management plans, asset performance measurement, and management review, and audit and reporting. Kaganova, [19] found that the right mix of the strategic asset management activities is critical to successfully implementing public assets disposal outcomes. [15] contend that strategic assets management is the surest strategy that helps improve availability, safety, reliability, and longevity of assets, which maintains the quality of the asset. Therefore, it is evident that the successful disposal of public assets depends on the quality of that asset’s management over its lifetime which infers a higher asset recapture value. Based on this view, we hypothesize that:

H1. Strategic assets management is significantly associated with the success of the public assets disposal process.

Strategic planning for assets disposal

Strategic planning for assets disposal refers to a structured process that ensures an organization’s assets portfolio comprises only those assets that can effectively meet its current needs and service delivery requirements [16]. It involves the operational implementation of the organization’s strategy on assets. While assets disposal in itself refers to the means through which non-beneficial assets are disposed of, the goal of strategic planning for the disposal of an asset is to provide adequate and equal opportunity to achieve best return to the public organization through proper identification of non-beneficial assets with adoption of appropriate strategies for their disposal [14].

Strategic planning for assets in itself entails defining policies (commitment and principles to do), strategies (approach to be taken to achieve the objectives in the long term), goal (what is to be achieved), and a specific plan (determining who should do what, when and where) [24]. However, problems in assets disposal have emerged as a result of poor planning and insufficient finances, extending to a lack of qualified personnel and inadequate resources that derail the planning component of the disposal processes [16]. Some other problems noted in earlier studies include increased planning costs, incorrect and inadequate disposal needs identification, reduced scrutiny, and timeliness in reviewing [41]. Thus, several mistakes are cited in the assets disposal planning processes that threaten public assets disposal’s long-term success in public organizations [42]. Susan and Namusonge [41] show in the case of the Kenyan public sector, that low level of strategic assets disposal planning in public organizations creates little success due to contradictory assets management objectives, lack of information on public assets, the lack of disposal plan, and the lack of skilled personnel.

As such, it appears that the success of assets disposal processes decreases when the planning processes for those assets in the first place are not robust. Alternatively, when the disposal-planning process misses the key planning components, the disposal processes become problematic. We, therefore, propose that;

H2. The success of public assets disposal process is significantly associated with robust strategic assets disposal planning.

Choice of an appropriate assets’ disposal mechanism

Organizations have many methods they use to dispose of assets that no longer generate utility value. The literature mentions forms such as donations, sale, reuse, redeploy, part exchange, refurbish, return, or destroy/discard as some of the most popular methods out there [17,20,27,43]. Xiong and Xiang [43] have argued that the choice of methods used for disposal has a positive correlation with disposal efficiency. The choice of an asset’s disposal mechanism allows an organization to adequately select a disposal method that suits the goal they seek to attain [14]. Using the Tanzania’s procurement system as an example, Kamili [20] suggests that the choice of an asset disposal method

can result in loss of revenues, theft, and devaluation of public property. In Uganda, for example, the relevant disposal authorities (e.g., accounting officers, user departments, contracts committees, and procurement units) need time to define the disposal mechanism and develop a plan with cost estimates [9]. The user departments must build their strategy for performing the work of public assets disposal in a favorable way to all eligible bidders and then must estimate the costs to perform the tasks. The procurement department needs time to conduct market research, develop an appropriate disposal strategy, and generate requests for offers. Such a comprehensive process suggests that the asset disposal mechanisms, often targeted towards the best value out of an asset, are such an important contributor to the disposal process's efficacy. Relating to this claim, we propose that;

H3. The choice of an appropriate asset disposal mechanism or method is significantly associated with the success of the public assets' disposal process

Methods

Study design

The cross-sectional survey design was deployed among actors in the public procurement system in Uganda. The data collection targeted their perception of strategic assets management, strategic planning for assets disposal, and choice of assets disposal mechanism. We targeted all 221 employees of the Ministry of Public Service according to the Ministry's departmental databases. We specifically selected 125 employees within the salary scales of U1–U4 working in the Ministry. The selected employees are the ones involved in initiating and executing critical public asset disposal decisions. Equally, they have the technical knowledge and skills of public assets disposal legislation and processes. We sampled a total of 120 employees using convenience sampling.

Data collection

We distributed a self-administered questionnaire to all the sampled employees. One hundred eighteen were returned: two questionnaires were partially filled, so one hundred sixteen were used for analysis. The collected data constituted a sizable sample size and therefore recommended for factor analysis [11].

