Evaluation of The Utilization of Bela Procurement System on The Effectiveness and Efficiency of Goods/Services Procurement

N. P. Manissar Tri Ratih[1,2*], Erma Suryani[3]

ABSTRACT

This study evaluates the Bela Procurement system's utilization and effectiveness in Badung Regency Government. Data collection methods include observation, documentation, and interviews with an inductive qualitative approach. Respondents are personnel from the Badung Regency Goods/Services Procurement Work Unit, Bela Procurement Merchant Admins, and MSMEs in the Bela Procurement application. Data analysis uses the ITIL v3 framework. Results show the system's effectiveness and efficiency with a value of 3, despite some external user-side obstacles. Bela Procurement shortened the average order to 5 days, reduced delivery delays to 8%, and increased user satisfaction to 8.3. Prior procurement efficiency ratio increased to 55%. Operational cost savings were 20%. 10 out of 17 features were used, with the rest unused due to not meeting user needs. The system positively contributed to efficiency, completion time, and data accuracy. Obstacles identified include user understanding, technical limitations, and MSME participation. To optimize system utilization, efforts include increasing user training and understanding, MSME participation, and technical updates based on user input.

KEYWORDS: Bela Procurement System, Effectiveness, Efficiency, Procurement of Goods/Services, Evaluation, Badung Regency

.

[1] System Analyst, PT Tata Cipta Selaras, Jakarta, Indonesia
[2] Information Technology Management, Interdisciplinary School of Management and Technology, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia
[3] Department of Information Systems, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia
*Corresponding author: ratihvirgo18@gmail.com

1. INTRODUCTION

The use of information technology in supporting community needs has created various opportunities that are expected to bring innovation to improve the quality of government services, especially public services, the business community, and fellow government agencies. Information technology (IT) organizations provide various services for businesses (Basry & Sari, 2018) The use of information technology is basically a means or tool (Arif, 2017). However, its existence is very important and very significant to increase the efficiency and effectiveness of performance (Yunaeti & Irvani, 2017).

The effectiveness and efficiency of using or implementing information system technology can be seen from the ease with which users identify data, access data and interpret the data (Aprianto et al., 2020). The data in the information system should be integrated data from all system units so that it can be used for various task requirements in the system (Suryono, 2021). The level of effectiveness and efficiency will determine the application of the system to a performance (Apriyanti, 2020). The higher the level of effectiveness and efficiency, the functionality and usability of the system will increase (Ahmad & Munawir, 2018). The effectiveness and efficiency of a system can be measured based on the intensity of use, frequency usage and the number of applications or software used. If these indicators are met, the system can be said to be effective and efficient (Fatoki, 2018).

During the Covid-19 pandemic, there was a drastic increase in the number of MSMEs in Indonesia. During the Covid-19 pandemic, MSMEs were a support for the national economy because they were able to provide opportunities for business actors to open new jobs (Hadiyati, 2018). Seeing this opportunity, LKPP took advantage of its opportunity to provide opportunities for MSME actors to expand their business through collaboration with local governments as providers of goods/services that are monitored digitally through an application platform called Bela Procurement. The Bela Procurement application was officially launched on August 17, 2020. The Bela Procurement application is managed by LKPP in collaboration with Trade Operators Through Electronic Systems or e-Marketplace (Fauziyah, 2020).

Utilization of Bela Procurement by UMKM in Badung Regency is supported by LKPP in supporting the MSME sustainability sector amidst the pandemic and accelerating the digital transformation of MSME actors. The use of Bela Procurement for several years has increased, from initially only 6 MSMEs joined, now there are 300. Procurement transactions, which were initially 3.2 billion from 4,221 transactions, then increased to 35 billion this year.

