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# JOURNAL OF REAL ESTATE STUDIES

ISSN: 1800 – 3524

## Factors Contributing to a Land Value Information System to Become a Solution for the Shortage of Property Transaction Evidence in Sri Lanka: Property Valuers' Perception

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### ABSTRACT

In developing markets, obtaining comparable evidence for real estate valuations is often challenging. Land Value Information Systems that aim to gather, store, handle, retrieve, and perform land-related data for lawful, organizational, and institutional decision-making processes, have been used in developed countries to address this issue. However, Sri Lanka lacks a comprehensive land value information system. Thus, this study aimed to examine the factors that contribute land value information systems to become a potential solution in addressing lack of property transaction data, focusing on the perception of property valuers in Sri Lanka. A structured questionnaire, unstructured interviews and discussions were used with 30 professional real estate valuers in both qualitative and quantitative methods, revealing a positive attitude towards adopting the system. The advantages of such systems were aligned with time saving, accessibility to up-to-date data, convenience, etc., while concerns included disrupting the valuation industry's monopoly and information security challenges. The contributing factors were identified under three main categories, technological factors, organizational factors and people factors. Study findings revealed that technological factors were ranked high as most impactful for the successfulness of a land value information system. While technological and organisational factors were deemed achievable during implementation, the study suggests additional efforts, such as establishing a help desk, conducting training programmes to address people-related factors.

### ARTICLE INFO

#### **Article History:**

Received 22 November 2023

Revised 28 December 2023

Accepted 02 January 2024

#### **Keywords:**

Data, Information system, Land values, Real estate, Sri Lanka, Valuation

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### 1. INTRODUCTION

Data plays a crucial role in the contemporary economy (Oluwunmi et al., 2019). When it comes to the real estate valuation, comparable evidence is at the heart of virtually all valuations, yet in

developing markets, data on comparable evidence is often more difficult to obtain (Royal Institutions of Chartered Surveyors - RICS, 2019; Shimizu & Nishimura, 2006). A comparable is a piece of information that is used as proof during

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Doi: [10.31357/jres.v21i1.7293](https://doi.org/10.31357/jres.v21i1.7293)

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the valuation process to support the valuation of another comparable item. A variety of pertinent data is used by the valuer as comparable evidence to back up a valuation (Crosby et al., 2018; RICS, 2019). However, real estate market uncertainty is frequently caused by a lack of comparable evidence (Damodaran, 2018). Due to these uncertainties, accuracy of the valuation gets badly affected and clients get disappointed about the inconsistencies in valuation opinions (RICS, 2019; Property Elite, 2023).

As the valuation process is also becoming increasingly regulated worldwide mitigating the said inconsistencies, the adoption of technology in the valuation process has increased drastically over the past few years, introducing various technologies such as Automated Valuation Models. Further, information systems have been identified as solutions and adopted in developed countries for sharing data, developing databases as well as enabling access to up-to-date property transaction data. Information systems consist of interconnected components for data collection, storage, analysis, and provision of information, knowledge, digital goods, etc. and also facilitate this process (Zwass, 2020; Listglobally, 2018).

A crucial element for the proper functioning of real estate markets is the capacity to assess risk, particularly in relation to property prices. It is essential for responsible entities to actively promote information disclosure to facilitate the calculation of risk measures (Shimizu & Nishimura, 2006). In addition, efficient property valuation systems require access to data encompassing legal, geometric, physical, locational, and environmental property aspects, along with economic indices (Prathapasinghe & Ariyawansa, 2016). Valuation surveys, complying with International Valuation Standards (IVS) and Sri Lanka Valuation Standards, outline the structure and methodologies employed in the valuation process (Central Bank of Sri Lanka, 2020; IVSC,

2022). Being a developing country, the valuers in Sri Lanka also face difficulties in accessing reliable market data. While global efforts have focused on enhancing transparency and integrity in real estate, the Sri Lankan context has shown limited attention to transparency in the industry (Prathapasinghe, 2018). Consequently, finding reliable comparables becomes challenging, primarily due to the absence of a central database for local real estate data and information. Land Value Information Systems that aim to gather, store, handle, retrieve, and perform land-related data for lawful, organizational, and institutional decision-making processes, have been used in developed countries to address this issue. However, Sri Lanka lacks a comprehensive land value information system. Thus, this study aimed to examine the factors that contribute to land value information systems to become a potential solution in addressing lack of property transaction data, focusing on the perception of property valuers in Sri Lanka.

