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# Enhancing Procurement Efficiency in South Africa through e-Reverse Auction Systems

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**Abstract**

The application of advanced technologies such as real-time trend analysis, business intelligence and procurement systems enhance business processes by facilitating informed decision making, driving digital transformation, and fostering growth. However, there remains a limited empirical understanding of the adoption and impact of electronic reverse auctions (eRA) systems in South African business sectors. The study aimed to identify how using eRA systems can improve procurement processes in South African business. A qualitative methodology was adopted to investigate the aim of the study. Data was collected using semi-structured interviews with 18 participants who were purposively sampled. The findings show that the primary benefits of eRA system usage include enhanced competitiveness, cost efficiency, transparency and strengthen buyer-seller relationships. Key outcomes for these benefits include increased supplier participation, lower procurement costs, a clear and open bidding process, and better communication between buyers and sellers. This study's contribution is that, when used cautiously with identified risks eRA systems can streamline, standardize, and regulate procurement practices in South Africa's business sectors. Drawing on the DeLone and McLean Information System Success Model, this paper highlights the dimensions by which eRA systems used in procurement processes can be evaluated to better understand and leverage their benefits within business.

**Keywords**: Businesses, Procurement, Streamline, Reverse Auction, advanced technologies, South Africa

## 1. INTRODUCTION

Procurement, as a critical organizational function, has a significant influence on cost structures, supply chain efficiency, and overall competitiveness in the marketplace [1][2]. As organizations continually seek innovative strategies to optimize operational efficiency, reduce costs, and generate strategic value, effective procurement practices hold particular importance in achieving sustainable business success and optimizing resource allocation across diverse industries. One of the significant domains in the broader procurement process is auctioning, which serves as a mechanism for acquiring goods, services, or resources through competitive

bidding [3][4]. Organizations use a variety of auction formats, including reverse auctions, sealed bids, and open auctions [3]. Each type of auction has unique characteristics and is appropriate for various procurement scenarios. Auctioning plays a critical role within the procurement landscape, enabling organizations to optimize resource allocation, negotiate favorable terms, enhance procurement processes based on informed decisions, and enhance competitiveness.

Reverse auctions continue to gain significant interest in both the public and private business sectors [5][6][7][2]. The use of auctioning by organizations, regardless of type, is driven by the pursuit of streamlined procurement processes and optimal value for their financial investments [8][9]. For instance, reverse auctioning is defined as suppliers competing to offer the lowest price for a specific product or service [5][6]. In this context, buyers (organizations) start the process by establishing a maximum price, and suppliers then submit successively lower bids [5]. In the end, the buyer selects a bidder whose submission aligns with specified quality and service requirements. Notably, reverse auctions are especially effective for standardized products or commodities such as equipment, raw materials, and construction projects.

The procurement landscape in South Africa business sector is dynamic and ever-changing, influenced by socio-economic, political, and technological factors [10][11]. Factors such as corruption, bid-rigging, lack of transparency, inefficiencies, lack of trust, and inadequate supplier capacity pose great risks to the traditional procurement processes [12]. Additionally, disparities in technology infrastructure, limited access to information, government bureaucracies, and delays in procurement cycles can hinder procurement outcomes in organizations. Furthermore, regulatory compliance, currency fluctuations and global supply chain disruptions impede effective procurement processes [12] [13][14]. For instance, corruption remains a significant challenge in procurement processes [12] [13]. It manifests in various forms, including bribery, favoritism, and bid-rigging. These practices undermine fair competition and lead to inflated costs and substandard goods and services. Corruption erodes trust in the procurement system, discourages honest suppliers from participating [12]. In addition, inefficiency in procurement processes is another critical issue in South Africa's procurement landscape. This can be attributed to bureaucratic red tape, lack of skilled personnel, and outdated procurement systems [14].

Another significant challenge facing South African businesses is inefficiencies in procurement processes that lead to delays in the procurement cycle, increased costs, and missed opportunities for cost savings [10][11][14]. Additionally, the lack of transparency and accountability in traditional procurement methods exacerbates these inefficiencies, making it difficult to track and manage procurement activities effectively. Authors like [12] argue that procurement-related corruption is

particularly pervasive in state-owned enterprises and government tenders, where large sums of money are at stake. The result is a distorted procurement environment where contracts may be award not based on merit but on improper influence, leading to inefficiencies and suboptimal outcomes for businesses. Ethical procurement practices, therefore, require stronger governance and oversight mechanisms to curb such practices and ensure that procurement decisions are made fairly and transparently.

