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MODEL FOR LEAN SERVICE MEASUREMENT MANAGEMENT IN PRIVATE UNIVERSITIES OF NORTH SUMATERA

Fahmi Sulaiman[1)]*, Robbi Rahim[2)], Jihan Sulaiman[3)], Raja Intan Zarina Binti Raja Zaki Hashim[4)]
[1,2]Sekolah Tinggi Ilmu Manajemen Sukma, Medan
[3]Sriwijaya University, Palembang
[4]Polytechnic of Tuanku Sultanah Bahiyah, Kulim, Kedah, Malaysia
e-mail: fahmisulaiman@stimsukmamedan.ac.id

Abstract: *The research uses qualitative and quantitative analysis approaches. The focus of the research is to develop a decision support system (DSS) that uses six main criteria: academic service quality, administrative service quality, availability of facilities and infrastructure, time management efficiency, student satisfaction, and waste reduction. Data were collected through observation, interviews and questionnaires distributed to 67 private universities in the LLDIKTI Region I North Sumatra as research samples. The collected data were processed according to the steps of the AHP-TOPSIS model. The results of this study are Academic services in first place with a weight of 0.78, Administrative services in second place with a weight of 0.72, Library & IT in third place with a weight of 0.65, Campus facilities in fourth place with a weight of 0.58, and Financial & payment services in fifth place with a weight of 0.49.*

Keywords: Lean Servive; Measurement; Management; Academic; Service Quality

INTRODUCTION

Law Number 12 of 2012 explains that higher education is part of the national education system, playing a strategic role in educating the nation's children and advancing science and technology by paying attention to and implementing humanitarian values, as well as cultivating and empowering the Indonesian people. Higher education not only produces educated people but also provides real solutions for building a competitive nation.

Until now, college graduates are still one of the qualifications in various job recruitments, both BUMN, BUMS and ASN, so that becoming a student is a beautiful dream for high school graduates/equivalents who not only strengthen their knowledge but also an effort to boost the economy of individuals and their families. This is in line with the findings of the Central Statistics Agency (BPS) in the Decent Work Indicators in Indonesia in 2023, namely a positive correlation between the average worker's wage and education level [1]. It should be, the expansion of the workforce and government regulatory support can also be formulated that when wanting to improve community welfare, access to higher education must be widely open and equitable [2]. However, in reality, the Gross Participation Rate (APK) of higher education is only able to be around 32% (in 2024) which is not far from the previous year, namely 31.45%. The problems are: (a) State Universities (PTN) are unable to accommodate many high school graduates/equivalents; (b) Private Universities (PTS) with costs that are difficult for the community to afford. As in North Sumatra, which has 1,748 high schools/equivalent (North Sumatra Education Office) and more than 90,000 grade XII students who will graduate in 2025. The University of North Sumatra (USU) only has a capacity of 2,914, Medan State University (UNIMED) only has a capacity of 5,862 and the State Islamic University of North Sumatra (UINSU) only has a capacity of 1,041. The rest mostly choose to work because

of economic conditions and some continue their education at PTS [3].

The urgency of this research is: PTS currently only relies on tuition fees from students who must be able to finance educational operations so that PTS inevitably sets high tuition fees. Currently, it is recorded that there are 198 PTS in North Sumatra under the coordination of the Higher Education Service Institute (LLDIKTI). However, almost 50% of PTS in North Sumatra are currently facing poor financial management conditions in meeting the required service standards (based on a pre-survey conducted). Improving quality requires large funds. Reducing operational and service costs can result in a decrease in the quality [4] of education itself. Poor educational quality is often used as a scapegoat for the decreasing interest of prospective students in PTS, resulting in bankruptcy.

Even very cheap tuition fees (below the average tuition fees at other similar PTS) can also create an image that the PTS is less bona fide. Prospective students may suspect that the PTS provides careless educational services and is managed unprofessionally. A poor image can also reduce prospective students' interest in registering at a PTS. Therefore, there is a need for an effective management concept with a focus on efficiency and waste reduction for PTS, namely Lean. Problem Formulation: to what extent is Lean implemented by PTS in North Sumatra using the AHP (Analytic Hierarchy Process)-TOPSIS (Technique for Order Performance by Similarity to Ideal Solution) Model? so that PTS is able to run an education system at an affordable cost and is able to manage finances well [5] while still being able to improve the quality of its education so that the ideals of the Indonesian nation to have many quality human resources are fulfilled [6].

RESEARCH METHODS

The research used qualitative and quantitative analysis approaches. The focus of the research was to develop a decision support system (DSS) that used six main criteria: academic service quality, administrative service quality, availability of facilities and infrastructure, time management efficiency, student satisfaction, and waste reduction.