## 2. LITERATURE REVIEW

### 2.1 Land Value Information System (LVIS)

Information systems are described technically as a set of linked components that gather, process, store, and disseminate information to enable decision-making and control in an organization according to Robinson (2003). LVIS are comprehensive tools used for legal, administrative, and economic decision-making in land management (Tuladhar, 2003). LVIS aim to gather, store, handle, retrieve, and perform land-related data for lawful, organizational, and institutional decision-making processes (Robinson, 2003). These systems provide a foundation for integrating land-related data and support activities such as land transactions, property valuation, taxation, and land market analysis (Tuladhar, 2003). The system's

technological resources, organizational processes, institutional structures, data platforms, and policies for information sharing and openness are integral components. It incorporates hardware and software, organizational processes, and a platform or resource base for storing and analysing land-related data. Additionally, it includes policies that reflect the nation's land policy and guidelines for information sharing (Addis, 1998). The consistent geographically referenced system in an LVIS facilitates the integration of data with other land-related information, enabling quick and reliable land transactions, property valuation, taxation, and land market analysis.

## **2.2 Components of LVIS**

In the realm of land administration, the effective management of land-related data has become increasingly vital. Traditionally, organizations manually stored such data, but the current trend leans towards electronic information systems due to their facilitation of easier storage, retrieval, analysis, and dissemination of information. The Land Value Information System (LVIS) exemplifies this transition, aiming to provide information supporting management requirements through a blend of human and technological resources and structured procedures (Dale, 1999). To function optimally, LVIS relies on four essential components:

### ▪ **Property Data**

In assessing the value of a property, the crucial process involves recognizing, collecting, and analyzing features contributing to its value. This includes detailing the property's physical attributes, identifying relevant rights, incorporating current real estate market information, and considering other geographic factors influencing value assessment. Two key categories of data play a crucial role in this process (Muczyński, 2023).

Accurate cadastral maps are indispensable, portraying parcel boundary lines, dimensions, and spatial relationships with adjacent features. Essential for identification purposes, legal and descriptive information, along with parcel numbers, is integrated into cadastral data. Parcel identifiers serve as the fundamental unit for data gathering, forming a bridge between graphical and textual records (McLaughlin, 1987).

Gathering and maintaining pertinent information about the real estate market during transactions is vital for creating market data. This includes details about the characteristics of traded objects, encompassing both physical and legal aspects. Recognizing the fluctuating nature of land values over time and location, adjustments to selling prices are imperative. Regularly updating the system with current market data ensures the accuracy of values and other land-related information (PwC, 2017).

### ▪ **Human Resources**

Knowledgeable employees with the requisite training and expertise are indispensable for the proper functioning of the LVIS. People are integral to any information system, utilizing knowledge to inform daily activities. For LVIS, human resources, in conjunction with appropriate technology, are crucial to fulfilling valuers' perceptions in property transactions. The ultimate goal is to expedite the valuation process. A qualified team and sufficient computer support are essential for accurate land appraisal (RICS, 2019). Regular property inspections, research on alternative sites, and market adjustments are part of the team's responsibilities. Sound judgment is imperative for valuers to choose the most suitable strategy for a given scenario and evaluation goal (Eckert, 1990). Judgment is necessary for valuers to select the strategy that best suits the scenario at hand and the evaluation's goal.

### **2.3 Advantages of LVIS**

Land Value Information Systems (LVIS) stand at the forefront of modern data management, providing a multitude of advantages that significantly elevate the efficiency and effectiveness of land-related decision-making processes. As elucidated by Furmston (1986), one of the primary strengths lies in the system's ability to offer expeditious access to information while simultaneously allowing the tailoring of outputs to meet the specific needs of individuals or groups. This feature not only streamlines the data retrieval and analysis processes but also enhances overall operational efficiency (Fredrick, 2022). Furthermore, LVIS goes beyond mere data accessibility; it acts as a facilitator for the interrelation of diverse types of land information (Tomic, 2006). This interrelation ensures a comprehensive and integrated view of the land landscape, providing decision-makers with a nuanced understanding that is crucial for making informed choices (Furmston, 1986).

In the realm of data management, LVIS is distinguished by its unparalleled commitment to data accuracy and integrity. The system manipulates data with a staggering precision rate of almost 100%, as highlighted by Furmston (1986). This commitment to accuracy contributes to the generation of reliable and trustworthy information, establishing LVIS as a cornerstone for dependable decision support systems. As organizations grapple with the challenges of optimizing resources, LVIS emerges as a beacon of efficiency. By reducing staff time, the system not only accelerates service and product delivery but also translates to significant operational cost savings (Furmston, 1986). In addition, the collaborative dimension of LVIS further amplifies its impact. As emphasized by Groot (1997), the system fosters connections with new organizations, nurturing advancements in data quality assurance that translate into enduring

benefits. Such collaborative efforts contribute to the creation of a robust network of stakeholders invested in the success and sustainability of LVIS. Lastly, the system's influence extends to the public domain, as noted by Wyatt (1996). Improved public access to assessed land values empowers individuals and organizations alike, facilitating informed decision-making processes and simplifying tasks such as property tax payments (Tomic, 2006). In essence, LVIS emerges not merely as a data management system but as a transformative force, reshaping the landscape of decision support in the domain of land-related activities.

