DEMOCRATIZATION OF INFORMATION TECHNOLOGY SERVICE FOR HIGHER EDUCATION INSTITUTES

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ABSTRACT

In the digitalization era, the role of Information Technology Services (IT Services) for Higher Education Institutes (HEIs) is driven by the demand for the use of such data and access to information. Nowadays, information is diverse and constantly transforming. An IT Service that meets the needs of academic users is therefore important. In this research, different patterns of information technology service are studied by synthesizing the democratization of information technology and IT Services, and by analyzing the components of the democratization of IT Services for HEIs according to international standards such as ITIL, COBIT5, and ISO 20000. This is followed by an evaluation of the democratization of IT Services for higher education institutes. The analysis of the democratization of IT Service for HEIs, this research finding to consist of eight components that develop the administration process. The optimum IT Service provided for HEIs and organizations is supporting the policy and the democratization of information technology also encourages academic management to increase competitiveness in strategic areas to achieve the objectives of institutes and organizations. It also develops the potential of academic institutes so that they can become superior to competitors in the business arena.

Keywords: *Democratization of Technology, Information Technology Service, Data Management, Higher Education Institutes (HEIs), University*

1. INTRODUCTION

The Coronavirus pandemic has affected all education worldwide [1]. Digital Technology is a significant factor for instantly changing [2]. It can provide information such as texts, images, sounds, and animation by storing them systematically [3]. Currently, the concept of the Internet of Things shows that using devices on the Internet network communication infrastructure improves the quality of life in terms of receiving information [4] and the quality of university learning and student activity [5]. The most important part of the IT Service of institutes and organizations is IT Outsourcing, which is well-known in the business [6]. However, some institutes and organizations provide insufficient IT Services. It is therefore fundamental for organizations to provide an efficient IT Service that can support strategic areas and achieve the objectives of institutes and organizations [7]. Developing a strong IT Service environment is the significant key that affects the quality of the IT Service [8]. The information collecting system (the system for gathering and recording customer service data) is available to access data and give online advice to the customer. This system offers the convenience of Information Technology and forms of communication such as smartphone and email. It provides a continuous and widespread capacity for message sending [9].

The internal standards for the service include ITIL, COBIT5, and ISO 20000. ITIL refers to strategic problem solving by sequencing the process. This is a success factor important in increasing the quality of IT Service and reducing problems from digital transformation. This standard provides the most suitable method for IT Service [10]. COBIT 5.0 has provided an IT Service framework as well as supporting tools to reduce the gap between technical issues and business risks [11]. In addition, an administration system for Information Technology called ISO 20000 is used for an organization that is serviced by other organizations. The service provider can use this system to examine and revise for management of using IT which this system operates

under ISO 20000-1:2011 standards. ISO 20000 standard is an appropriate method for human resource management (HRM) which helps organizations manage information technology challenges to achieve their goals. It can help manage sustainability and circular economy in organizations by generating and processing the data efficiently [12]. In addition, the current IT management has limitations and needs to be developed to support the organization. Finding an IT service that fulfils those needs and constraints is critical to future technological transformation. The aim of this research is to find out what are the key components of IT services, especially support personnel. Therefore, a strong and effective information technology support service can help higher education institutions gain an advantage over competitors in the perspective of comparison on strategic areas to achieve their objectives and goals.

2. OBJECTIVES OF RESEARCH

2.1 To synthesize the democratization of information technology service for higher education institutes.

2.2 To analyze the democratization of information technology service for higher education institutes.

2.3 To evaluate suitable conditions for the democratization of information technology service for higher education institutes.