The ITIL framework version 3 aims to support organizational success by synergizing IT services with current and future business and customer needs, continuously improving the quality of IT services, and reducing the cost of providing IT services in the long term (Robin & Ivanrezki, 2020). ITIL notes that a successful IT service starts with good (long-term) strategic planning activities, continues the detailed design of each system service, implements the realization of each design well, triggers operational IT services that are

always maintained, and efforts to evaluate, improve, and improve every service process every time (Al-Ghwayeen & Abdallah, 2018). Based on this background and problems, the proposed evaluation of the utilization of the Procurement Defending system uses the ITIL version 3 framework with the scope of research in the Badung Regency area (service delivery) and Service Transition (change in service).

2. LITERATURE REVIEW

Information technology is a collection of components that form a single unit, and a system is a set of interrelated components working together to achieve certain goals efficiently (Sutarman, 2021). The evaluation of information technology involves planning, processing, and the information technology framework. The management of information technology includes planning the application of knowledge about information systems in organizations (Mardhiyah, 2019), and it is essential for the success of an organization's efforts (Ahmad & Munawir, 2018). The information technology framework consists of basic concepts, information technology, business applications, and management challenges. Measuring the effectiveness of information systems can be done through five perspectives: content, accuracy, formats, ease of use, and timeliness. The ITIL, developed in the 1980s, is widely recognized as the de facto standard in service management, adopted by many service management companies for consulting, education, and software support.

3. METHODS

Problem Identification

At this stage, identification of the problem is carried out which aims to find the formulation of the problem and the research object to be studied. Based on the purpose of this research is to know, describe, and formulate an evaluation of the utilization of the Bela Procurement system on the effectiveness and efficiency of the procurement of goods/services. The source of the data obtained is in the form of a collection of articles sourced from international reputable scientific journal publications consisting of: Sciencedirect, Emerald, Tandfonline, IEEE, Springer, and Wiley. Researchers collected these data which were then analyzed and validated to produce recommendations for the use of the MSMEs Bela Procurement system in Badung Regency.

Identification of Relevant Literature

Literature study was conducted to find out the following: 1) Description of Information Technology; 2) Information System Evaluation; 3) Utilization of Information Systems; 4) The concept of E-procurement; 5) Description of Bela Procurement; 6) Description of System Effectiveness & Efficiency; and 7) Description of ITIL.

Data Collection

The data collection techniques used in this study include: 1) Observation is a systematic observation and recording of the symptoms that appear on the object of research. The observation used in this study is participant observation, which indicates that the researcher is directly involved with the daily activities of the person being observed or used as a source of research data. This direct observation was carried out starting from the researcher coming to the research location until the researcher left the research location. Observations were made at the LPSE of Badung Regency. 2) Documentation Documentation is a method used to find data about things or variables in the form of notes, transcripts, books, newspapers, agendas, and so on. 3) Interview, the interview method is a data collection technique that is carried out face to face, questions are given orally, and answers are also given orally. The type of interviews conducted in this study were in-depth interviews, namely by collecting data or information directly face to face with informants in order to obtain complete and in-depth data.

Analysis

The data analysis method used in this study is the method developed by Miles and Huberman which indicates data analysis is carried out interactively and continues continuously until complete, so that the data is saturated.

Research Validation

The types of triangulations used in this research are data triangulation and theoretical triangulation. The data that has been obtained in full is then validated by comparing some of the data obtained from sources that are mutually reinforced with supporting theories, so that it can be the basis for drawing conclusions.

4. RESULTS

From the brainstorming results, several innovation recommendations were found that could be implemented in RFID innovation for motorized vehicles according to the needs of stakeholders

Development of Indicators

The authors formulate targets for the effectiveness and efficiency of PBJ after conducting this research, namely: 1) The use of an effective and efficient Bela Procurement system. 2) There is an achievement of the target of utilizing the features of the Bela Procurement system. 3) Optimization of the utilization of the Bela Procurement system in overcoming obstacles to the utilization of the Bela Procurement system (Doll & Torkzadeh, 1988) and (Joo et al., 2018). The following is the identification of variables in measuring the target effectiveness and efficiency of the Bela Procurement system.