### **2.4 Disadvantages of LVIS**

While Land Value Information Systems (LVIS) boast a myriad of advantages, it is imperative to acknowledge and scrutinize the key disadvantages associated with their implementation. One noteworthy drawback is the substantial implementation costs incurred when integrating LVIS into existing systems, a factor highlighted by Kimberlee (2019). These costs encompass not only the acquisition of the system but also the potential expenses related to regulatory compliance and personnel training (Tomic, 2006). The implementation process may also lead to temporary service interruptions, necessitating careful planning and resource allocation to mitigate any negative impacts on ongoing operations. Moreover, the strict adherence to regulations is paramount to avoid fines and legal consequences, as underscored by Kimberlee (2019), adding an additional layer of complexity to the implementation phase.

Another significant challenge arises from the adoption of cloud-based technologies within LVIS. While these technologies facilitate remote work and collaboration, they introduce security risks that organizations must navigate carefully. Cybercriminal activities, such as hacking,

hijacking, and data theft, pose potential threats to the confidentiality and integrity of information stored within LVIS (Fredrick, 2022). The prevalence of security risks in cloud-based environments necessitates robust protective measures to safeguard against unauthorized access and data breaches (Kimberlee, 2019). Additionally, the potential for spyware to compromise private information further heightens security concerns, posing risks of unauthorized transactions and identity theft (Fredrick, 2022).

In navigating the complex landscape of LVIS implementation, understanding these nuanced advantages and disadvantages becomes paramount for informed decision-making. Organizations must carefully weigh the potential benefits against the challenges posed by implementation costs, regulatory compliance, and security risks. Only through a comprehensive understanding of these factors can they effectively harness the potential of Land Value Information Systems for enhanced decision support in the domain of land-related activities.

### ***2.5 Property valuation***

Property valuation is a systematic process used to determine the worth of land and real estate assets (RICS, 2019). Valuations play a crucial role in the property market, ensuring accurate assessments of property worth. Valuers utilize a range of techniques and professional judgment to estimate property values, often aided by technology. The accuracy and professionalism of valuations are essential to maintain public confidence in the valuation system and uphold the valuer's reputation.

In valuation, there are mainly three approaches and five methods. For all other methods also, the comparable evidences are required and based on such comparables valuers provide their

professional judgment on the market value of properties (Pagourtzi, 2003). Therefore, the foundation of almost all real estate valuations is comparable evidence (Premathilake, 2016). Thus, finding reliable comparable data for property valuations is essential and at the same time, it can be challenging. Valuers rely on various sources, including market evidence from recent comparable transactions, direct transactional evidence, publicly available information, published databases, and asking prices. Careful interpretation and expert judgment are necessary when utilizing these sources.

### ***2.6 Sources of comparable evidence***

The most robust proof of value often stems from comparable market transactions, demanding currency, relevance, and thoroughness (Damodaran, 2018). This evidence is pivotal for successful valuation and can be derived from various sources. Direct transactional data from open-market transactions near the valuation date is a primary source for valuation evidence. While comprehensive public information on sales and rentals is rare, valuers must meticulously analyze each comparable transaction, verifying public data accuracy and delving into specific transaction details. Recent transactions meeting market value criteria, such as property sales or lettings, provide strong evidence for valuation purposes (RICS, 2019).

Data disseminated by the government or recognized authorities, available through newspapers or online platforms (Scarrett & Osborn, 2014), constitutes publicly available information. Although potentially useful, this data requires scrutiny before being confidently used as comparative evidence. Published statistics may lack crucial details affecting reported figures, and the delayed release of data may diminish its relevance in dynamic markets ((Pagourtzi, 2003; RICS, 2019). Published databases, accessible for free or

through subscription, offer an overview of values and market dynamics, supplementing valuation judgments. Valuers must be cautious of database limitations, such as masking regional variations. Additionally, asking prices, though divergent from ultimate transaction prices, offer insights into market conditions and value trends (Pagourtzi, 2003). They should be used cautiously, and valuers must verify efficient property advertising, leveraging connections with agents to obtain comprehensive asking price information. Respondents often use asking prices from listing websites to gauge market trends, although these are not directly utilized in the valuation process (RICS, 2019). All evidence is, to some extent, historical, relying on transactions preceding the valuation date. The relevance of historical evidence depends on market conditions, but with knowledge of market movements between comparable transaction dates and the valuation date, outdated data may offer insights. Past sales, understood in the context of market conditions, can provide background knowledge supporting a later valuation decision, assuming the asset has not undergone significant changes (Pagourtzi, 2003; RICS, 2019).