To address the challenges facing the procurement process in the South African business sector, there has been a noticeable shift toward automating reverse auctions. The shift towards automating reverse auctioning impacts various processes, including bid solicitations, evaluation procedures, and contract allocations. The use of technology in reverse auctions referred to as online or electronic reverse auctions (eRA), streamlines auctioning practices and enables businesses to optimize workflows, improve cost effectiveness, and foster competitive dynamics among suppliers [2] [15][16][17]. Further the use of eRA systems enables businesses to benefit from faster cycle times, greater precision, and an increased scalability in procurement efforts [16][18].

Moreover, the use of eRA systems enables South African businesses to develop a more resilient supply chain, and stronger governance frameworks to ensure ethical procurement practices. By addressing these issues, businesses can enhance their procurement processes and improve their overall competitiveness in an increasingly globalized economy. The challenges of corruption and inefficiency in South African procurement processes are significant, but eRA systems offer a viable solution to address challenges associated with traditional procurement paper-based system. By enhancing transparency, improving efficiency, achieving cost savings, and strengthening buyer-seller relationships, eRA systems can address these issues and contribute to a more effective and trustworthy procurement environment in South Africa. In addition, use of eRA systems in organizations is a strategic intervention that can foster increased procurement efficiency, the promotion of fair competition, cost savings, and value optimization for businesses in the public and private sectors [19].

For example, transparency and fairness are intrinsic to eRA systems and could be beneficial when combating corruption and ensuring fair competition in the procurement process. Furthermore, accountability mechanisms embedded within eRA systems promote ethical conduct and discourage corrupt practices [18]. Considering the vast and diverse nature of South Africa's business sector, which includes both large corporations and small and medium-sized enterprises (SMEs), leveraging eRA systems transcends geographical boundaries, increasing supplier diversity and fostering competitive bidding dynamics, resulting in more efficient procurement processes, and sourcing strategies [20].

Despite these benefits, there is scarcity of empirical evidence on the use of eRA systems in South African business organization [20][21]. The promising opportunities of modernizing procurement practices and fostering transparency, accountability, efficiency, and effectiveness in organizations are critical in the country's procurement landscape. By embracing eRA systems, organizations can position themselves for sustainable economic growth and competitive advantage [22][23][24][19]. This is especially important in the public sector context of South Africa, where budget constraints significantly limit the expenditure capacity of businesses. Consequently, there is a need for practical financial management, strategic resource allocation, and innovative solutions to budgetary challenges in public and private organizations. Being cognizant of such constraints allows organizations to adopt adaptive strategies that align with their financial realities, using eRA systems, while driving sustainable growth and operational efficiency [24][19].

The survival of a business partly depends on being able to efficiently compete in an increasingly globalized markets, and the dangers of enterprises missing out on the benefits of efficiency enhancing interventions such as eRA systems are a potential loss of competitive edge. This calls for a better understanding of how to effectively leverage eRA systems to optimize procurement processes in South Africa, considering the vast and diverse landscape of businesses and the contextual realities faced by both large corporations and SMEs in the public and private sectors. It is against this background that the paper aims to explore the benefits of using eRA systems towards enhancing procurement processes in the South African business sector. The objective is to determine the benefits of eRA system usage towards enhancing procurement processes in business sectors in South Africa.

### 1.1. Application of Reverse Auctions in South Africa's Business Sector

The discourse on reverse auctions reveals that they emerged in the manufacturing and industrial sectors [2][5][2][7]. Reverse auctions were primarily used to streamline procurement processes and negotiate better prices with suppliers. Reverse auctions became popular in the public sector in the 1990s, particularly among governments in developed countries [25][26]. Governments recognized reverse auctions' potential to reduce costs and increase efficiency in public procurement. Reverse auctions, for example, may result in cost savings through increased supplier competition, real-time price discovery, negotiation leverage, and optimized procurement processes [8][9]. Using these mechanisms, governments could significantly reduce procurement costs while maintaining quality and service standards. As the benefits of reverse auctions gained wider recognition, their use extended beyond the public sector to the private sector [27].