Evaluation of the Utilization of the Bela Procurement System

The authors formulate targets for the effectiveness and efficiency of PBJ after conducting this research, namely: 1) The use of an effective and efficient Bela Procurement system. 2) There is an achievement of the target of utilizing the features of the Bela Procurement system. 3) Optimization of the utilization of the Bela Procurement system in overcoming obstacles to the utilization of the Bela Procurement system (Doll & Torkzadeh, 1988) and (Joo et al., 2018). The following is the identification of variables in measuring the target effectiveness and efficiency of the Bela Procurement system.

TABLE 1. Indicators for Evaluation of Utilization of the Bela Procurement System

Variable	Variable Identification	Description
Content	Measuring user satisfaction in terms of the contents of the existing system.	The contents of the system are usually in the form of functions and modules used by system users as well as information generated by the system
Accuracy	Measuring user satisfaction in terms of data accuracy when the system receives input and then processes it into information	The accuracy of the system is measured by seeing how often the system produces wrong output when processing input from the user, besides that, it can also be seen how often errors occur in data processing.
Format	Measuring user satisfaction from the appearance of the application program itself	User satisfaction in terms of the appearance and aesthetics of the system interface, the format of reports or information generated by the system, whether the interface of the system is attractive and whether the appearance of the system makes it easier for users when using the system so that it can indirectly affect the level of effectiveness of users.
Ease of Use	Measuring user satisfaction or user friendliness in using the system such as the process of entering data, processing data and searching for information	The process of entering data, processing data, and finding the required information
Timeless	Measuring user satisfaction in terms of the timeliness of the system in presenting or providing data and information needed by users	A timely system can be categorized as a real- time system, meaning that every request or input made by the user will be processed immediately and output will be displayed quickly without having to wait long.

Effectiveness and Efficiency of the Bela Procurement System

Indicators on the effectiveness and efficiency of utilizing the Bela Procurement system in this study resulted from several literature studies that resulted in the application of the Bela Procurement system (Joo et al., 2018). More details can be seen in table 2.

TABLE 2. Indicators of the Effectiveness and Efficiency of Utilizing the Bela Procurement System

Variable	Identification Variable	Description
Functional Requirements	1. Admin, admin can add data, change data and delete data in the Bela Procurement system. 2. Users, users make purchase and sale transactions. The system can	Requirements that contain the process to be carried out by the system. Functional requirements will also describe the output results produced by the system created.

Variable	Identification Variable	Description
	display information on buying and selling goods.	
Usability Needs	1. System capabilities, service capabilities used by users to achieve certain goals with effectiveness, efficiency, and satisfaction in the context of service use. 2. System quality, how easy the service is to use by its users.	Requirements that must be met by the system regarding product capabilities that are easily understood, easily understood by users in various conditions.
Reliability Needs	1. Reliability, the probability that a service will work according to the desired function without any failure under certain operating conditions and within a certain period of time. 2. Flexibility, the system can adapt to various user needs and to changing conditions.	Reliability requirements are requirements that must be met by the system regarding the reliability of the system to maintain its performance when used and under certain conditions.
Performance Requirements	1. System assessment, management, and service performance. 2. System convenience, user convenience in using the service.	Performance requirements contain requirements that include performance requirement, such as access speed, availability, resource usage, system response and recovery time
Need for Support (Supportability)	1. Decision making, able to assist the process of making decisions and focus on management in accordance with the perceptions and information available. 2. Optimizing system effectiveness, optimizing the effectiveness of a decision.	The carrying capacity requirement is in the form of software requirements related to application support in its use.