In addition, in the majority of developed real estate markets throughout the world, real estate market indices that are created from compiled data regarding market prices or transactions exist (Haggette, 2016). If the valuer properly considers the sources, dependability, and amount of aggregation of the data, they may be a source of helpful information (RICS, 2019). Indicators for the major markets globally and for the majority of sectors are also produced by many of the biggest real estate consultant businesses. Even though these indices are frequently restricted to excellent real estate, they can nonetheless reveal patterns in market and sector performance. It is possible for secondary real estate or that in rural areas to perform quite differently. There are

additional building cost data indices available, which might be helpful for cost approach value or residual appraisals. These indexes, however, are frequently out of date by the time they are released because of the time required to analyze raw data and construct them (RICS, 2019). Indices can serve as a general indicator of market trends, often at the national, regional, or local level. If the valuer has a clear grasp of the origins and dependability of the data from which the index has been produced, they can be a helpful point of reference when making a decision (Haggette, 2016). However, it should be kept in mind that indices only reflect overall trends in their respective fields, and that individual characteristics' values may diverge dramatically from these trends (RICS, 2019).

## ***2.7 Factors affecting the successfulness of LVIS***

Literature reveals various factors that affect to the success of a Land Value Information System. The key factors are categorised into three groups; i) technological factors, organisational factors and people factors.

### **Technological factors**

#### **▪ *System quality***

In the realm of information systems, technological factors wield significant influence over system quality. According to Sedon (1997), this quality evaluation encompasses elements such as defect-free functionality, a consistent user interface, user-friendliness, and accessibility. User-friendly design and ease of use are prioritized to minimize the learning curve for users, while accessibility ensures inclusivity for diverse users. Documentation quality is deemed crucial, providing clear instructions for effective system utilization. Sedon (1997) occasionally includes the quality and maintainability of program code in this evaluation. Additionally, user-determined

factors like ease of use and accessibility, highlighted by DeLone (2003), emphasize aligning technological components with user expectations for a positive overall experience. Overall, a system that balances these technological considerations ensures efficient functionality and enhances the user experience.

#### ▪ *Information quality*

In the realm of information systems, DeLone (2003) emphasizes the crucial dimension of information quality, defining the reliability and efficacy of system-generated outputs. This multifaceted concept, encapsulated in four dimensions, revolves around the nature of outputs, which can manifest as reports or online displays. Precision ensures accuracy and exactness, sufficiency guarantees completeness, timeliness demands up-to-date information, and affordability recognizes the importance of cost-effectiveness. A system excelling in precision instills confidence in users for decision-making, while sufficiency enhances the holistic utility of information. Timeliness ensures relevance in dynamic scenarios, and affordability promotes accessibility. Information quality, as a comprehensive evaluation, underscores the significance of delivering accurate, comprehensive, current, and cost-effective information, fostering user trust and efficacy within the information system.

#### ▪ *Service quality*

The service quality dimension, as articulated by DeLone (2003), emerges as a pivotal factor influencing the success of a Land Value Information System (LVIS). Service quality is intricately tied to the degree of alignment between users' normative expectations and their perceptions of the system's performance. In the context of LVIS, users expect efficient problem-solving capabilities, a sense of security while using the system,

and the fulfillment of their specific requirements. The discrepancy between these expectations and the actual performance of the system profoundly impacts its overall success. A high level of service quality ensures that users have a positive and satisfactory experience with the LVIS, fostering trust and user engagement. Conversely, a gap in service quality may result in dissatisfaction, hindering the system's effectiveness and acceptance within the user community. Therefore, prioritizing and optimizing service quality is imperative for the successful implementation and utilization of a Land Value Information System.

### **Organisational factors**

#### ▪ *Top management support*

Top management support, as defined by Thawatchai (2005), plays a pivotal role in determining the success of a Land Value Information System (LVIS). This metric assesses the extent to which top management comprehends the system's importance and actively engages in related activities. In the context of LVIS, strong top management support ensures the system aligns with organizational goals, fostering cohesive implementation and sustained utilization. Active involvement from top management influences user acceptance and organizational engagement. Conversely, a lack of support may result in resource constraints and misaligned priorities, hindering the LVIS's effectiveness. Thus, securing top management support is crucial for the successful integration of a Land Value Information System.