3. THEORETICAL BACKGROUND

Information Technology Service Standards include Information Technology Infrastructure Library (ITIL), Control Objectives for Information and Related Technology (COBIT 5.0), and an administration system for Information Technology called ISO 20000. ITIL is the best way to manage IT Services which a consensus of information technology experts worldwide also points to a framework that has become standard. It is also used for IT Services in both public and private organizations. ITIL emphasizes quality and defines information technology service processes [7]. ITIL can solve strategic sequencing problems and identify success factors. The implementation of ITIL is analyzed from a variety of perspectives where the sequence of processes, methods, and success factors will improve the quality of IT Services. The ITIL implementation approach is a static set of IT processes that combines ITIL and CMMI processes. Second, it describes a model to prioritize ITIL processes, selecting criteria used to determine the order of these processes based on expert opinion and returning them so that they best fit the organization's goals. Third, taking the success factors of ITIL into account in

different ways, identifying success factors in ITIL implementations, and analyzing specific success factors. To understand the factors that can affect the success of organizations implementing ITIL. Success depends on using the right tools, software, and simple management [10].

At present, universities utilize an Information Technology system to manage all academic activities from scheduling lecture times to evaluating the last step. This can examine and analyze the required documents using COBIT 5.0 with supporting tools for admin. To reduce the gap between technical control requirements and business risks, COBIT 5.0, developed by the IT Governance Institute (ITGI), which is part of the Information Systems Audit and Control Association (ISACA), provides a framework for overseeing all relevant Information Technology. It starts by responding to the needs of stakeholders for Information Technology. Decision Support System (DSS) is one of five COBIT 5.0 domains that integrate the enterprise information technology management of the organization. Domain DSS aims to present the service data and supporting system. It consists of six processes: Operation management, Service management, Requests and Incidents, Issues management, Continuity management, Security Services management, and Business process controls management.

The application of COBIT 5.0 is a method for adjusting the efficiency of each activity to achieve the required objectives [11]. It is a challenge for the executive to support this IT Service policy. The most important key to success in using an IT Service is the reason for investment, support from customers and users, cooperation and coordination between the Information Technology team, collecting proper documents, and efficient process design. Given the organization's challenges and relevant factors in the Information Technology managing process as ISO 20000 standard. In the current and future economy, ISO 20000 (or ITSM) established its objectives and framework with respect to the international standard by defining requirements for service providers to organize and monitor the service in order to improve it. Based on ISO 20000-1:2011 user requirements, which can respond to the meet requirement, the service provider can follow up the examination and revision of their management processes and operations. Thus, ISO 20000 can help Information Technology expertise manage a large amount of data by using the ITSM interface with ISO 20000. This enables organizations to manage the challenge of Information Technology transformation to achieve their goals and ensure the sustainability of their

circular economy through efficient data processing [12].

4. LITERATURE REVIEW

4.1 Democratization of Information technology service

4.1.2 Information technology service

Developing a strong IT Service environment is the significant factor that affects the quality of the IT Service. A strong IT Service environment can be the mediator for relations in works, resources, and service quality [8]. Numerous IT Services have resulted in harmful relations as a result of low trust, bad collaboration, and low efficiency. Nevertheless, IT Outsource is still the most popular method for business because service providers and customers both appear to be stuck in a vicious cycle of efficient trust and high investment [6]. However, the quality of IT support services in many organizations is insufficient. Therefore, it is a fundamental requirement that organizations must have an effective service to serve strategic areas and achieve institutional objectives [7]. While ICT usage in the work is constantly evolving, the application system collects and records customers' data and internet surfing availability, such as the World Wide Web and email, which increases the access to data and the online advice service. As a result, ICT usage is the most convenient system and there are numerous services widely available [9].

Cloud-based mobile computing without defining suitable usage continues to be a problem for developing and validating forecasting models that describe the role of data management. The forecasting that affects the educational IT Service shows that the data management of users is significantly related to their attitude, which is also related to behavioral intention [13]. For IT maintenance, which improves the efficiency of technology, customers' satisfaction with IT Outsource varies with service events and user participation [14]. Thus, an Information technology service is one in which works, resources, and service quality operate together efficiently to support the operations and main activities of organizations and institutes. This process serves to strategically achieve objectives or goals through ICT usage according to IT Service standards as ITIL, COBIT, and ISO 20000, which forms the best suitable way for IT Service.

