Application of QFD in Tanri Abeng University

Amanah Pasaribu

TANRI ABENG UNIVERSITY
Email: amanahpasaribu@tau.ac.id

Received: April 9th 2019
Approved: May 7th 2019

Abstract:
The university produces employee to work in industry. The challenge for the university is producing the graduate who has a skill that industry need. The university needs to develop quality of services. This research applies a Quality Function Development (QFD) method to develop quality improvement of university. The finding of this reasearch shows that the university has to develop curriculum, facility availability, lecturer capability and extracurricular activities.

Keywords: Quality Function Deployment, QFD in University, Customer Demand, House of Quality, Curriculum

Introduction
The competition among the educational institution has arisen. The need of the nation to have competitive generation. The role of the university is needed to face this situation. The university push to have quality and make sure that the system of university running based on government standardization. On the other side, there is an industry necessity to get graduate suitable to job requirements. Many graduates are lacking skill such as communication, English, technical, presentation and work as a team (Karanjekar & Deshpande, 2018).

Quality Function Deployment (QFD) has been known as method for product development adapted to provide service quality based on customer requirements. This method has been adapted in helping a technical university to identify the main issues that require improvements and fulfill present and future labour market requests (Dumitriu, 2018).

Tanri Abeng University (TAU) as the private university have to compete with 600 universities in Indonesia. To capture demands TAU have to concern about the education system. This research conducted to propose insight for Tanri Abeng University to give quality improvement and can attract future customer.

Literature Review
Quality Function Deployment (QFD) is developed by shigeru and yoji Akao in Japan in the late 1960s. The purpose of QFD to translate the voice of the customer to technical design requirements (Taylor & Russel 2011) as shown in figure 1. There are six steps:

1. Identify the customer requirements to our organizations
2. Assess the competition among the organizations
3. Build design characteristics
4. Make a relationship matrix between customer requirements and design characteristics
5. Make a trade-off matrix between design characteristics

This method has been used by many researchers in different ways when evaluating quality of educational services (Dumitriu, 2018).

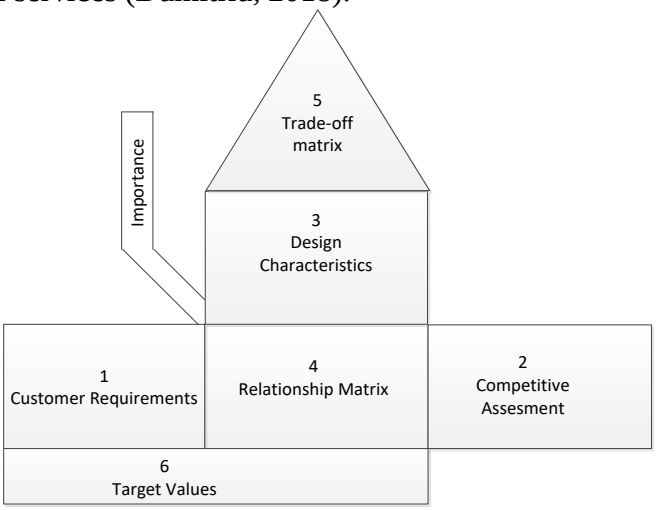

Figure 1. Quality Function Deployment (QFD)

Research Methodology

This reasearch applies Quality Function Deployment (QFD) method. Information about the customer requirement and technical characteristics, relationship matrix gather from students, lecturers and staff in Tanri Abeng University. The questionnaires distribute to 20 respondents. By using the QFD steps, First, identify the requirements of customer, the technical requirements and the relationship matrix is presented in Figure 2.