#### ▪ *User training*

User training is a pivotal factor influencing the success of a Land Value Information System (LVIS). As defined by Philipp (2014), it entails employer-provided training to enable employees, ensuring competent operation of products and effective use of information systems.

In the context of LVIS, comprehensive user training is essential for optimizing system utilization, minimizing errors, and enhancing overall efficiency. Adequately trained users are better equipped to navigate the system's functionalities, contributing to successful implementation and organizational integration. Conversely, inadequate training may lead to suboptimal usage, hindering the LVIS's effectiveness. Therefore, prioritizing user training is critical for realizing the full potential and success of a Land Value Information System.

### People factors

- ***Computer self-efficacy***

Computer self-efficacy, rooted in individuals' beliefs about their competence in using computers to accomplish tasks, is a critical factor shaping the success of a Land Value Information System (LVIS). As defined by Chen (2017), self-efficacy reflects an individual's confidence in successfully managing tasks within a given environment. In the context of LVIS, computer self-efficacy influences user engagement, efficiency, and overall system utilization. Users with higher levels of computer self-efficacy are likely to navigate the LVIS more adeptly, leading to enhanced system performance. Conversely, lower levels of computer self-efficacy may result in hesitancy or suboptimal usage, potentially impeding the system's successful integration within an organization. Therefore, fostering computer self-efficacy among users is pivotal for realizing the full potential of a Land Value Information System.

- ***User experience***

User experience, as defined by Philipp (2014), encapsulates the emotional response individuals have when interacting with a product, application, system, or service. In the context of a Land Value Information System (LVIS), user experience significantly influences the

system's success. Positive user experiences foster engagement, satisfaction, and effective utilization, enhancing the overall success of LVIS. Conversely, negative user experiences may lead to disengagement and hinder the system's seamless integration within an organization. Therefore, prioritizing a positive user experience is vital for the successful implementation of a Land Value Information System.

### ***2.8 Adoption of Land Value Information Systems in Real Estate Sector***

Land Value Information Systems (LVIS) play an indispensable role in modern property valuation and real estate markets, offering a wealth of data for informed decision-making. Recent studies underscore the significance of LVIS in assessing property values, emphasizing the need for accurate, up-to-date information (Smith et al., 2021). In the realm of property valuation, LVIS facilitates a comprehensive market analysis by aggregating data on recent land sales, empowering valuers to discern market trends and make precise assessments. This system provides invaluable comparative analysis tools, allowing valuers to contextualize land values across different regions and time periods.

Furthermore, LVIS integrates zoning information and land use regulations, enabling valuers to factor in the property's permissible uses and assess the impact of potential changes. The inclusion of infrastructure data and planned developments enhances the valuation process by considering the property's accessibility and future potential (Clark, 2021). The spatial analysis capabilities of LVIS, often integrated with Geographic Information Systems (GIS), offer a nuanced understanding of how geographic features influence land values (Hill & Smith, 2021).



In the real estate market, LVIS contributes to transparency by providing stakeholders with reliable land value information, aligning with recent calls for increased market openness (Brown & Davis, 2022). Government agencies leverage LVIS data to formulate and adjust land-use policies, supporting sustainable urban development. Investors utilize the system to identify areas with growth potential, guiding strategic investment decisions (Hill & Smith, 2021). LVIS serves as a risk management tool, helping stakeholders assess the stability and potential risks associated with land investments (Jones, 2019). As technology advances, LVIS continues to be a cornerstone in shaping a more informed and resilient real estate landscape.

### 3. METHODOLOGY

This study aimed to examine the factors that contribute land value information systems to become a potential solution in addressing lack of property transaction data, focusing on the perception of property valuers in Sri Lanka. This study is a descriptive research. The judgmental sampling method is used to select the sample for the primary data collection since most related research studies (Pagourtzi et al, 2003; Oluwunmi et al., 2019) also have used the same method. Data collection is the most important part in any research because the validity of the findings depends on the success of data collecting method. In this study, data collection is done by using both primary and secondary data collection methods and sources. Therefore the validity of the data, findings and suggestions will be high as they are extracted from valid and standard sources as well as from current situational analysis. The research methodology included a literature review, a collection of valuers' perceptions.