4.1.2 Democratization of technology

A view to enabling high performance computing (HPC) that serviced the independent data for universities that analyzes texts with natural language processing (NLP). NLP identifies necessary strategies such as resource availability strategy, infrastructure access strategy, and simple usage strategy for an independent service. This ensures that capabilities are developed and maximized from HPC through a theory of acceptance and the use of technology and an analysis of motivations and use cases, including the generic usability and acceptance (GUAM) model, the unified theory of acceptance, use of technology (UTAUT) model, and the technology acceptance model (TAM) theory. Therefore, the three core strategies are key to catalyzing the multidisciplinary development of HPC, which is a key concept and motivation to maximize productivity at the end-user level [15]. Big data analytics drives organizational agility through transformation, improvement, and decision-making. If there is sufficient and up-to-date information from a reliable source, this allows for the freedom of mobility, which is the essence of the data.

Because the augmented data has real-time data flow rates that come from multiple sources, efficient big data analysis and processing are required. Determining the relationship between the use of big data analytics and agility will address key gaps in the information systems literature and provide actionable insights. The concept of data democratization refers to the liberalization of data in organizations to promote efficient data analysis and generate positive results for the organization. Employees can extract information to enable them to work efficiently and make more informed decisions by analyzing collected data, using necessary data by valuable democratization, and a willingness to share the data. The acceptance of diversity can present data in various aspects. It can be classified as advanced and basic data analysis according to the function and type, providing flexibility of analysis. However, independent data may not always be suitable, and can slow the decision-making process when standardized workflows are embedded with fundamental data analysis that has well-defined workflows. This can cause the organization to lose time and confuses the guidelines, which harms organizational agility [16]. Democratization of information technology can be accessed through deep learning by applications or simple and customized software. For applications that employ a position invariant approach, there is instability of the displayed location. In accessing, developing, and

democratizing the use of deep learning models, it is of great importance to manage ecosystem resources as well as monitor and manage invasions that are highly detrimental to the ecosystem. Despite the desire to control these, there are currently no cost-effective methods for managing them effectively to reduce their impact.

The democratization of deep learning technologies and AI makes deep learning more accessible for operators, enabling them to participate in the blend development, use it to complement existing software, and deploy it on cloud platforms that can support the development of effective tools [17]. The development of knowledge-based systems and information and communication technology (ICT) is becoming increasingly important. The initialization of ICT in the analysis of "Bigdata" that is large and complex helps in managing population data that can control costs. The usage of social media has provided an opportunity for ICT to analyze "Bigdata" by defining knowledge on ontology. As a framework that is the practice of semiotics through paradigms. with a model-based analysis paradigm that reflects the needs of researchers and an appropriate heuristic-based analysis paradigm. This framework supports data democratization through the implementation of the paradigm. Data analysis encompasses structured and unstructured, quantitative, textual, and graphical data from diverse sources [18]. The statistics for machine learning, decision analysis, teaching decisions, and the new administration introduced in the program is the standard in online data science. The impact of liberal or democratic data science and data science expertise has a huge influence on the education system [19].

Thus, democratization of technology refers to the technology of providing data and information freely within the organization, generating new knowledge from big data analysis, and solving problems. High-performance computing technology provides large data services with a variety of data and implements a strategy for accessing information and infrastructure. It is based on the simple usage and availability of data systems. It encourages data services to be streamlined by data democratization to promote the effective use and analysis of data in decision-making and drive positive organizational results, bringing deep learning and Artificial Intelligence (AI) to users on resource management constraints and an ecosystem including monitoring and security.

Therefore, the democratization of an information technology service means using IT Services with a large and diverse form of data and is associated with the work and resources of an organization or institution with best practices. Through data access and infrastructure strategies, the service can be made available and is easily used. It has a process of analyzing big data by data democratization in which the service is based on standards such as ITIL, COBIT 5.0 and ISO 20000. Giving users have deep learning and artificial intelligence on resource management constraints, the ecosystem includes efficient monitoring and security.