Data were collected through observation, interviews, and questionnaires distributed to 67 private universities (PTS) within LLDIKTI Region I, North Sumatra, as the research sample. The collected data were processed according to the AHP-TOPSIS model.

RESULTS AND DISCUSSION

Data Knowledge Results

Brief Introduction

This research is motivated by the low Gross Enrollment Rate (APK) of higher education in Indonesia, which will only reach ±32% in 2024. Private Higher Education Institutions (PTS) are a crucial pillar, particularly in North Sumatra, with 198 private universities. However, many private universities face issues of management efficiency, limited funding, and negative perceptions of service quality.

Lean Servicewas chosen as a management framework to reduce waste, increase efficiency, and maintain service quality. To measure the level of Lean Service implementation, a combination of AHP (Analytic Hierarchy Process) was used to determine criteria weights, and TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) to evaluate service alternatives.

Research Data

Research Sample

Population: 198 PTS (Universities, Institutes, Colleges, Academies, Polytechnics) under LLDIKTI Region I. The method used is the Slovin Method with an e value of 10%.. Number of samples: 67 PTS.

Criteria and Alternatives

There are several Lean Service criteria used, namely:

1. Academic Service Quality
2. Quality of administrative services.
3. Availability of facilities and infrastructure.
4. Time management efficiency.
5. Student satisfaction.
6. Reduction of waste.

Analyzed service alternatives:

1. Academic services,
2. Administrative services,
3. Library & IT,
4. Campus facilities,
5. Financial services & payments.

Respondents

Respondents included heads of private universities, heads of study programs, heads of administrative offices, and senior lecturers. Total respondents: 134 people (2 per private university).

Table 1 Respondent Profile

Position	Amount	Percentage
Rector/Vice Rector/Director/ Deputy	21	15.7
Head of Study Program	28	20.9
Head of Administration Bureau	32	23.9
Lecturer	53	39.5

AHP Analysis Results

Respondents were asked to make paired comparisons between criteria.

Table 2 AHP Criteria Weights

Criteria	Weight
Quality of academic services	0.24
Quality of administrative services	0.19
Availability of facilities and infrastructure	0.15
Time management efficiency	0.13
Student satisfaction	0.16
Reducing waste	0.13

Academic service quality received the highest weighting (0.24), followed by administrative services (0.19). This means that stakeholders consider academic and administrative services to be the main key to PTS effectiveness.

TOPSIS Analysis Results

SAfter normalization and weighting, the ranking of alternative services is obtained.

Table 3 TOPSIS (Alternative Ordering) Results

Alternative	Relative Proximity Value (Ci)	Ranking
Academic services	0.78	1
Administrative services	0.72	2
Library & IT	0.65	3
Campus facilities	0.58	4
Financial services & payments	0.49	5

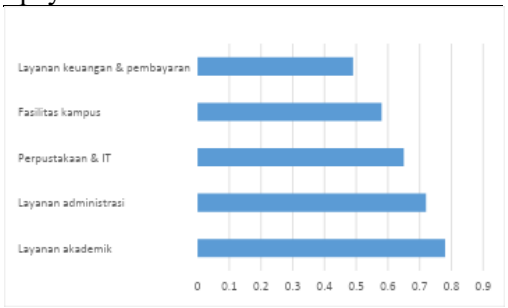

Figure 1 Relative Proximity Value Graph (Ci)

Interpretation:

1. Academic services is the most lean (efficient and value-added) area
2. Financial services & payments are the weakest area, often hampered by manual systems, queues, and limited digitalization.

Discussion

Implementation of Lean in PTS

The results show that private

universities (PTS) perform relatively well in academic and administrative aspects, but remain weak in financial services and campus facilities. This finding aligns with research by Kukreja (2023), which confirms that administrative digitalization increases efficiency in higher education.

Gap With Theory

According to Demircan & Yetilmezsoy (2023), lean implementation must focus on eliminating the most significant waste. In the case of PTS, the greatest waste is in the bureaucracy of payment administration.

Practical Implications

1. PTS needs to prioritize digitalization of financial services (e-payment, bank integration, mobile apps)
2. Infrastructure must be improved, especially internet access, laboratories, and classrooms
3. Students are more satisfied with academic services, but non-academic administration needs improvement.

CONCLUSION

The conclusion of this research is as follows:

1. PTS in North Sumatra have relatively implemented Lean Service, but the implementation is not yet evenly distributed.
2. Academic and administrative services received the highest weighting and were the leanest.
3. Financial services & payments remain a major weak point.
4. The AHP-TOPSIS model has been proven to provide an objective picture of service improvement priorities.
5. This research supports LLDIKTI in developing PTS development strategies to be more efficien*t, high-quality, and competitive.*

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