Organizations across sectors such as retail, telecommunications, and healthcare began adopting reverse auctions into their procurement processes. For example, healthcare organizations frequently employ reverse auctions to procure medical supplies, equipment, and pharmaceuticals. In this process, facilities request bulk orders of essential items, such as gloves, and invite suppliers to participate in competitive bidding based on price. By adopting this approach, healthcare providers can effectively balance cost management while ensuring the acquisition of high-quality products. Over time, reverse auctioning has evolved from a tactical tool for price negotiation to a strategic approach to sourcing [28][29]. Fundamentally, the focus has shifted toward overall value optimization, prompting organizations to employ reverse auctions for evaluating suppliers based on quality, reliability, and innovation. Unlike the traditional auctioning approach, which requires time-consuming negotiations, reverse auctions enable buyers to receive bids from multiple suppliers simultaneously. Real-time offer comparison streamlines the process, eliminating manual negotiations and facilitating faster and more efficient procurement of goods and services.

The shift towards value optimization enables organizations to develop long-term relationships with suppliers while increasing business value and competitiveness [20][24]. This increases transparency in the procurement process by allowing all participating suppliers to view each other's bids as well as the leading offer, ensuring fairness and objective selection criteria [24] [30]. In the long-run, transparency fosters trust among stakeholders and promotes accountability in procurement decisions [20][31]. Reverse auction platforms typically maintain a comprehensive audit trail of all activities and interactions, resulting in a transparent record of the procurement process that can be reviewed and audited as necessary [20]. Electronic documentation enhances accountability, enables stakeholders to verify that bidding and procurement decisions align with established policies and procedures. Thus, it can be argued that reverse auctions represent a multifaceted approach that carefully balances cost savings against other critical factors such as trust, reliability, and transparency in the procurement processes.

### 1.2. Technology and Reverse Auctions

The dynamic global economies and fast-paced technological advancements necessitate for transformations in the procurement processes that align with the dynamic nature of the business environments [32][33][34]. Technology shapes organizational operations, competitive strategies, and overall success. In the procurement process, technology streamlines operations, simplifies bidding, enhances efficiency, and provides valuable insights to both buyers and sellers [16][18]. Technology in the procurement landscape includes supplier relationship management systems (SRMs), big data analytics tools, artificial intelligence (AI), machine learning (ML) technologies, and blockchain technologies [18][35]. These

technologies are used within procurement processes depending on the organization's needs, the complexity of the procurement process, and the desired auction outcomes. Technologies and tools act as the foundation for creating a structured and integrated environment for managing the entire procurement process [36].

As organizations embrace technology in the reverse auctioning process, they unlock several critical benefits, including cost efficiency, transparency, and streamlined processes [2]. Furthermore, the shift toward technology use in the auctioning process allows stakeholders in the procurement process to respond and adapt quickly to the rapidly changing market conditions [2][15]. Technological advancements have facilitated eRA systems, which have created new opportunities for data and information management [36]. For example, data can be accessed, analysed, processed, and shared transparently. On eRA systems, essential functionalities such as bid solicitation, evaluation, and contract management are enhanced to increase transparency and accountability in the procurement process [35][36]. In addition, the use of analytical and reporting tools in reverse auctions provides buyers with insights into auction performance, supplier behavior, and pricing trends. Therefore, organizations are enabled to analyses historical data, track key metrics, and make market data-driven decisions.

Furthermore, AI and ML can enhance the efficiency and effectiveness of reverse auctioning. These technologies analyses vast amounts of data to identify patterns, predict bidder behavior, and optimize auction parameters in real-time [30]. For instance, AI-powered algorithms can recommend optimal bid increments or identify potential bid manipulation. Blockchain technology offers secure and transparent transactional capabilities that can be leveraged in reverse auctions to enhance trust and transparency. By recording bid history and transactional data on a decentralized ledger, blockchain technology mitigates risks and tampering, ensuring the integrity of the auction process.