4.2 Information technology service for education institutes

Most educational institutions with technological support have made remarkable progress in terms of teaching and learning quality. Therefore, the integration of technology produces positive results. Another important factor is the progression of instructor training on how to use ICT tools effectively [20]. The efficiency of Technology Acceptance, Task Suitability, Accessibility, Ease of Use, and Task-Technology Fit (TTF) is the major point of technology usage. The factor analysis reveals four factors: Performance, TTF, Perceived Ease of Use, and Access. The latent factors consist of ease of use, perceived benefit, quality, value, motivation, attitude, gender, technology usage habits, engagement, satisfaction, and cost. A further study on monitoring application and device usage in the Learning Management System (LMS), e-Textbook, PowerPoint, and Blackboard was conducted to point out bugs that need improvement and user experience with the automation of HEIs through state-of-the-art automated infrastructure, Management Information System (MIS) and LMS, which support faculty, staff, and administration. [21]. The LMS has not only revolutionized and transformed the way lessons are taught but also includes distance learning programs, which has transformed libraries and access to learning materials. Consequently, continuous improvements in technology have facilitated access to the digital world of information.

The adaptation of HEIs and campuses can be demonstrated through various tools and factors. The internal system also supports all departments in performing their duties through monitoring, investigate, making decisions, and integrating the entire system, which builds good relationships between academics, lecturers, students, and administrators. This has a positive impact on the quality of education [22]. The usage of supporting technology for lecturers determines the technology and maximizes both psychological and sociocultural adaptation. The basis of the integrated approach

combines communication between personality-based humanist cultures and learning activities. It will provide guidelines that help overcome obstacles. Furthermore, the acceptance factors and organizational norms of the educational process and the assessment of adaptive attitudes in the use of interactive technology in the transformation of objects and forms of animation will increase the effectiveness of online classroom education and learning on an online simulator, including communication with parents [23].

In addition, Internet of Things (IoT) technology that processes and facilitates the management of university activities can be used to track student attendance and help solve several problems in learning institutions. By integrating information and communication technology in education, various changes and improvements have resulted in the advancement of technology, Artificial intelligence, IoT, and robotics. These can align people and technology with the possibilities to get along in the future. Through the expansion of social networking technology by enabling IoT, applications, innovation, monitoring, and control, learning activities can serve and create intelligent environments. Additionally, the Technology, Organization, and Environment (TOE) theory can be used in institutional planning to assess and analyze its usage in the organization. The essential requirement for the survival of educational institutions is to use teaching tools to build an understanding of technology, which leads to optimal decisions to improve the management of problems such as safety and privacy. Therefore, the success of learners and educational institutions depends on the use of the most suitable tools and technologies for teaching and learning [24].

In the university, there is an information system for academic management and all lecture activities, from the scheduling of the latter to the final student assessment. Applying the COBIT 5.0 method can improve the effectiveness of individual activities, achieve objectives, make recommendations for assessing the outcomes of activities, and provide good support for the overall activities and scope of service delivery. The results of an analysis of the ability of activity processes are carried out from statistics in the database of higher education. The usage of information technology to manage lecture activities in higher education was deemed inevitable. Therefore, the management of all information at the higher education and information technology needs has become the most important to ensure that it is transmitted quickly and transparently. Furthermore, computer technology will be used to support administrative, academic, financial, and personnel management processes. The usage of computers can enhance the learning process but there are still problems in bringing information technology into universities, such as the lack of plans to develop information technology or strategic plans, lack of clarity in overseeing the adoption of information technology, lack of a system to identify needs assessing information technology support for university activities, and lack of clarity of procedures for implementing data-backed activities technology facilities management steps. The problems that arise are often resolved in an active and ad hoc way. Therefore, the solution is incomplete and there is a possibility that it may happen again in the future, causing the university to lose the support of information technology [11].

Therefore, it can be concluded that an Information technology service for education institutes has led to outstanding advances in the quality of administration and teaching of most university and campus educational institutions. This has been driven by integrating technology that produces positive results through factors such as adaptation of the latest technology, perceived benefits, quality of service, environment, Internet use, interactive learning, availability of online resources, wireless fidelity (Wi-Fi), motivation, attitude, safety, Uninterruptible Power Supply (UPS), gender, technology usage habits, engagement, satisfaction, safety, service cost, and so on. State-of-the-art automated infrastructure is used for IT services, such as information systems supporting the performance of monitoring duties; making decisions; information systems supporting knowledge transfer, such as graphics, audio, and video; and the use of dynamic movement, all of which represent the guidelines that lead to effective education. Its powerful IT Service scope includes operations management, service request, incident management, issue management, continuity management, security service management, business and process control management.