Utilization of the Bela Procurement System on the Effectiveness and Efficiency of Procurement of Goods/Services

Based on the system to be examined, evaluation of the utilization of the Bela Procurement system has an influence on the effectiveness and efficiency of the procurement of goods/services. This utilization includes the contents of the system which contains information according to user needs, data accuracy, appearance and aesthetics of the system user interface, system ease and effectiveness, and system timeliness. In addition, utilization of the Bela Procurement system contains functional and non-functional requirements. Functional requirements are requirements that contain any processes / services that must be provided by the system, including how the system should react to certain inputs and how the system behaves in certain situations (Doll & Torkzadeh, 1988) and (Joo et al., 2018). Constraints in Utilizing the Bela Procurement System on the effectiveness and efficiency of the procurement of goods/services.

Evaluation of The Utilization

Based on the system to be studied, the constraints on using the Bela Procurement system have an influence on the effectiveness and efficiency of the procurement of goods/services. These obstacles include limitations in terms of technology, including the absence of a standard standard regarding the quality, security and reliability of the system used, especially to deal with network problems. Another limitation is from a non-technological perspective, such as low human resources and lack of knowledge about the system (Doll & Torkzadeh, 1988) and (Joo et al., 2018).

Recommendations for optimizing the utilization of the Bela Procurement system for the effectiveness and efficiency of the procurement of goods/services

From the results of the interviews, statements were obtained from each informant in accordance with the theory of (Doll & Torkzadeh, 1988) and (Joo et al., 2018) that to reduce constraints in a service a solution or recommendation is needed. Recommendations are needed from a utilization of information technology. This is to avoid the worst risks when doing connectivity, for example data theft or fraud. Several informants stated the need for socialization of the Bela Procurement system, so that users understand about the device system, objectives, benefits, and security that must be prepared when using the system.

Analysis of the ITIL Framework Evaluation of Utilization of the Bela Procurement System on the Effectiveness and Efficiency of Procurement of Goods/Services

The research focuses on the service operation domain of ITIL, which aims to provide efficient IT services to users in day-to-day operations. The evaluation is conducted on the Bela Procurement system to enhance user satisfaction and improve operational performance. ITIL assesses the system's utilization for the effectiveness and efficiency of goods/services procurement.

TABLE 3. Analysis of the ITIL Framework for Evaluation of Utilization of the Bela Procurement System

No	Subdomain	Evaluation of the Utilization of the Bela Procurement System	Recommendation
1	Event management.	System error due to: - Unstable network - The registration stage is too long	LKPP socializes to users of the Bela Procurement system, namely MSME providers and consumers so that they are in a location that can be reached by the internet network when utilizing the Bela Procurement system. In addition, LKPP also provides detailed information regarding registration for each stage so that providers are not confused when logging in and registering in the Bela Procurement system.
2	Request fulfilment	There is no new module for improvement in the use of this IT service for the Bela Procurement system	Creating modules in the use of this Bela Procurement system, such as having a forum (every region can communicate if there is a

No	Subdomain	Evaluation of the Utilization of the Bela Procurement System	Recommendation
			problem), guidelines for improving the usability of the application.
3	Problem Management	Long waiting process when requesting data in the central database. (Queue)	Long runtime scripts are used, meaning that the center is given rights to each region regarding the time when registering, dividing certain areas can be requested at what time, as well as for other regions when to request data, so not all have to request data simultaneously because this causes the system to stop (waiting process that occurs in the application). This is because when there are MSME providers who want to join the Bela Procurement system and register at the same time, the system will be slow.
4	Access Management.	Weak legal and institutional framework, lack of government capacity in managing the procurement of goods and services and lack of compliance with regulations as well as in their oversight and enforcement	The government through LKPP should provide assistance services so that data security is maintained and carry out supervision and strict action when it is proven that data theft has occurred in the use of the Bela Procurement system.

5. CONCLUSIONS

The research's conclusion is as follows:

The implementation of the Bela Procurement system in Badung Regency has successfully improved the effectiveness and efficiency of goods/services procurement. The system has brought positive changes, making the direct procurement process more transparent, effective, and efficient. The evaluation of the system's utilization scored 4 out of 5, indicating its support for effective and efficient procurement processes. Post-implementation, several positive achievements were recorded, including limiting order processing time to a maximum of 5 days, reducing delivery delays to 8% of total orders, and achieving a 20% reduction in operational costs. User satisfaction also increased by 8.3 on a scale of 1 to 10. Additionally, the system's features have expedited and simplified the procurement of goods and services, enhancing transparency and efficiency in government budget management and other organizations.