Validity and reliability of the instrument

We derived questionnaire items from previous studies published in journals within the public procurement domain, including Amadi-Echendu et al., [3], Susan and Namusonge, [41], Kamili, [20] and Wahome and Marendi, [42]. We pretested the questionnaire items to determine their validity and reliability using content validity index (CVI) and Cronbach alpha, respectively. Results from the pretest study revealed that the CVI rated by the five experts was at 0.95, higher than the recommended 0.70 percent for an instrument to be valid [35]. The test results for the reliability of each of the variables were at 0.756 for strategic asset management (12 items), at 0.743 for strategic planning for asset disposal (12 items), at 0.707 for choice of asset disposal mechanism (11 items), and at 0.860 for public assets disposal (11 items). All the obtained Cronbach alpha values for the variables were each above the recommended 0.70. Both validity and reliability test results indicate the instrument was valid and reliable for which we used in the study.

Considerable emphasis in quantitative research is given to the codification and classification of the data to make it more reliable and valid. So we put a lot of effort into presenting the results clearly and systematically. We analyzed the collected data with the aid of SPSS ver. 17. The analyses focused on descriptive statistics, normality test, factor analysis and Chi-square test, and regression analysis which we presented in the next section.

Table 1
Normality test.

Kolmogorov-Smirnov ^a	Statistic	Df	Sig.
Public assets disposal	1.994	116	.001

Results

This section has set out our findings in four sections related to the data analysis components identified in the section above. The objective is to provide answers to the paper's research question outlined earlier the purpose of this paper.

Normality test

According to Ghasemi and Zahedias [13], to fit a linear model to some given data, the dependent variable has to be normally distributed. Here, the purpose of the normality test was to evaluate the data to determine whether they were normally distributed and that the sample was drawn from a normal population. It aimed to remove outlier items to have only factors relevant to the study [13]. For data to be normally distributed, the observed values should be spread along the straight diagonal line. We then used the quantile-quantile (Q-Q) plot test to specify models that resembled data collected or observed from the processes as presented in Fig. 2.

Since most of the observed values are spread very close to the straight line, there is a high likelihood that the data are normally distributed. This finding is confirmed by the Kolmogorov-Smirnov test which tests the underlying distribution of a given random variable. The Kolmogorov-Smirnov test is a non-parametric test that can be used to test the underlying distribution of a given random variable. It was used to confirm whether the dependent variable followed a normal distribution. Results are presented in Table 1.

From Table 1, the Kolmogorov-Smirnov statistic 1.994 has a *p*-value of 0.001, which is less than 0.05 with 95% confidence. The study concluded that the dependent variable (i.e. success of public assets disposal) followed a normal distribution. Fitting a linear model to the data was thus justified.

Factor analysis and chi-square test

The study adopted factor analysis to reduce the number of indicators or factors under each research variable. The purpose was to retain indicators capable of explaining the successful disposal of public assets in public organizations in Uganda. A factor loading above 0.5 is considered acceptable, irrespective of sample size for interpretative purposes [44]. Table 2 displays the factor analysis results of the study, where results for the Chi-square is also presented.

As shown in the Table 2, all the examined factors could be retained for further analysis. This is because all of them have factor loading values of above 0.5 and therefore considered good for interpretative purposes [44]. Thus, the result indicates acceptable fit. Also, the results of Chi-square test was significant for the measurement model. This is shown by ($\chi^2 = 25.852$, $\chi^2 = 22.304$, and $\chi^2 = 34.011$) for Strategic Assets Management, Strategic Planning for Assets Disposal and Choice of Assets disposal Mechanism, respectively. This indicates that success factors and public assets disposal were associated.

Regression analysis

Regression analysis was done with the aid of SPSS ver. 17. Its purpose was to test propositions earlier on identified. The following results were produced as presented in Table 3.