Additional advantages and opportunities arising from technology utilization in reverse auctions include democratizing the auction process by enabling the participation of multiple suppliers from diverse geographical locations [34][35]. This allows bidders to compete on an equal basis. Moreover, eRA systems establish a transparent environment in which bidding activities are meticulously tracked [2]. Buyers gain access to comprehensive auction data, enabling them to compare bids, assess market dynamics, and make informed decisions. This transparency enhances buyer confidence and ensures efficient resource allocation [30][31]. Beyond mere data visibility, increased transparency provides participants with a clearer understanding of the auction process, reducing ambiguity and fostering trust. As trust deepens, disputes decrease, resulting in a more equitable and fairer marketplace.

While information technologies offer several advantages in improving reverse auctions, challenges remain [37]. These challenges range from eRA system reliability and data security to high technological infrastructure and implementation costs as well as technology immaturity [33]. System reliability, for example, is critical because technical issues or unreliable eRA systems can cause the bidding process to fail. In terms of data security, technological advancements present challenges for securing sensitive information during transactions. To prevent breaches, strong security measures must be implemented. Furthermore, eRA systems must integrate seamlessly with existing procurement systems to prevent operational disruptions. While technology in reverse auctions can increase efficiency, it may also depersonalize the auction process. Face-to-face negotiations and relationship-building opportunities for buyers and sellers are diminishing. Technological advancements also create new challenges, such as ethical quandaries in which supplier selection criteria, labor practices, and social responsibility all pose ethical issues. Finding a balance between cost-effectiveness and ethical considerations is critical. Another limitation of eRA systems is the lack of direct communication channels, which prevents problem solving and conflict resolution during bidding.

To address some of these issues, various regulatory and legislative policies and laws have been developed to govern the country's procurement landscape, with the goal of promoting transparency, fairness, trust, and accountability [38][14][39]. Examples include the Preferential Procurement Policy Framework Act (PPPFA), the Public Finance Management Act, and the Broad-Based Black Economic Empowerment (B-BBEE) Act. These policies and laws establish guidelines for procurement procedures, supplier selection criteria, contract awarding, and adherence to socio-economic objectives such as promoting local businesses and empowering emerging entrepreneurs [10][40]. Furthermore, the presence of such policies is an indicator of a growing dependence on public procurement in the country [38][40].

As government entities and businesses in the country seek to optimize their procurement strategies, reverse auctions provide a compelling value proposition by encouraging supplier competition and enabling cost savings [25][26]. The use of eRA systems in South Africa aligns with a global trend in which businesses in both the private and public sectors are gradually adopting innovative, long-term strategies to improve the efficiency of their procurement procedures [20]. This observation emphasizes the broad appeal and effectiveness of such approaches in procurement management. Considering the existence of regulatory and legislative policies that foster a conducive environment for procurement activities, reverse auctions are a significant avenue for enhancing cost structures, increasing supply chain efficiency, and ultimately enhancing market competitiveness [16][19]. This

underscores the transformative power of such a mechanism in the context of procurement management in South Africa.

Amidst the challenges facing the South African procurement landscape, there are opportunities for innovation, collaboration, and improvement. The advent of information technologies and digital tools has transformed traditional procurement methods, paving the way for innovative interventions such as eRA systems [16][18]. The use of eRA systems in procurement processes is aimed at streamlining processes, driving cost efficiencies, and enhancing transparency [37]. eRA systems enable suppliers to competitively bid for contracts in real-time, promote local economic development, and foster supplier diversity. Subsequently, as advanced technologies become more widely used, digital tools and technologies such as big data analytics, AI, the Internet of Things (IoTs), and blockchain are being explored to improve decision-making, mitigate risks, and optimize procurement outcomes in the country.