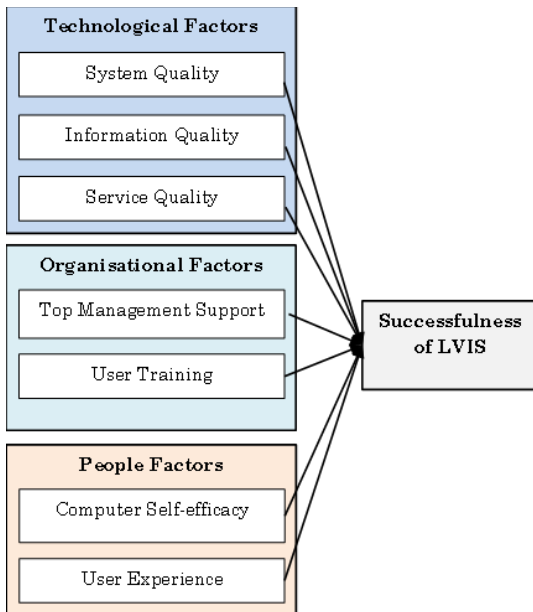
The population of interest consists of all real estate valuers in Sri Lanka who hold memberships of either the Institute of

Valuers of Sri Lanka (IVSL) or Royal Institution of Chartered Valuation Surveyors (RICS) or both, encompassing individuals at various membership levels. A sample of 30 valuers/ valuation surveyors was selected for data collection. Primary data is collected from the property valuers using structured questionnaire, unstructured interviews and discussions.

By these data, it was expected to identify valuers' perceptions on LVIS as a solution for the shortage of property transaction evidence in Sri Lanka. A comprehensive literature review was also undertaken to establish the current state of published knowledge on the subject. Secondary data were collected through literature, journal articles, books, websites, real estate developers, etc. In this study, both qualitative and quantitative data were collected and data were analysed using descriptive methods using MS Excel and Statistical Package for Social Science (SPSS).

The factors identified in the reviewing literature are used to develop the conceptual model shown in Figure 01 as well as the interview guide. The dependent variable is the successfulness of LVIS and the independent variables are the seven factors identified under three categories; technology, organisation and people. The measurement scales and items were adopted from the study done by Al-Mamary et al. (2015).

**Figure 1: Conceptual Framework**



Source: Authors (2022)

**4. DATA ANALYSIS AND DISCUSSION**

**4.1 Demographic profile of the respondents**

The following table shows the summary of the demographic profile of the respondents.

**Table 1: Demographic Profile**

	Category	%
<b>Gender</b>	Male	53.3%
	Female	43.3%
<b>Marital Status</b>	Married	86.7%
	Unmarried	10.0%
<b>Age</b>	20 – 30	3.3%
	31 – 40	56.7%
	41 – 50	33.3%
	51 – 60	0%
	Above 60	3.3%
<b>Education</b>	A/L	0%
<b>Qualification</b>	Diploma	3.3%
	Bachelor	56.7%
	Master	36.7%
	PhD	0%

<b>Professional Qualifications</b>	IVSL-FIV	6.7%
	IVSL-AIV	73.3%
	FRICS	3.3%
	MRICS	13.3%
	Other	0%
<b>Field Experience</b>	Less than 5 years	0%
	5 to 10 years	40.0%
	11 to 15 years	27.6%
	16 to 20 years	0.0%
	21 to 25 years	3.3%
	More than 25 years	

Source: Survey Data (2022)

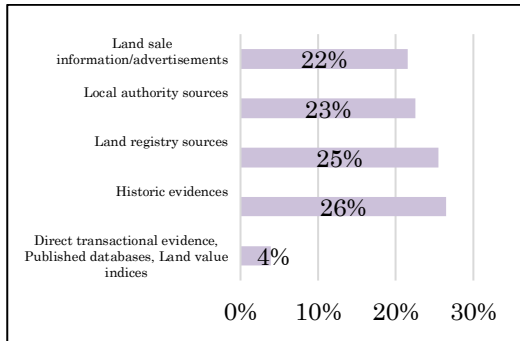
The demographic profile reveals a balanced distribution of gender, with 53.3% male and 43.3% female respondents, ensuring gender neutrality. Most respondents (86.7%) are married, and 10% are unmarried. In terms of age, the majority (56.7%) fall within 31–40 years, followed by 33.3% in the 41–50 age group. Age categories of 20–30 and above 60 each represent 3.3%, while none fall in the 51–60 range. Education-wise, 56.7% have bachelor's degrees, 36.7% hold master's degrees, and 3.3% have diplomas. The questionnaire targets qualified valuers with RICS, IVSL, or both qualifications. The majority (73.3%) hold IVSL-AIV qualifications, 6.7% have IVSL-FIV, and 13.3% and 3.3% possess MRICS and FRICS qualifications. Regarding professional experience, 40% have 5–10 years, and 27.6% share equal experience in 11–15 and 16–20 years. Only 3.3% exceed 25 years, and there are no respondents in the 21–25 years category.