Table 3 shows the Coefficients^a of the regression results of the study variables. For the first variable of strategic assets management, with the

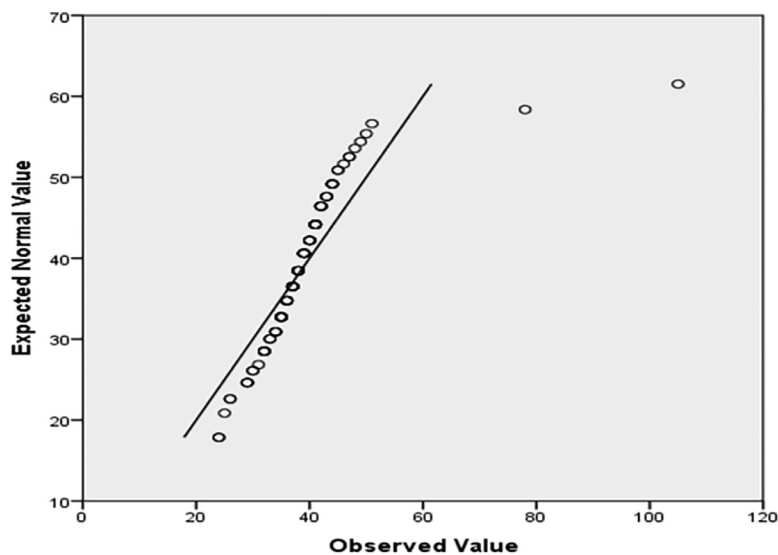


Fig. 2. Normal Q-Q Plot of data from the questionnaire.

Table 2
Factor analysis results.

Success factors	Sub Success Factors	Analysis N	Factor loadings	Cronbach's alpha	Chi square	Sig.
Strategic As-sets management	Trained assets managers	116	.728	.756	25.852	.361
	Adequate funds for assets management	116	.742			
	Transparent assets information	116	.686			
	Easy access to information	116	.765			
	Single data base	116	.662			
	Cost of valuation	116	.575			
	Supervision and monitoring	116	.515			
	Clear assets management objectives	116	.579			
	Specialization in assets management	116	.701			
	Functional audit unit	116	.651			
Strategic Plan-ning for As-sets Disposal	Annual disposal plan	116	.606	.743	22.304	.561
	Adequate funds for disposal planning	116	.674			
	Independent valuation of stores	116	.626			
	Budget for disposal proceedings	116	.553			
	Resource availability for disposal plans	116	.542			
	Increasing assets value	116	.750			
	Stakeholders involvement	116	.638			
	Statutory disposal options	116	.588			
	Market survey	116	.728			
	Reserve price	116	.541			
Choice of As-sets Dis-posal Mechanism	Disposal methods	116	.603	.707	34.011	.419
	Disposal cycle	116	.642			
	Nature of assets	116	.558			
	Location of assets	116	.596			
	Approval of disposal award	116	.515			
	Operational policies	116	.703			
	Selection of Right assets	116	.763			
	Supervision cost	116	.643			
	Records of money received	116	.695			
	Remittance of revenue to treasury	116	.581			
Average Cronbach Alpha				.735		

Extraction Method: Principal Component Analysis.
Goodness-of-fit test: Maximum Likelihood.

Table 3
Regression results.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta				Lower Bound	Upper Bound
1	(Constant)	47.367	6.080		7.790	.000	35.322	59.411
	Strategic assets management	1.850	.137	.784	13.487	.000	1.578	2.122
1	(Constant) strategic planning for assets disposal	42.021	4.937		8.511	.000	32.240	51.801
		1.979	.112	.857	17.718	.000	1.758	2.200
1	(Constant) Choice of assets disposal mechanism	42.155	6.261		6.733	.000	29.751	54.599
		2.098	.151	.794	13.924	.000	1.800	2.397

aDependent Variable: Public assets disposal.

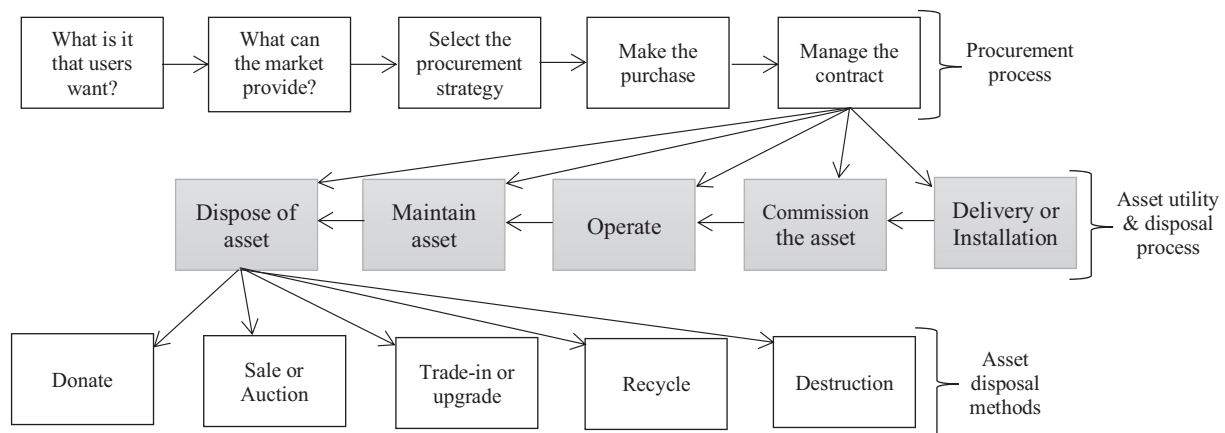


Fig. 3. Assets disposal process and Methods.