## 2. METHODS

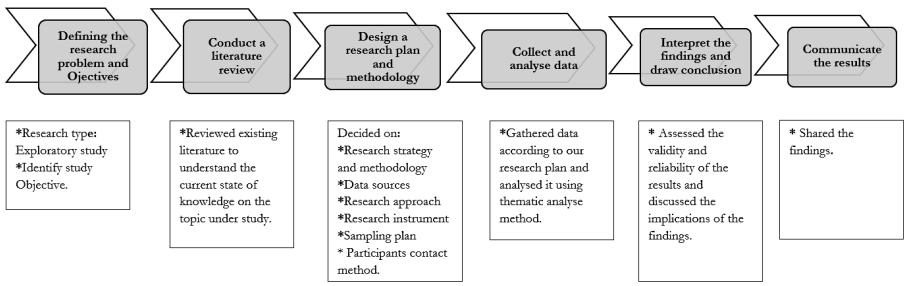


**Figure 1.** the study's process

### 2.1. Research Strategy

This study adopts a qualitative interpretivist approach, with a multiple-case study strategy, to investigate how eRA systems can improve procurement processes in South African business sector. The interpretivist stance was chosen to capture participants' subjective experiences and the socially constructed realities they navigate in the procurement context [41]. This approach is consistent with the study's goal of determining how eRA systems benefit procurement practices in South Africa from the perspectives of those directly involved. The justification for employing a multiple-case strategy in this study, is its ability to enable a thorough examination of the unique phenomena thus improving generalizability of results through analytic replication, enhance validity through triangulation, and refine theoretical insights [42][43]. These strengths make it an effective approach for researchers.

[43] argues that multiple-case studies are especially effective for investigating complex phenomena in real-world contexts, providing in-depth, contextualised insights. Therefore, the choice of a case-study strategy allowed the researchers to gain a more in-depth understanding of the possible benefits of eRA systems in South Africa's procurement landscape. This study focused on the procurement processes within two sectors: a government parastatal (utilities) and the private Information and Communication technology (ICT) sector. Using this approach, the study aimed to gain an understanding of the benefits of eRA systems usage in procurement practices in South Africa.

### 2.2. Participants' selection

The sampling process is an essential component of any research, and the type and composition of the research population heavily influence the choice of a suitable sampling technique. It is thus a process that typically involves selecting a representative portion of the population from which the sample was drawn [44]. In case-study strategies, where it is fundamental to understand underlying phenomenon under investigation, non-probability sampling are the most used methods [45]. It is for this reason that the study employs a non-probability sampling method, specifically purposive sampling, to select the participants. This sampling method was deemed appropriate because it enabled the researchers to identify participants that are experienced on the subject matter and can give in-depth information. In this case, individuals who are experienced with utilizing eRA systems within the government parastatal and the private ICT sector were purposively selected. In addition, snowball sampling was used to complement the purposive sampling to extend the sample size and identify participants fit to engage for the purpose of satisfying the study objective. In the process of conducting interviews with initial participants, three more participants who also met the study's criteria, were recommended. In total 18 participants within the procurement process were engaged in this study. The study's sample size is justified by the heterogeneity of the sample population and the use of the purposive sampling technique to select study participants.

### 2.3. Data Collection Method

Interviews were chosen as the primary data collection technique because the study's research design required an analysis of the participants' perspectives and motivations. The technique enabled the researcher to capture participants' perspectives on the use of eRA systems and procurement processes in South Africa. Participants from the procurement and technical departments in the business organizations were engaged through semi-structured interviews, to gain insight into their views on the issue under investigation [46][47].

Once the interview framework was established, the next step was to recruit participants who met the study's criteria. This involved approaching the human resources department of the organizations involved in the study to obtain contact details. Upon receiving this information, individual participants were contacted and informed about the purpose of the research, providing them with informed consent forms. After recruiting the participants, interviews were scheduled at times and locations convenient for them, with all interviews conducted in person. Each interview lasted for an average of 35 minutes.

The interviews began with a brief introduction, during which the interviewer explained the purpose of the interview and how the data would be used. With the participant's permission, the interviewer recorded the session and proceeded to ask the prepared questions, allowing participants to share their experiences and insights. Subsequently, participants were interviewed until a saturation point was reached, where no new information or insight on the benefits of eRA systems to improve the efficiency of procurement was generated. At the conclusion of each interview, the interviewer thanked the participants for their time and contributions.

### 2.4. Ethical considerations

The research ethics committee at the University of South Africa School of Business Leadership granted permission once the researchers satisfied the conditions that safeguard participants and the declaration of conflicts of interest. The participants were provided with informed consent to indicate their willing participation; choice to withdraw at any time without any repercussions, and that the confidentiality of their responses is guaranteed.