**4.2 Respondents perception on commonly used sources of real estate transaction data by property valuers**

Finding reliable comparable data in the real estate markets is sometimes difficult. In the absence of information on transactions that are directly comparable, the valuer should consult additional sources of data. Both careful

interpretation and expert judgment are necessary here. Understanding the advantages and disadvantages of the various forms of accessible data is crucial. The key sources of comparable evidence are identified and summarized below with the chart of survey results.

**Figure 2: Real Estate Transaction Data Sources**



Source: Survey Data (2022)

Although Scarrett and Osborn (2014) stated that a great deal of real estate market information can now be obtained from internet sources, the above findings of the current study shows that the reliance upon such evidence is low in Sri Lanka. The majority of valuers (25%) relied on land registry sources and historic evidence (26%) for valuations, primarily in the Government Valuation Department. Local authority information also served as a valuable resource. Asking prices from listing websites, land sale information, and advertisements constituted only 22% of the sample. Direct transactional evidence, published databases, and land value indices were less utilized, as they are rare in the market. In Sri Lanka, published databases were unavailable during the survey, as confirmed by the ICTA Project Manager in the interview. The literature review details the use of land sale information/ advertisements, historic evidence, direct transactional evidence, published databases, and land value indices. Land registry sources and local authority sources are further explored. Historic data were also referred

to using their own access-restricted internal databases maintained throughout the past operational periods.

**4.3 Advantages and disadvantages associated with the LVIS based on the interviewed data**

The advantages of implementing a Land Value Information System (LVIS) were identified through the survey as well. One significant advantage is the time saved in finding comparables. Respondent (R) 10 mentioned “...if we have centralised database to view transaction via computer or mobile phone, we will be able provide valuation without taking long time”. Similarly, R5, R7, R9, R20 and R28 also revealed the similar statements to the above respondent.

In today's society, time is valuable, and the use of technology can automate tasks that would otherwise require a significant amount of time. Valuers in Sri Lanka currently spend considerable time searching for transaction evidence from various sources. Implementing an information system would enable valuers to find comparables more efficiently, as highlighted by respondents in the survey.

In parallel to that, easy accessibility to comparables is another advantage of an LVIS. The R14, R11, R6 and R22 made statements similar to “I need to find comparables form the market analysis, but most of people do not disclose the actual transaction amounts, and if there is a computer system with an accessibility which is limited by a user account with a restricted password login, it will be good solution for this issue”. Having data readily available and accessible is crucial for organizations, and valuers expressed the need for a system that allows them to access comparables without complex approval processes. By providing limited access through user accounts, a computerized system can address this issue effectively.

The availability of updated information is

a key advantage of an LVIS. As highlighted by R8 and R14, *“use of an land value information system with updated data to trace recent comparables will be a much easier and trustworthy option to get an idea of current market values as other current options provide comparables that are many months or years old”*. Valuers in Sri Lanka face the common challenge of a lack of updated comparables, which leads them to employ various approaches to gather information, consuming significant time and effort. A successful LVIS could address this issue by ensuring that the system is regularly updated with the latest transaction data.

Information mobility, the ability to access data from anywhere and on any device, was also identified as a benefit. R20 stressed that *“as the system will be on a web based version, data can be accessed from any place using the user credentials”*. R7, R10, R27 and R28 also stated the statements similar to the above respondent. This feature would allow valuers to access data in the field using mobile devices, enhancing their efficiency and effectiveness. These findings are supported by several previous scholars such as Groot (1997), Wyatt (1996), Kimberlee (2019) and Fredrick (2022).

Nevertheless, there were several disadvantages identified during the interviews. One concern was the potential impact on the valuation industry itself. R1 and R14 stressed that, *“if these data published by making those available to the general public as well, monopolistic characteristics of the valuation industry will collapse. Therefore, better to keep this information system only for the use of valuers”*. If the proposed system was made available to the general public, it might reduce the demand for valuers' services, as individuals could also access property data easily on their own. To maintain the integrity of the valuation industry, some valuers suggested restricting access to the system only to professionals.

Another potential disadvantage is the subscription-based payment model for valuers to use the system. R19 revealed that, *“in terms of valuations done by valuers, there are two groups within the industry. First one is elite valuers, who earned by doing too many projects with clients and second one is valuers who do not have much projects to earn. If all valuers need to make payments to use of the system, the second class cannot afford that cost and first class can easily afford it and also by using this kind of system, they will capture the second class valuers' market also”*. As per this statement, this scenario could create income disparities among valuers, with those who can afford the subscription gaining an advantage over those who cannot.

Additionally, the developers of the LVIS would need to provide technical knowledge sessions to valuers. R11 and R29 stressed that, *“It is hard to get used to an LVIS system at once, and you will have to conduct a number of awareness programs to give the required knowledge to the public and related people in using the system”*. They highlighted that this would require additional time, effort, and cost.