5. METHOD OF RESEARCH.

5.1 The synthesis the democratization of information technology service for higher education institutes

5.1.1 Presented in Tables.

Presented in Table 1 and Table 2 are study documents and related research papers related to Information Technology Service Standardization, Information technology service, Democratization of technology, and Information technology service for education institutes. These were published in international research databases between 2021 and 2017 and cover 32 topics.

Table 1: Synthesis: Democratization of information technology service

Constructs and Definition	References
ICT Stakeholder (IT staff service, end user, Providers, Organization, Environments, Personal characteristics, Experience, Norm, skills, Quality, Demonstrability)	[8] [6][15] [17] [16] [7] [13] [14] [25]
Information/Database (Incident or problem, dataset Requirement, Strategy management, Knowledge management, Information System)	[8] [6] [15] [17] [16] [7] [13] [14] [25] [18]
Process for IT Service (Design i.e., Strategic, Planning, Project, Management, Improvement, Goal, Installation, Information parameter, Conditions and Convenience, Infrastructure, Real time, Platform, Identification of success, Roles, Human skills)	[8] [6] [9] [15] [17] [16] [7] [13] [14] [25] [18]
Process for IT Service (Process i.e., Process management, Access, accessibility, Setting)	[8] [15] [17] [16] [7] [13] [25] [18]
Process for IT Service (Tools & Operation & Instrumental i.e., Tools, Operations, Cloud, Network, Software, Multimedia, Devices)	[8] [6] [9] [15] [17] [16] [7] [13] [14] [25] [18] [19]
Process for IT Service (Auditing i.e., Security system)	[8] [6] [9] [15] [17] [16] [7] [13] [14] [25] [18]
Process for IT Service (Reporting i.e., Reports, Relevant)	[8] [6] [15] [17] [16] [7] [13] [14] [18]
Performance (Monitoring & Services i.e., User awareness, Security, Quality of IT, Management of service, Compliance, Urgency, Training, Checked, Attitudes, Incident/Problem)	[8] [6] [9] [15] [13] [14] [25]
Performance (Evaluation & Feedback i.e., Performance, Technology Model or Theory, IT Service standardization, Satisfaction, Quality, Implications, Cost/budget, Management IT evaluation (i.e., strategy, financial, availability, change, dependency, Self-Management), Investigating, IT service quality, data feedback)	[8] [6] [9] [15] [17] [16] [7] [13] [14] [25]

Table 2: Synthesis: Information technology service for education institutes

Constructs and Definition	References
ICT training (ICT Experience, mode of ICT learning, use of ICT tools/features, quality of teaching and learning service, teaching process, information technology, ease of use, self-assessment, measure, attitude)	[20] [21] [22] [23] [24] [26] [11]
Development of ICT in education (role, technology integration into the education sector, participants reported frequent use of computers, learning environment)	[20] [21] [22] [23] [24] [26]
Problem (ease of use, comfortable, attitude)	[20] [21] [22] [23] [24] [26]
Technology support (technological tool)	[20] [21] [22] [24] [26] [11]
Frequent use of computers	[20] [21]
The techno-led educational system (skills, improving, usability)	[20] [21] [22] [23] [26]
Important factor in ICT-based progress/influential (analysis, determine, data analysis, investigate)	[20] [21] [23] [24] [26]

5.1.2   The research instruments were content analysis form and data were analyzed using content analysis techniques.

5.2 Analysis of the democratization of information technology service for higher education Institutes

From section 5.1, the data obtained from the synthesis process are used to analyze the relationship of the usage of democratization of technology with information technology service for education institutes is a guideline for the democratization of information technology service for higher education institutions, as shown in Table 3.