### 2.5. Data analysis process

The qualitative data collected was transcribed from voice recordings to text. Then, the text transcripts were subjected to open coding. Open coding was used to operationalize the key variables of the main research question, which include, application of eRA systems and its impact on the efficiency of the procurement process. Codes or keywords were assigned to responses from participants with regards to how eRA systems are being applied for procurement, enabling and inhibiting factors associated with system usage to enhance procurement process efficiencies in South Africa's organizations. For example, reduced time, real-time communication, transparency, and competitiveness, were some of the code words assigned to the participants' responses. The list of codes was extracted from the data transcript and transferred to a Microsoft Excel sheet, where they were categorized based on their frequency of occurrence for each interview question, using the sort function. The categories of coded words were assigned themes associated with findings that address the main objective of the study. These themes

enabled the researchers to identify the perceived benefits of eRA systems towards enhancing the procurement processes in business organizations within a South African context. The emergent themes are discussed in the next section.

## 3. RESULTS AND DISCUSSIONS

This section presents the main findings of the study. The objective was to determine the benefits of eRA system usage towards enhancing procurement processes in business sectors in South Africa. To address this objective, the primary data collected was analyzed to gain informed insights on how users of eRA systems perceived its benefits. The analysis of empirical data revealed several benefits resulting from the application of eRA systems within business organizations. The benefits are categorized into three overarching themes including procurement process efficiency, business competitiveness, and operational cost effectiveness.

### 3.1. Procurement efficiency

The participants identified that eRA systems have the capacity to bring efficiency to procurement processes. Most of the participants were of the view that eRA systems facilitate organizational transactions by enabling transparency, facilitating effective communication, streamlining processes, thereby reducing task duration in procurement processes. For example, one respondent mentions that eRA systems "… increase efficiency due to its quickness, thereby, reducing the time it takes to prepare for a successful reverse auction as well as the time it takes to execute it". Another respondent mentioned that eRA systems allow organizations to "… communicate with suppliers [from] all over the world in real-time…" In other words, the participants were of the view that eRA systems have the capability to bring together a wide range of bidders (suppliers) from around the world to compete on an equal footing. Several participants noted that the integration of online electronic sourcing software into the procurement process has facilitated seamless and transparent auction processes, eliminating any operational disruptions. Participants mentioned that eRA systems were used in procurement process to reduce corruption and build an audit trail for all transactions.

### 3.2. Business competitiveness

There were mixed feedback regards the impact of eRA on business competitiveness. For example, seven participants claimed that eRA increased supplier competition, three participants praised the automation of processes. Three participants expressed uncertainty about how eRA has improved transactions within their organization, while two others reported not experiencing any benefits from eRA. However, one of the main advantages of using eRA

systems in the procurement process is increased competitiveness. The findings indicate that eRA systems help suppliers compete by encouraging real-time bidding adjustments during the reverse auction process. It can be inferred from the analysis that users perceived eRA as useful when it automates the procurement process and eliminates communication gaps that hinder consensus between buyer and seller. For example, one participant mentioned that eRA systems use "…increases supplier competition…". Because the reverse auction involves multiple suppliers, they are motivated to submit their most competitive bids, knowing that they must outperform their competitors to win the bid. Subsequently, seven of the participants implied that they adopted eRA to stay competitive and effectively manage their supply chain.

### 3.3. Operational cost savings

The findings also reveal that operational cost savings is another key benefit of eRA system use in the procurement process. One respondent mentioned that eRA systems "…allows organizations to communicate with suppliers all over the world in real-time…" cutting the cost of phone calls and emails to the suppliers. Additionally, the findings suggest that eRA systems have the potential to reduce duplication costs and efforts associated with traditional reverse auctions, which contributes to better coordination of the administration of procurement activities. For example, one respondent mentions that eRA systems "… increase efficiency due to its quickness, thereby, reducing the time it takes to prepare for successful reverse auctions as well as the time it takes to execute it." By encouraging supplier competition and driving price transparency, eRA systems help organizations reduce costs in their procurement processes.

The analysis of the results reveals several factors that were identified as either enabling or hindering the realization of the benefits of eRAs systems application within business organizations in the South African context. These include eRA system awareness, relevance to organizational needs, interoperability with other existing systems, and perceived ease of use. For example, most of the respondents appraised eRA systems as being relevant to what they do within the business organization. One respondent mentioned that, based on their experience in the procurement department, eRA systems "... allow[ed] organizations to communicate with suppliers all over the world." This indicates that eRA systems enhance organizational operational efficiency and effectiveness as well as operational cost reduction in the procurement process.

