UNIVERSITAS INDONESIA

**ISTIA
UNIVERSITE D'ANGERS**

KUALITAS DALAM PENDIDIKAN TINGGI:
PERSPEKTIF IMPLEMENTASI DI POLITEKNIK ACEH - INDONESIA

TESIS

ILHAM HASBIULLAH

0906579494

**FAKULTAS TEKNIK
PROGRAM STUDI TEKNIK MESIN
DEPOK
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Diajukan sebagai salah satu syarat untuk memperoleh gelar Magister Teknik

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HALAMAN PERNYATAAN ORISINALITAS

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Nama   :   Ilham Hasbiullah

NPM   :   0906579494

Tanda Tangan   :

Tanggal   :   11 Juli 2011

HALAMAN PERNYATAAN ORISINALITAS

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LEMBAR PENGESAHAN

Tesis ini diajukan oleh

Nama	:	Ilham Hasbiullah
NPM	:	0906579494
Program Studi	:	Teknik Mesin
Judul	:	Kualitas dalam pendidikan tinggi:
		Perspektif implementasi di Politeknik Aceh – indonesia

Telah berhasil dipertahankan di hadapan Dewan Penguji dan diterima sebagai bagian persyaratan yang diperlukan untuk memperoleh gelar Magister Teknik pada Program Studi Teknik Mesin, Fakultas Teknik, Universitas Indonesia.

DEWAN PENGUJI

Pembimbing	:	Dr. Delphine Lalane
Penguji	:	Prof. Abdessamad Kobi
Penguji	:	Dr. Christian Robledo
Penguji	:	Dr. Sebastien Lahaye
Penguji	:	Dr. Delphine Lalane

Ditetapkan di : Angers – Perancis
Tanggal : 11 Juli 2011

Mengetahui,

Ka. Departemen Teknik Mesin
Fakultas Teknik – Universitas Indonesia

Dr. Ir. Harinaldi. M. Eng

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KATA PENGANTAR

Puji syukur saya panjatkan kepada Tuhan Yang Maha Esa, karena atas berkat dan rahmat-Nya, saya dapat menyelesaikan tesis ini. Penulisan tesis ini dilakukan dalam rangka memenuhi salah satu syarat untuk mencapai gelar ganda (Double Degree) Magister Teknik Program Studi Teknik Mesin pada Fakultas Teknik Universitas Indonesia dan Master 2 System Engineering and Project Management pada ISTIA – Universite d'Angers, Perancis.

Saya menyadari bahwa, tanpa bantuan dan bimbingan dari berbagai pihak, dari masa perkuliahan sampai pada penyusunan tesis ini, sangatlah sulit bagi saya untuk menyelesaikan tesis ini. Oleh karena itu, saya mengucapkan terima kasih kepada:

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Angers, 11 Juli 2011

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ABSTRACK

Name   : Ilham Hasbiullah
Study Program : Mechanical Engineering
Title   : Quality in Higher Education: Perspective deployment in Aceh
                   Polytechnic – Indonesia

The overall issue of quality in higher education poses a special challenge because of its two distinct aspects – service and education. Higher Education institutions face important challenges on the rapidly changing environment. To face rapid changes, Aceh Polytechnic hoping to become one of the colleges that put quality in their daily activities. The general objective of this final project is design the quality educational system for implementation in Aceh polytechnics. To obtain the example of educational institutions that have implemented quality system in education, we analyzed the academic process of ISTIA (Engineering School of Université Angers) and Agrocampus Ouest, where the educations activities are similar to the polytechnic in Indonesia. They are public schools engineer was certified ISO 9001. ISTIA and Agrocampus Ouest located in Angers, France.

Key words:
Quality in higher education, setting up quality in Aceh Polytechnic, Obstacle of implementation quality in Aceh Polytechnic

ABSTRAK

Nama   : Ilham Hasbiullah
Program Studi   : Teknik Mesin
Judul   : Kualitas dalam Pendidikan Tinggi: Perspektif implementasi di Politeknik Aceh – Indonesia

Masalah kualitas dalam pendidikan tinggi sangat menantang karena memiliki dua aspek yang berbeda, yaitu: pelayanan dan pendidikan. Lembaga pendidikan tinggi menghadapi tantangan besar dalam lingkungan yang berubah dengan cepat. Untuk mengatasi perubahan yang cepat, Politeknik Aceh, berharap untuk menjadi salah satu sekolah yang berkualitas dalam kegiatan sehari-hari mereka. Tujuan keseluruhan dari proyek ini adalah untuk merancang sistem mutu pendidikan untuk digunakan di Politeknik Aceh. Untuk memenenuhi tujuan tersebut penulis mencari contoh beberapa institusi pendidikan tinggi yang telah menerapkan sistem mutu dalam proses pendidikan di Perancis, penulis memilih proses akademik ISTIA (Sekolah Teknik University Angers) dan Agrocampus Ouest, di mana proses pendidikan sesrupa dengan Politeknik di Indonesia.