t value of the statistics of 13.487, using the 0.05 level of significance, because $t = 13.487 > 2.122$ and a beta coefficient of 0.784, *H1: Strategic assets management is significantly associated with the success of public assets disposal process* was accepted. Likewise, for the second variable of strategic planning for assets disposal, given the t value of 17.718 > 2.200 with beta coefficient of 0.857, we accepted *H2: The success public assets disposal process is significantly associated with strategic assets disposal planning*. Lastly, on the variable of assets disposal mechanism, the t value obtained was 13.924 > 2.397 showing a positive relationship with the dependent variable and with a beta coefficient of 0.794, we accepted *H3: The choice of an appropriate asset disposal mechanism or method is significantly associated with the successful of the public assets' disposal process*.

Discussion and conclusion

This study sought to examine the key factors for successful disposal of public assets in Uganda, and further make sense of these factors with regard to understanding assets disposition as an enabler of sustainable procurement practice. The literature provided us with three broad areas: (1) strategic assets management, (2) strategic planning for assets disposal and (3) choice of an appropriate assets' disposal mechanism.

From the findings of this study, it was found that strategic assets management ($p = .784$, $x^2 = 25.852$), strategic planning for assets disposal ($p = .857$, $x^2 = 22.304$) and assets disposal mechanism ($p = .794$, $x^2 = 34.011$) are positively associated. These findings even though positive do suggest that strategic planning for assets disposal is perhaps the strongest dimension of this study. Two things can explain this.

Firstly, unlike most traditional procurement processes, the public procurement process focuses on planning and defining users' needs first [29]. In the first initial step, planning must cascade into the asset disposal process shown in Fig. 3. Therein, the long-term utility of the asset, i.e. strategic asset management, is considered at user level and therefore aspects of sustainability and how the asset will be disposed of are considered too [7,9]. According to PPDA (Disposal of Public Assets) Regulations (2014), when the potential users of the asset initiate a procurement, they must ideally reflect on that asset's entire life cycle over its lifetime. This includes, among other things – the governance of that asset (strategic asset management) as well as the operational usage of that asset. This study demonstrates that the public purchasers believe this is important, but we couldn't clearly establish if they understood this link well. Partly because the legislation that guides usage and disposal of public assets is often the same as the public procurement laws: these rarely change [41,42,20]. As the TCO literature has argued over the years, strategic assets planning considers both the assets acquisition assets process and the operational usage process of that asset as shown

in Fig. 3, where the measure of success of those two processes is the total cost impact the asset utility has had on the organization [23].

Secondly, within strategic assets planning, the mechanisms for disposal of an asset are planned – even if not in detail [23]. Although this study, as a guided by the literature distinguished strategic assets planning from the choice of method used as success factors, public purchasers must incorporate disposal methods in their procurement plans [5]. Typical asset disposal methods include donation to other entities, sale or auction of the asset, trade-in or upgrade or recycle and destruction [36,40,43]. These are all contractual decisions that are preplanned during the acquisition of the asset or during the asset's operational use (see Fig. 3). Thus, strategic assets planning is a precursor for the possible outcome of the asset disposal process through the definition of disposal methods. The expected outcome or value significantly depends on the asset's condition; the earlier planning ensures that the final outcome does not vary significantly from the plan [10].

Therefore, these results suggest that while the three key success factors for assets disposal are both independent and closely interconnected, one can argue that strategic assets planning is by far the most dominant factor. Strategic asset planning, even though a lower-order concept than strategic assets management, plays a more significant role in the success of the asset disposal process [23]. In addition, strategic assets planning defines, even if vaguely, the choice of method of asset disposal because it provides the long-term view of the asset over its lifetime. Most challenges of the assets disposal process could be traced back towards planning [1,29,41].

Uncovering the link between assets' disposal and sustainable procurement practice?