However, factors such as ease of use were identified as having an impeding influence on the use of eRA systems. For example, one respondent mentioned that "the [eRA] system is sometimes tedious to use with many approvers." These factors indicate that businesses looking to fully leverage the benefits of eRA

systems in their procurement processes should be cognizant of both enabling and inhibiting factors that may impact eRA application and capabilities. Consequently, business organizations must develop strategic initiatives to not only leverage the benefits of eRAs systems but also mitigate the risks that inhibiting factors may present.

To better understand the benefits of eRA systems in improving procurement processes in both private and public businesses in South Africa, the DeLone and McLean Information System (IS) success model was used. The IS success model established by [48] enabled the description and explanation of dimensions through which eRA systems being used for procurement could be assessed within business enterprises. These dimensions are information quality, service quality, system quality, intention to use / use, user satisfaction, and net benefits. The key assumptions of the updated IS success model are that information quality, system quality and service quality influence the intent to use / use of IS and resulting user satisfaction [49]. Secondly, use of IS and user satisfaction directly influence the net benefits, and vice versa. Also, there is a correlation between use and user satisfaction, while user satisfaction influences the intention to use IS [50]. The authors were guided by these assumptions as a lens to offer explanations on factors associated with the benefits of eRA systems to enhance procurement processes in the South African business contexts.

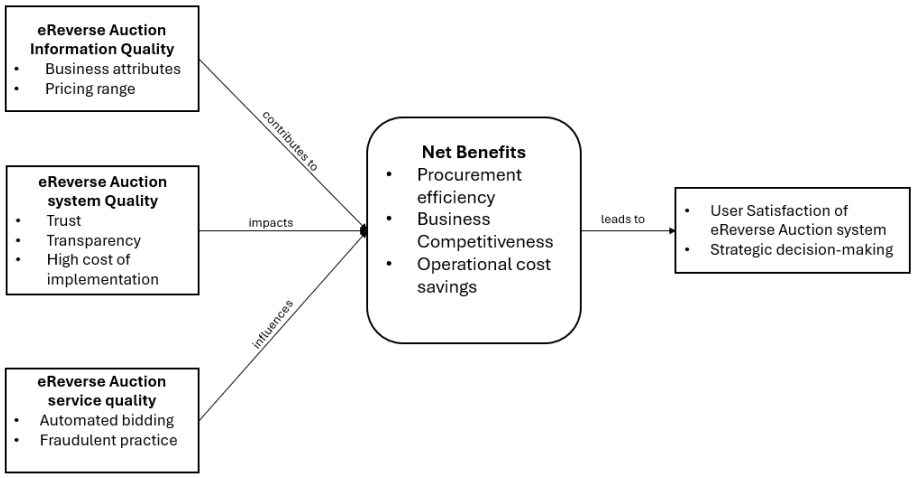


**Figure 2.** Factors that influence the benefits of eRA systems for procurement in South Africa

In the IS success model, system quality is characterized by functionality and expected outcomes of the IS, in the case of this study, eRA systems capabilities to facilitate procurement activities successfully and satisfactorily between buyers and sellers. The findings show that eRA systems were perceived to assist in minimizing

the time it takes to facilitate transactions and ensure transparency towards engendering trust in the procurement process for the businesses involved. Similar findings were reported by [51][52].[52] conducted a quantitative study on how managers perceive the impact of electronic procurement (e-Procurement) systems on buyer-supplier relationships in the pharmaceutical sector and cost efficiency and improved supply chain practices were the main benefits identified. It can be inferred that when suppliers are empowered by systems and enabled to participate in equity, and fairness, business processes are simplified, standardized and competitive. On a more complex level, the utilization of eRA systems in a country enables government entities and businesses to collect and analyze data more effectively, providing valuable insights for strategic decision-making and supplier management.