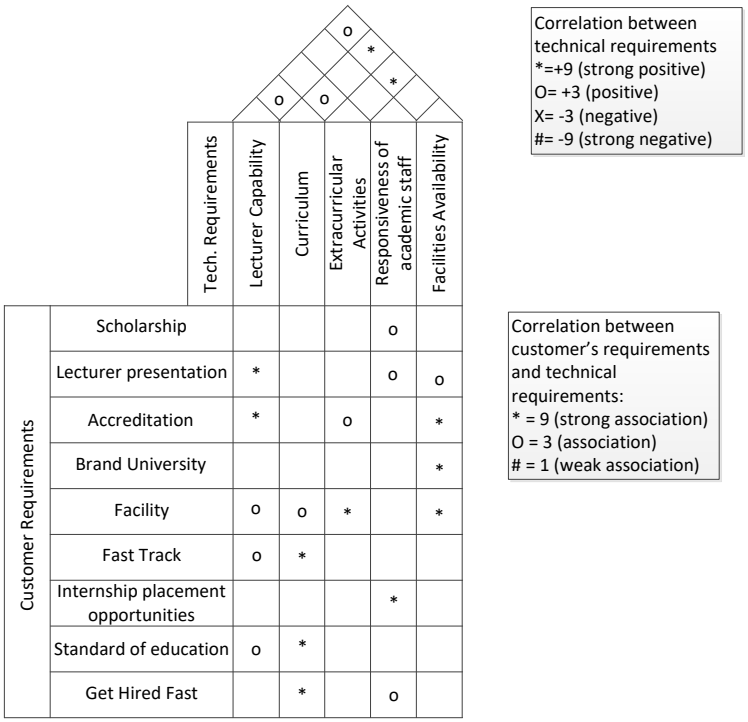

Figure 2. Correlation of Customer Requirements and Technical Requirements

Second step is assess the competition among universities. There are two universities to be compared U1 and U2 as shown in figure 3.

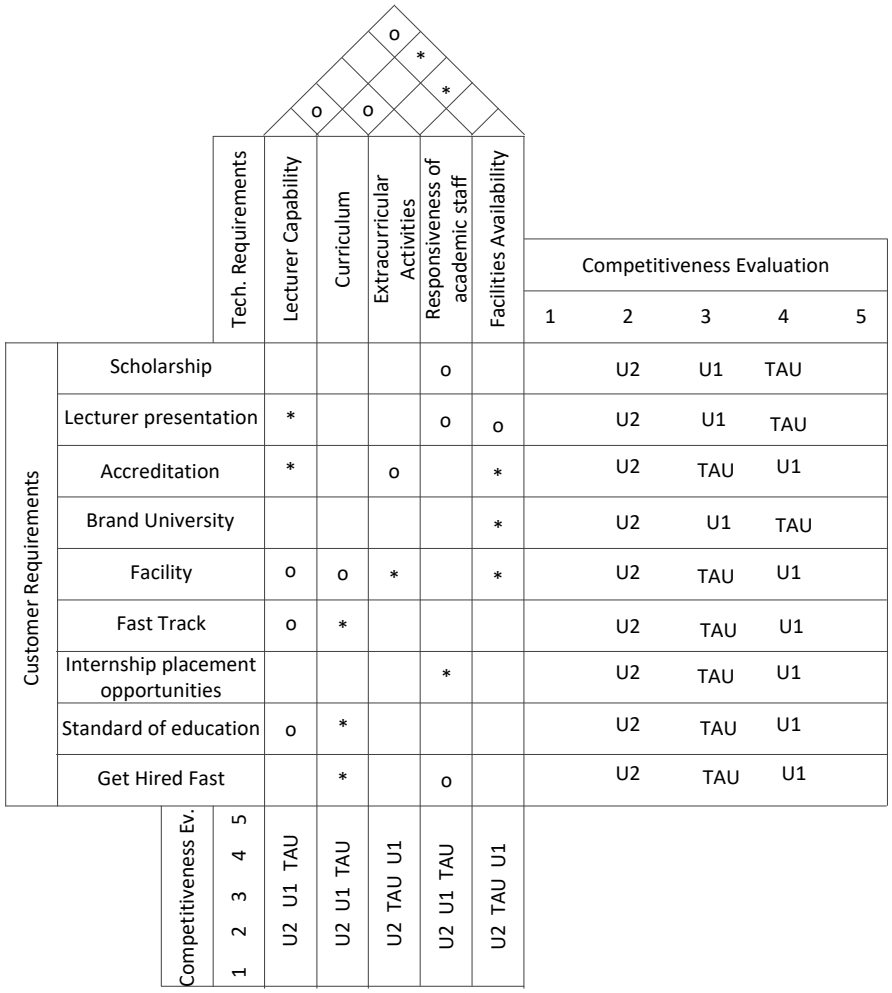

Figure 3. Competitive Assessment

The next step, the prioritization of customer requirements is presented in figure 4. The scale of importance (X) 1 to 10 and the target value (Y) on 1 to 5 scale, which is 1 does not change, 3 the service will be improved and 5 the service will be better than the competitors. The Effect on sales (Z) is scored with values 1 if the effect is low and 2 if the effect is high. The absolute weight or maximum priority is the multiplying XYZ. In Example to calculate absolute weight for scholarship is 8,5x1x2= 17