Kata kunci:
Kualitas dalam pendidikan tinggi, implementasi mutu pendidikan di Politeknik Aceh, Kendala implementasi mutu di Politeknik Aceh

DAFTAR ISI

DAFTAR GAMBAR

DAFTAR LAMPIRAN

CHAPTER 1
INTRODUCTION

The overall issue of quality in higher education poses a special challenge because of its two distinct aspects – service and education – which need to be seen differently and addressed not only separately but also synergistically (Sirikanth and Dalrymple, 2001). This fact surely makes the whole issue of quality in higher education fairly complex.

1.1 Background

Higher Education institutions face important challenges on the rapidly changing environment. Firstly, we now have a basic pedagogy, and should put that into practice systematically. Secondly, quality enhancement of the curriculum is now an institutional concern, if not a priority, in the face of governmental pressure and in a competitive environment. And thirdly, staffs are now faced with the demand to commit themselves to professional development, and to determine what that means in terms of their particular profession. Educational institution must have quality education standardization and indicators to satisfy demands.

To face rapid changes, Aceh Polytechnic is one of the newly established colleges hoping to become one of the colleges that put quality in their daily activities. We hope with good quality education, could produce graduates who are more competitive to entrance the industrial zone. This absolutely must conduct in the highly competitive era which we should be able to align themselves with other educational institutions that had good graduates.

To obtain the example of educational institutions that have implemented quality system in education, we analyzed the academic process of ISTIA and AGROcampus Ouest, where the educations activities are similar to the polytechnic in Indonesia. They are public schools engineer was certified ISO 9001. ISTIA located in Angers and AGROcampus Ouest located in Angers and Rennes, France.

The general objective of this final project is design the quality educational system for implementation in Aceh polytechnics, analyze the problematic faced and also fund some solutions for reduce the barrier.

1.2 Research Objectives

This final project was one of the Aceh Polytechnic (AP) efforts to find the guidance of quality system in higher education. This motivates to me for design the tools that will be required by the AP.

We also analyze the problems that will arise during the implementation in campus. This problem we detected in early to make it easier to find a solution. It will take a very long time if the problem would not arise in early detection.

I've also made steps of implementation the QHE. It can be a guide for carrying out the execution.

1.3 The expected results

As we already described above, the objective of this final project is design the tools for implementing quality in higher education in Polytechnics Aceh. To achieve the goal, we must

1. Analysis of problems that must be faced in implementing quality in higher education in all aspects, both aspects of internal and external aspects of the AP.
2. Formulate map of the process AP with respect to all activities.
3. Looking for complete process indicators for all part of the map process, and this indicator can be made reference to self- assessment.
4. Restructuring the organizational structure, aims to create a better bureaucracy, more efficient and more reactive.

CHAPTER 2
REFERENCES REVIEW

2.1 Presentation the Aceh Polytechnic

2.1.1 *History of Aceh Polytechnic*

Aceh Polytechnic building plans have been initiated since May 2005. After the disaster tsunami, Chevron Corporation USA and USAID initiative to build a polytechnic at international level in Aceh. Both these international organizations explore this plan by contacting the Government of Aceh, BRR (Reconstruction and rehabilitation agency) and various other stakeholders.

Figure 2.1 Aceh Polytechnic building

In August 2008, the Aceh Polytechnic began the educational program with the acceptance of new students for the academic year 2008-2009.

2.1.2 *Situation in general*

Aceh polytechnic education process lasted for 3 years (Diploma 3). It is different levels with license in educational system establishments in France. Diploma 3 must proceed to the Diploma 4 for 2 years. Diploma 4 has the same level with the license in France.

Aceh Polytechnic (AP) had 4 different majors' course, Electronic/Electrical, Mechatronic/ Pneumatic, Computer Programming/Information Technology, and Marketing et accounting. Educational process based of the adaptation to the industrial atmospheric. AP developed the relationship with the industrial through mutually beneficial. The relationships in the form of apprenticeship programs and institutional services in industrial problem solving, so the educational process can

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be more efficient and employment opportunities after graduation are wide open, both at local, national or international.