The findings of this study suggest that the choice of disposal mechanism has a significant impact on the asset disposal process's success ($p = .794$, $x^2 = 34.011$). All the methods or mechanisms of asset disposal such as sale, recycle, destroy etc. have implications for sustainable procurement practice. Sustainable procurement involves embedding environmental and social considerations in the procurement contracts for good and services that public organizations buy and use [2,4,12]. As Marlow et al., [25] explain, it entails integrating sustainability into an asset's whole life, which means that the decisions and actions across the entire life cycle of the asset from purchase to disposal reflect this goal. Thus, the success of asset disposal process is translatable to better sustainable procurement practices. For example, the sale through auction seeks to recapture as much value of the asset as possible, which can be redistributed to other society needs [2,29]. The same effect on society can be made about donation as a method, which in addition, enhances social inclusion. Even the non-price-based disposal methods

such as recycling and upgrade methods target ensuring that organizations use the least amount of resources as possible for the same need [26]. The destruction method is popular when public authorities seek to protect the public against harmful after-use hazards [7,32]. Consistent with Zaidi [45], sustainable procurement translates into sustainable development. Chandima Ratnayake and Markeset [10] show that the management of an asset's integrity translates to sustainable value in an organization's long term performance. The literature demonstrates that successful assets disposal process contributes directly to sustainable procurement practices for public organizations.

Overall, it can be concluded that successful strategic assets management, strategic planning for assets disposal and the choice of an appropriate assets' disposal mechanism are critical for successful disposal of public assets disposal in public organizations in Uganda. Of the three broad factors, strategic planning for assets disposal has the most significant impact on the assets disposal process and to public organizations asset performance despite only being an operational construct.

The challenges in the disposal of assets as seen in the literature (e.g. [1,5,20,31,41]) including the lack of training, graft and process abuse, the lack of skills and knowledge about disposal, and the lack of management support or mirror the findings of the factor analysis – but in a positive way. The most significant successful asset disposal sub-factors in Table 2 mirror the challenges we found in the literature. These include better training of asset managers, better funding to asset management, increased access to information on the condition and value of the assets, market surveys to know the value of the assets, and professionalism in asset management.

Most notably through strategic assets planning, successful assets disposal management contributes directly to public organizations' sustainable procurement practices.

Managerial implications

The study findings provide managers with two areas of reflection in the disposal process of public assets. First, it appears public managers, especially in the era of new public management, focus most on strategic assets management, i.e. long-term asset governance such as the legal and compliance aspects of the assets acquisition process. The findings here demonstrate that strategic asset management is important, but strategic asset planning is even more critical for assets disposal. Although operational, strategic asset planning for assets has far more impact on value for money outcomes because the most vital operative issues such as asset installation, user training, use of the right consumables, asset efficiency, and performance are defined at that level. Through strategic assets planning, public organizations can ably define user and operational expectations of the asset's utility on goals such as the asset's maintenance and obsolescence, which significantly impact the asset disposal outcomes. Besides, strategic asset planning provides the environmental considerations on the asset's impact during utilization and the choice of a suitable environmental mechanism of disposal.

Secondly, the link between the asset disposal process and sustainable procurement practice, although direct and apparent, has not been emphasized during the public procurement processes. We could only speculate that this is because the boundaries of the public procurement process tend to be limited to the acquisition process only, specifically, the fear that an asset's whole life cost perspective extends procurements role towards the asset engineering and facilities management role. Thus, the limited understanding of public purchasers' asset life cycle management space is unfortunate and inhibits sustainable procurement implementation. Therefore, strengthening public organizations' capacity in asset disposal management and public assets' disposal towards sustainable procurement should be public organizations' primary goal. We anticipate that understanding the factors that drive public asset disposal success will better inform public asset disposal processes, improve management, assist service delivery, and enhance sustainable procurement development of public organizations.

Limitations and further studies

This study's main limitation is the empirical data used to develop the link between asset disposal and sustainable procurement practice. We conceptually use the findings on successful asset disposal to establish the argument for sustainable procurement practice.

If a similar study were conducted from an empirical perspective, we recommend that this "direct and apparent" link be tested empirically, preferably with quantitative data. Besides, the fact that participants in this study are employees who work in one public entity in Uganda can be a limitation. This may not be so representative of all the public organizations in Uganda. Therefore, further studies should focus on empirical examination and extend the study to a broader public organization in Uganda as a whole or even to the regional, continental and global level.

Declaration of Competing Interest

None

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.sfr.2021.100049](https://doi.org/10.1016/j.sfr.2021.100049).

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