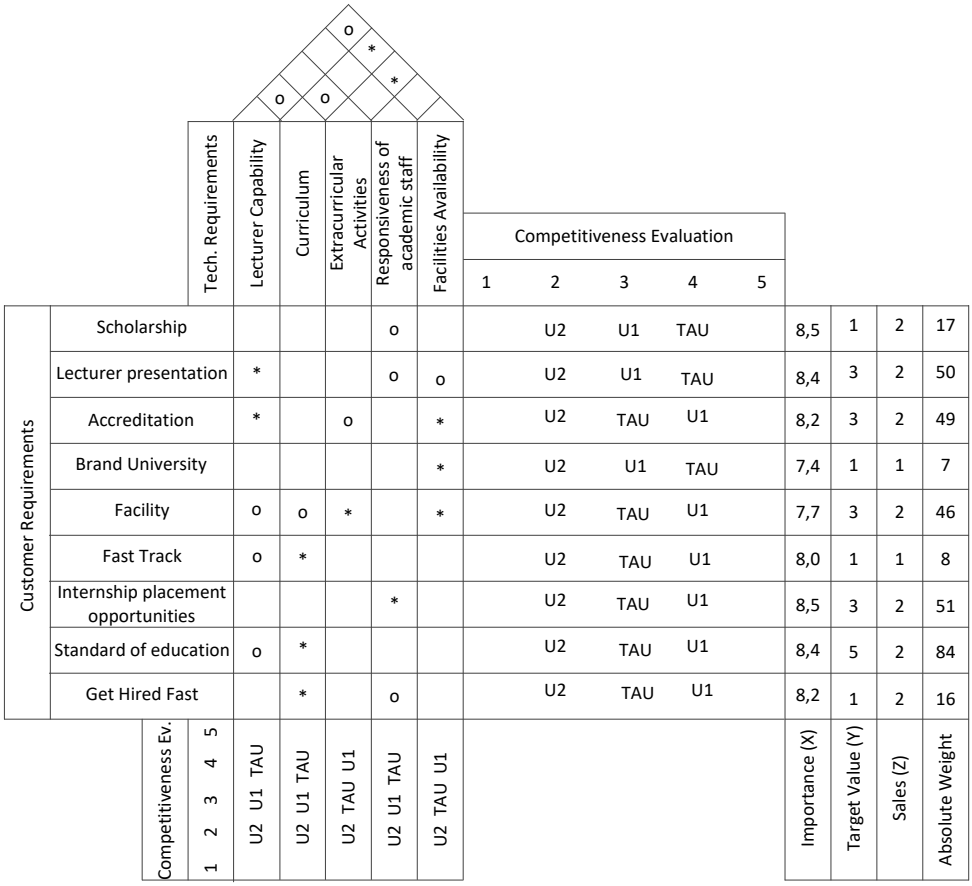

Figure 4. The Prioritization of customer requirements

The Absolute Weight (AW), Relative Weight (RW), Absolute Factor (AF) and Relative Factor (RF) is represented in figure 5 using formulas:

AW = $\sum(Correlation\ Value \times Importance)$

In example to calculate AW for lecturer capability is

(9x8,4)+(9x8,15)+(3x7,65)+(3x8)+(3x8,35)=220,95

RW = $\sum(Correlation\ Value \times Absolute\ Weight)$

In example to calculate RW for lecturer capability is

(9x220,95)+(9x220,95)+(3x220,95)+(3x220,95)+(3x220,95)=5965,65

AF (%) = $\frac{Absolute\ Weight}{\sum Absolute\ Weight} \times 100\%$

To calculate AF for lecturer capability $\frac{220,95}{942,3}$ = 23%

RF(%) = $\frac{Relative\ Weight}{\sum Relative\ Weight} \times 100\%$

To calculate RF for lecturer capability $\frac{5965,65}{24114,15}$ = 25%

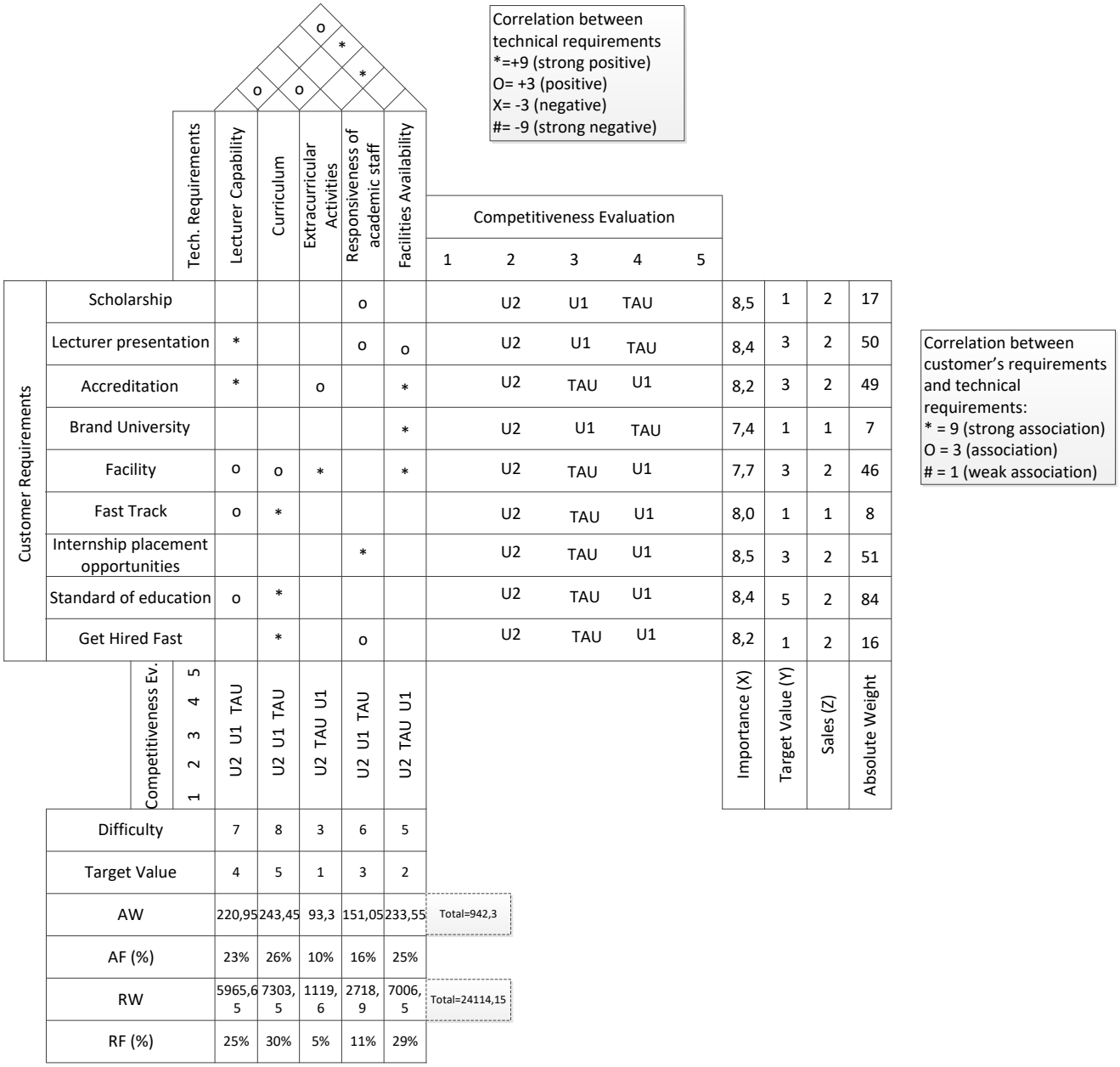

Figure 5. AF and RF Value

Result

The result of QFD calculations, the highest AF value is 26% and RF 30% which relates to technical requirement for curriculum. The improvement in curriculum is related to lecture, role playing, case study, group discussion, individual evaluation, problem solving, research and projects (Abuzid, H. F. , 2017). The following priorities of importance are Facilities availability (AF=25% and RF= 29%), Lecturer capability (AF=23% and RF =25%), Extracurricular activities (AF=10% and RF=5%).

Conclusion and Recommendation

This research has followed some steps of QFD from translating customer needs to make design characteristics. According to the results of QFD suggest Tanri Abeng University (TAU) to develop the curriculum. The curriculum has to be up to date to attract the new potential students and produce the employable graduates. Beside that TAU have to concern with facility availability, lecturer capability and extracurricular activities.

References

Abuzid, H. F. (2017). Applying QFD Tools for Quality Improvements in Curriculum Design and Teaching Strategies to Meet with the Customer (Learner) Needs. *Journal of Engineering and Applied Sciences*, 684-690.

Dumitriu, D. (2018). Enhancing the Quality of Services and Reputation Level in Technical Engineering Higher Education. *TEM Journal*, 381-390.

Heizer, J., & Render, B. (2014). *Operations Management : Sustainability and Supply Chain Management.* New Jersey: Pearson.

Karanjekar, S., Lakhe, R. R., & Deshpande, V. S. (2018). Building QFD Model for Technical ducation: Students as Stakeholders. *IJMPERD*, 621-634.

Singh, A. K., & Rawani, A. M. (2018). Application of QFD in Education Sector: A Review. *IJMET*, 592-599.

Taylor, B. W., & Russell, R. S. (2011). *Operations Management.* John Wiley & Sons (Asia).

Verma, D. S., & Dawar, R. (2013). Application of Quality Function Deployment in an Engineering College Using Analytical Hierarchy Process. *ijera*, 1993-2004.