Table 3: Analyze the democratization of information technology service for higher education institutes

Democratization of Information Technology Service		Higher Education Institutions (HEIs) context					
		ICT training	Development	Problem	ICT support	Techno-led	Analysis factor in ICT-based
IT Service Stakeholder		✓	✓	✓	✓	✓	✓
IT Service Information		✓	✓	✓			
IT Service Process	Design	✓	✓		✓	✓	✓
	Process	✓	✓	✓	✓		
	Auditing	✓	✓	✓			
	Reporting	✓		✓			✓
IT Service Performance	Monitoring & Services				✓	✓	✓
	Evaluation & Feedback	✓	✓	✓	✓	✓	✓

5.3 Evaluating Support for the democratization of information technology service for higher education institutes

5.3.1   Assessing and certifying the suitability of democratization of information technology service for higher education institutions (HEIs) was performed by 9 specified qualified persons.

They are experienced in information and communication technology and have worked in education for more than 5 years.

5.3.2   Improving democratization of information technology service for higher education institutions according to the recommendations of experts.

The research instruments were an assessment form certifying the suitability of the democratization of information technology service for higher education institutions. The statistics employed in the analysis were the arithmetic mean and standard deviation.

6. RESULTS

The research results are presented in 3 parts according to the research objectives as follows:

6.1 Sections and Subsections

6.1.1 Results of synthesis democratization of information technology service

As indicated in Table 1, the democratization of information technology service consists of the following 4 components:

1. ICT Stakeholders such as IT staff, Customer, Providers, Organization and Environments, Personal characteristics, and Demonstrability.

2. Information or Database, which consists of Problem and Incidents, Service requirement, Strategic service management, Investigation, Database and Dataset, Knowledge and Information management system, and so on.

3. Process IT Service, which consists of i) Design: Strategy, Project, Management, Investigation, Installation, Information parameters, Terms and Conditions, Infrastructure, Duration, Identification of success features, Responsibilities and Human resources; ii) Process: Process management, accessibility, and installation process; iii) Instrument: Tools, Operations, Cloud, Network, Internet, Software, Multimedia, Devices; iv) Auditing: regulatory compliance, data security, and data privacy; V) Reporting: assessment, service, assignments, meeting, supplier, performance, quality, customer, satisfaction, demographic questionnaire, urgent, ICT participants, usefulness, behavior, Relevance of information.

4. Performance, which consists of i) Monitoring and Services about User awareness, Security, Quality of IT, Management, Compliance, Urgency, Attitudes, Incident or problem; ii) Evaluation and Feedback on Performance, IT Service standardization, Implications, Cost/budget, Acceptance, Management IT evaluation (including strategy, financial, availability, change, dependency factors variable, Self-Management, ICT usefulness, utilization, Investigating, IT Service quality)

6.1.2 Results of synthesis information technology for Higher Education Institutions (HEIs)

As indicated in Table 2, the results of the document synthesis reveal the following 6 components of information technology for educational institutions: ICT training (i.e., ICT Experience, mode of ICT learning, use of ICT tools, features, quality of teaching and learning, teaching process, information technology, ease of use, self-assessment, measure, attitude), Development of ICT in education (i.e., role, integration of technology into the education sector, participants' reported frequent use of computers, learning environment), Problem (i.e., ease of use, comfortable, attitude), Technology support (i.e. technological tool), The techno-led educational system (i.e. skills, improving, usability), Important factor in ICT-based progress and influencing factor for analysis.

6.1.3 The results of analysis of relationship between democratization of technology and information technology services and information technology services in higher education institutions