There is also the challenge of capturing and feeding data into the system, which may require significant initial investment and resources. R1, R4, R7 and R12 revealed that, *“Introducing a system and initiating it won't be an easy job. Government or any other company should take the lead on it, and it should be profitable for both parties”*. These findings are supported by several previous scholars such as Kimberlee (2019) and Fredrick (2022).

#### **4.4 Factors contributing to a successful LVIS implementation**

The analysis categorized the data into three main categories: technological factors, organizational factors, and people factors. Using means comparison analysis, the researcher analysed the primary data

collected from the sample. Five-point Likert scale was used. Table 02 summarises the outputs of the mean comparison.

**Table 2: Mean comparison for determinants of successful land value information system**

Factor	Mean Value	Rank
<b>Technological factors</b>	<b>3.929</b>	<b>1</b>
Information quality	3.914	
System quality	3.943	
Service quality	3.931	
<b>Organizational factors</b>	<b>3.881</b>	<b>2</b>
Top management support	3.906	
User training	3.856	
<b>People factors</b>		
User experience	3.877	<b>3.592</b> <b>3</b>
Computer self-efficacy	3.307	

Source: Survey Data (2022)

The mean values obtained through a five-point Likert scale provide insights into the impact of each factor on the successfulness of LVIS. According to the mean values presented in Table 02, technological factors, including information quality, system quality, and service quality, have a significant impact with mean values ranging from 3.914 to 3.943. This aligns with previous studies by RICS (2019), DeLone (2003), and Thawatchai (2005), emphasizing the crucial role of technology in LVIS success. The organizational factors, represented by top management support and user training, also hold importance with mean values of 3.906 and 3.856, respectively.

People factors, specifically user experience, demonstrate a mean value of 3.877, indicating their substantial

influence. However, it's noteworthy that computer self-efficacy, with a mean value of 3.307, appears to be a comparatively weaker determinant in the context of LVIS success. These findings align with the findings of study done previous by Chen, (2017).

The consistent trend of mean values exceeding 2.5 across all identified factors suggests that each component technological, organizational, and people factors plays a crucial role in ensuring the success of LVIS implementation. The findings emphasize the need for careful consideration of these determinants by system developers. By incorporating insights from this analysis into the design and development process, the optimization of LVIS performance can be achieved, ultimately contributing to the system's overall success.

## 5. CONCLUSION

The primary aim of this study was to examine the factors that contribute land value information systems to become a potential solution in addressing lack of property transaction data, focusing on the perception of property valuers in Sri Lanka. The research design employed a descriptive approach, with data collected through structured questionnaire, unstructured interviews and discussions held with 30 real estate valuers in Sri Lanka. The majority of participants in the study were valuers affiliated with the Government Valuation Department in Sri Lanka, who are members of the Institute of Valuers of Sri Lanka (IVSL). The study found that the land value information system, categorized as a published database, is currently unavailable in Sri Lanka. However, the responses from valuers indicated that the proposed system has the potential to effectively address the lack of property transaction comparables. Advantages of the system aligned with the benefits of information and communication technology, while

disadvantages included the potential disruption of the valuation industry's monopoly and typical challenges associated with information systems. Overall, valuers displayed a positive attitude toward adopting the system due to its advantages outweighing the disadvantages. The researcher identified the knowledge gap in software-related expertise among developers and highlighted critical attributes necessary for the successful development of the land value information system, particularly the requested map interface. A model was also conceptualized to identify the determinants of a successful land value information system, consisting of technological, organizational, and people factors.

While technological and organizational factors were deemed achievable during implementation, people factors may require additional efforts, and establishing a help desk was suggested to address user issues. Acknowledging sample diversity limitations, especially the dominance of valuers, future research should aim for a more diverse participant pool from the real estate sector. Recognizing potential response bias, additional validation methods are advisable. Caution is warranted regarding generalizability due to the study's Sri Lankan focus, and external factors like policy changes and economic conditions could impact the system's success beyond the study period. Future research should also explore global variations in land value information system implementations, considering technological, cultural, and regulatory differences. Examining the user experience and effectiveness of training programs for valuers is crucial, along with investigating the long-term impact on the valuation industry and market dynamics. Gathering diverse stakeholder perspectives and conducting a longitudinal study on the system's evolution over time would provide comprehensive insights. Overall, the

findings provide valuable insights into the perception and potential implementation of the land value information system in Sri Lanka.

## 6. ACKNOWLEDGEMENTS

The authors acknowledge the Centre for Real Estate Studies (CRES), Department of Estate Management and Valuation, University of Sri Jayewardenepura, Sri Lanka.

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