The relevance of the data generated and how it is applied for the desired purpose of informed decisions during procurement services is referred to as Information quality. Findings indicate that buyer and supplier relationships are not strongly affected by the reverse auction technology, but rather how and what that gets channeled through the system. Examples of the information channeled through the systems include business attributes, technical requirements, pricing, and related decision-making factors [17]. The information generated and exchanged between buyers and sellers contributes to communication efficiencies during the procurement transactions and enhances decision-making on product acquisition as well as cost effectiveness [53]. Such benefits and associated positive outcomes could drive the increase in the adoption of eProcurement technologies such as online reverse auction systems and drive competitiveness within the larger South African business sectors during procurement processes. Similar arguments were reported in studies conducted by [54][55].

To understand service quality, the IS success model refers to the attributes of IS effectiveness, which is characterized in this study by the influence of eRAs systems that can influence user satisfaction, organizational performance, and net benefits in the procurement process. Service quality depends on how effective eRA are used to enhance bidding performance and quality of information used to make informed decisions [19]. Findings indicate that the external factors responsible for enabling eRA system performance and user satisfaction are its acceptance by large and small businesses (including sellers and buyers) and affordable cost of internet connectivity. A study by [53] indicates how e-Procurement technology impacts procurement processes in the sense that they limit waste production, enhance supply chain performance, and enable sustainable green practices. However, some of the participants alluded to the corruption, fraud, and high cost of system acquisition as the main factors that inhibit the usage and user satisfaction of eRA systems.

These findings align with those from studies conducted in various industries in countries such as Kenya, Zimbabwe, and Jordan. [56] investigated the impact of electronic procurement (e-procurement) on buyer-supplier relationships within the Jordanian pharmaceutical industry. Their research suggests that pharmaceutical organizations adopt e-procurement systems to enhance efficiency, reduce costs, and improve communication with suppliers, leading to more productive and collaborative buyer-supplier relationships. Similar findings are reported by [57] who examined the impact of e-procurement on organizational improvement. Their study suggests that organizations adopt e-procurement to streamline their purchasing processes. However, they also identify challenges such as lack of supplier trust and cybersecurity issues that hinder the adoption of e-procurement. Additionally, [58] investigated e-procurement as a strategic sourcing tool in Zimbabwe's beverage industry. Their findings indicate a positive correlation between e-procurement and enhanced procurement efficiency. The authors also highlight that e-procurement significantly reduces the time required to scout potential suppliers.

These findings suggest that integrating eRA systems into the procurement process can enhance buyer-seller communication and overall procurement performance. Additionally, eRA systems help mitigate risks such as data breaches and corruption along with other issues that could impede process improvements. While eRA systems offer many benefits, they also come with several limitations and challenges. These include dependence on internet connectivity, high initial set up costs, usability issues and lack of personal relationships. These limitations highlight the importance of careful planning and management when implementing e-procurement systems to ensure they meet organizational needs effectively both in the private and public business sector.

## 4. CONCLUSION

The study determined the benefits of eRA system usage to enhance procurement processes in the business sectors in South Africa. The benefits include enhancing the constitutional principles of fairness, equitability, transparency, competitiveness, and cost-effectiveness. The optimal utilization of eRA systems may likely lead to substantial savings in cost effectiveness and time efficiency, especially on supplier development and supplier performance. This would have positive impact on the sustainability of small and medium enterprises in the South African business environment beyond the stipulated three to five years life expectancy. The strength of eRA solutions is its possibility to integrate the procurement processes that are not standard in nature.

However, eRA, like all other methods and solutions, comes with its associated limitations. It will be advantageous for South Africa's business sector to adapt to

international e-procurement trends. It should, however, be incrementally implemented, within a proper regulatory framework, policies, and procedures, considering the limitations or peculiar challenges. It is argued that technology related initiatives such as eRA systems can majorly contribute to business advancements if the implementation of such initiatives align with the developmental programs of the country within the social context. Training and support for suppliers are mandatory conditions to successfully benefit from eRA systems. Both the buyers and the suppliers are expected to adapt and innovate in a fast-paced digitized world. Future research is needed to evaluate the integration process with specific focus on suitability and implementation process of eRA systems in developing countries. Artificial intelligence and cybersecurity features of the system are highly necessary to benefit from eRA systems. Another critical element to be considered for future studies is policy regulations on the use of eRA systems even on complex, high-value goods, and services, without compromising quality of the goods supplied and the performance of the suppliers.

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