As presented in Table 3, the democratization of information technology service for higher education institutions (HEIs) is related to elements such as IT Service Stakeholders who have to work in the training section. Development of information technology service systems on problems that arise and must be the ones who bring new technologies based on the main factors that are important used to support the IT Service Information. In the information technology service within the institute, training must be provided to personnel and users, including system administrators, and problems solved that arise from the usage of information technology systems. The IT Service Process includes 4 important parts: First, the process of designing IT Services in providing training on the usage of software or systems, designing a service system following the standards of ITIL, COBIT, ISO20000, and analyzing the key factors that are fundamental to ICT to select modern and suitable technology for use in IT Services. Second, operating procedures in IT Services, such as training systems, system development, service support, and problem-solving of users. Third, examination process of the service provided by IT staff, testing the development of the service system, checking for troubleshooting, and testing service support. Fourth, the process of reporting results generated in information technology service systems. IT Service Performance is assessed with reference to the ITIL/COBIT/ISO20000 standards. It consists of two parts: Section 1: Service quality monitoring and control in problem-solving, support services, and factors based on IT Services. Section 2: Assessment of the quality of IT Services according to ITIL, COBIT5, and ISO 20000 standards, and feedback on service assessments to analyze and develop future services.

6.2 The results of relationship analysis to democratization of information technology service for higher education institutions (HEIs) from synthesis and analysis of democratization of information technology service for higher education institutions

6.2.1 Democratization of information technology service show as Figure. 1.

Figure 1: Components of Democratization of information technology service

6.2.2 Information technology for higher education institutions (HEIs) show as Figure. 2.

Figure 2: Components of information technology service for Higher Education Institutions (HEIs)

6.2.3 The results of analysis of relationship between democratization of technology and information technology services and information technology services in higher education institutions are shown as Figure. 3.

6.3 The results of relationship analysis to democratization of information technology service for higher education institutions (HEIs) from synthesis and analysis of democratization of information technology service for higher education institutions

Table4: Synthesis: Information technology service for education institutes

Content	Rate of appropriateness		
	Arithmetic Mean	Standard Deviation	Level
1. Democratization of information technology service			
- ICT Stakeholder	4.89	0.33	Highest
- Information or Database	4.78	0.44	Highest
- Process IT Service include: Design, Process, Tools & Operation & Instrumental, Auditing, Reporting	4.89	0.33	Highest
- Performance include: Monitoring & Services, Evaluation	5.00	0.00	Highest
2. Information Technology for Higher Education Institutions (HEIs)			
- ICT training	5.00	0.00	Highest
- Development of ICT in education	4.89	0.33	Highest
- Problem	4.67	0.50	Highest
- Technology support	5.00	0.00	Highest
- The techno-led educational system	5.00	0.00	Highest
- Important factor in ICT-based progress	4.78	0.44	Highest
3. Democratization of Information technology service for Higher Education Institutions (HEIs)			
- IT Service Stakeholder	5.00	0.00	Highest
- IT Service Information	5.00	0.00	Highest
- IT Service Process	4.89	0.33	Highest
- IT Service Performance	4.67	0.50	Highest
4. Appropriateness of elements: Democratization of Information technology service for Higher Education Institutions (HEIs)	5.00	0.00	Highest
5. Democratization of information technology services picture with higher education institutions have a body of knowledge of information technology services to appropriate	5.00	0.00	Highest
Total	4.90	0.20	Highest