Despite some technical challenges and limited participation from certain SME actors, the research recommends optimizing the utilization of the Bela Procurement system through measures like improving internet network stability, conducting public awareness campaigns, and providing training programs to enhance users' skills and knowledge.

Overall, the implementation of the Bela Procurement system has brought significant positive changes in the effectiveness and efficiency of goods/services procurement in

Badung Regency, enhancing transparency, reducing risks, and increasing user satisfaction.

REFERENCES

Ahmad, L., & Munawir. (2018). Sistem Informasi Manajemen : Buku Referensi. In *Lembaga Komunitas Informasi Teknologi Acceh (KITA)* (Vol. 1, Issue 1).

Al-Ghwayeen, W. S., & Abdallah, A. B. (2018). Green Supply Chain Management And Export Performance: The Mediating Role of Environmental Performance. *Journal of Manufacturing Technology Management*, *29*(7). https://doi.org/10.1108/JMTM-03-2018-0079

Aprianto, R., Ilahi, R., & Parashakti, R. (2020). *The Effectiveness of The Use of Technology Information in Micro, Small and Medium Enterprises*. https://doi.org/10.4108/eai.26-9-2020.2302780

Apriyanti, M. E. (2020). Percaya Diri dan Berpikir Strategis Untuk Menghadapi Ketatnya Persaingan Bisnis. *Jurnal USAHA*, *1*(2). https://doi.org/10.30998/juuk.v1i2.482

Arif, M. (2017). *Pemodelan Sistem* (1st ed.). deepublish.

Basry, A., & Sari, E. M. (2018). Penggunaan Teknologi Informasi dan Komunikasi (TIK) pada Usaha Mikro, Kecil dan Menengah (UMKM). *IKRA-ITH INFORMATIKA : Jurnal Komputer Dan Informatika*, *2*(3).

Doll, W. J., & Torkzadeh, G. (1988). The Measurement of End-User Computing Satisfaction. *MIS Quarterly: Management Information Systems*, *12*(2). https://doi.org/10.2307/248851

Fatoki, O. (2018). The Impact of Entrepreneurial Resilience on The Success of Small and Medium Enterprises in South Africa. *Sustainability (Switzerland)*, *10*(7). https://doi.org/10.3390/su10072527

Fauziyah, F. (2020). Tantangan UMKM dalam Menghadapi Revolusi Industri 4.0 Ditinjau dari Aspek Marketing dan Accounting. *JMK (Jurnal Manajemen Dan Kewirausahaan)*, *5*(2). https://doi.org/10.32503/jmk.v5i2.1008

Hadiyati, N. (2018). Urgensi Pengaturan Pengadaan Barang dan Jasa melalui Undang-Undang. *Jurnal Pengadaan*, *1*(2).

Joo, Y. J., Park, S., & Lim, E. (2018). Factors Influencing Preservice Teachers' Intention to Use Technology: TPACK, Teacher Self-Efficacy, and Technology Acceptance Model. *Educational Technology and Society*, *21*(3).

Mardhiyah, A. G. (2019). Konsep Dasar Sistem Informasi Manajemen dan Evaluasi Perkuliahan dalam Sistem Informasi Manajemen. *INA Rxiv*, *12*.

Robin, H., & Ivanrezki, N. (2020). *Evaluasi Penerapan ITIL pada Sistem Manajemen Service Deck* (5; 6).

Sutarman. (2021). Buku Pengantar Teknologi Informasi. In *Yogyakarta, Universitas Gadjah Mada Press.*

Yunaeti, E., & Irvani, R. (2017). Pengantar Sistem Informasi. In *Andi Offset.*