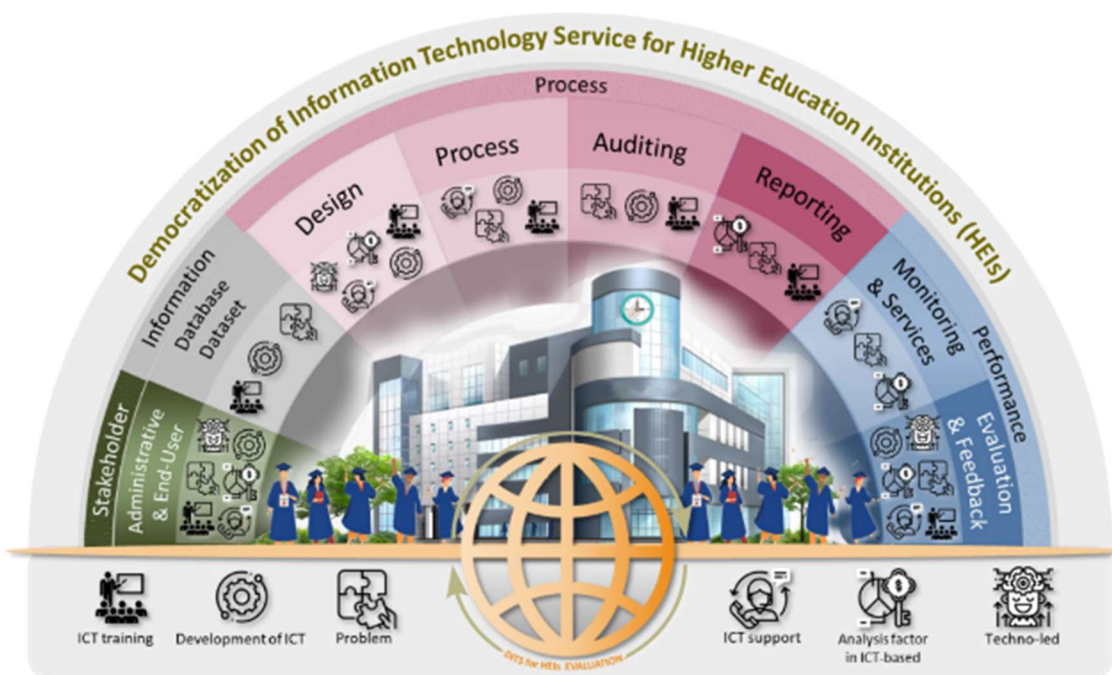Note. Arithmetic Mean>= 4.51 is equal to Highest level.

Figure 3: Democratization of Information technology service for Higher Education Institutions (HEIs)

The experts assessed the suitability of the democratization of IT Services for higher education institutions. The evaluation results, namely the arithmetic mean of 4.90 and the standard deviation of 0.20, indicate that the democratization of IT Services for higher education institutions is appropriate at the highest level. As presented in Table 4, the suitability assessment result with an Arithmetic Mean value of 5.00 and the standard deviation of 0.00 indicates a consistent opinion that Performance (Monitoring & Services, Evaluation), Technology support, The techno-led educational system, IT Service Stakeholders, IT Service Information are highly suitable for IT Services. It is important to improve and develop the democratization of IT Services for higher education institutions and other interested organizations.

7. DISCUSSION

Based on the study findings, it was found that the importance of IT service management is critical to responding user needs. It evolves into advancement and organizational efficiency, which evolves with ICT-based factors for IT support. Both public and private information technology services (IT Services) are sovereign services [10] that offer democratic access to deep learning technologies [17], adapt in real-time to individual needs, and influence the future supply chain [27] where data democratization analysis is both structured and unstructured [18]. Institutions of higher education have several main components that need to be considered. The principal component is those involved in providing services to service recipients and training in the usage of services [20]. First: those involved in improving system factors; second: service information such as the information used in training, user and system operator information, problem information and solutions, and so on [10], [11], [16], [24]); third, service procedures which consist of design, analysis, and the development of modern and appropriate information technology service systems, operating procedure, training, system development, service support and problem-solving to clients, service inspection of IT systems, reporting for IT systems; fourth, service quality, which consists of monitoring and controlling the quality of service, troubleshooting, factors based on information technology services [25], [28]–[30], in terms of assessing the quality standard of ITIL, COBIT 5.0 and ISO 20000 [10]–[12] and data will be sent back for evaluation to analyze and develop services in the future. However, the policy of educational institution administrators is extremely important because it can support and drive effective service [23]. The democratization of IT Service for higher education institutions can take place either by using an agency with information technology or related functions as the main operator, or by hiring an IT Outsource to carry out some or all the functions. It depends on the context and acceptance of technology [31], [32]. The provision of services for each institution is also related to the budget allocated to support this work.

8. CONCLUSION

The findings from the research discussions highlight the importance of IT services standards that support the demands that influence future supply chains. Providing information technology services that are democratic services for higher education institutions can be useful in supporting knowledge development, abilities, and staff potential, students within institutions of higher education freely. It creates limitless innovation and creativity in learning to develop oneself and the institution. Higher education institutions can take a step towards development and success in carrying out their activities and achieving their goals. It also creates a world of education in which access to information services is free from the limitations and controls that impede the freedom service higher education stakeholders should receive.

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DECLARATIONS

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