Aceh Polytechnic is intended for graduates from Senior Secondary School. The mechanism includes the entrance test of academic ability, health, interests and talents. Scholarships are provided for students who are less capable, but achievement.

Currently Aceh Polytechnic develops the Diploma 4 program to majors' automation industrial engineering. The new program will lasts in the academic year 2012-2013

2.1.3 *Vision and Mission*

AP wants to become polytechnics that produce the best graduates and can be accepted in the enterprise. It is along with the ideals of Government Indonesia to reduce the number of unemployed.

Our Vision is being a leading Polytechnic competitive in Local and Global challenge. And our Mission is:

- Actively participate in development the educational program in Indonesia
- Building a human in order to compete in the field of technology and science

2.1.4 *Location Aceh Polytechnic*

Aceh Polytechnic is 2855 km from Jakarta, the capital of the Indonesian government. This distance can be traveled by airplane environ 3 hours.

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Figure 2.2 Position of Aceh polytechnic. (Viewing with Google maps)

2.2   What is quality in higher education?

The dimensions of the education system suggest a linear progression, from education inputs, to the processes used for educational management and pedagogical techniques, to the definable outputs of the education system, and to the ultimate outcomes desired by society. Presented in Figure 2.3.

Figure 2.3 Components and examples of variables to measure
educational quality (adapted from Scheerens, 1992:54)

The core of quality education is the education processes. Education processes consists of the following elements: local and equipment base, teaching programs and program contents, teaching methods, administrative process service, lecturers and students (Roszak, 2009). The quality of education is a continuous and dynamic process, which is liable to constant evolution. The changes inside the process are the result of continuous interaction between these five mentioned elements.

A.I. Vroeijenstijn creates the following definition of the quality of the education: "It is a result of the negotiations between all the participants of the process of the education when these negotiations concern realization their expectations by university education. The system of university education should tend to realize all these expectation in the best way through clear description of the purposes of the education at the university level." The participants of this process are students, teachers, employers, government, community (A.I. Vroeijenstijn)

For government, quality is usually framed in efficiency terms: "maximizing the numbers of students finishing the program in the scheduled time with a degree of international standard at the lowest possible costs." Enterprise, on the other hand, is often more concerned with the competencies gained by students during their studies. In this case the "product" tested by the consumer is the graduate. For students, however, the quality can contribute to their individual development and the preparation for a position in society. Academics tend to define quality as good academic training based on effective knowledge transfer and a good learning environment with a balance between teaching and research. For society, view may see quality in higher education as a means to produce qualified manpower in an efficient manner (Barnett, 1992).

Efforts to develop higher education quality tend to focus on how functions in control and assessment of quality are employed and how quality processes can also stimulate enhancement of institutional programs.

The management of the institution it's to be one factor that can create to better Higher Education Institutions (HEIs). An effective management methodology to address the complex issue of quality in education at institutional level, the next logical step will be to ascertain what sort of management methodology an institution of higher education will be looking for in order to achieve the major goal of its educational quality or academic excellence. Management methodology should provide a framework with the following vital features or elements:

1. **Leadership** – to ensure that the overall direction of the higher education institution is set towards educational excellence and the entire institution is steered with a strong inspirational force to achieve its mission and vision of the excellence.
2. **Policy and Strategy** – to ensure that the institutional mission of quality education will be systematically achieved (how the institution plans for the future and it turns those plans into actions?)
3. **Focus on Faculty and Staff** – to ensure that all teachers and other staff in an institution are being taken care of properly and they are: (a) being

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provided, on continual basis, with appropriate opportunities for professional development so that they are always duly equipped with the latest knowledge and skills necessary for them to perform their professional duties; (b) generally satisfied with the work environment; (c) receiving reasonable salary packages and compensations; and, (d) motivated enough to perform their jobs effectively

4. **Focus on Students** – to ensure that students needs are properly taken care of; suitable academic programs are offered to meet the present and future needs of students; 'student-centered' education producing quality graduates is every body's business in the institution; and, so on

5. **Focus on Various Stakeholders of Higher Education** – to ensure that the needs of other various stake holders (in addition to students, faculty and staff) of higher education (like students' parents, graduates' employers, government, professional bodies, and the community at large) are also properly taken care of.

6. **Focus on Key Processes** – to ensure that student-centered key educational processes are properly in place; duly implemented; effectively controlled; and, continuously improved.

7. **Focus on Effective and Efficient Deployment of Resources** – to ensure that the institutional resources in an institution of higher education are deployed effectively and efficiently in order to impart quality education

8. **Focus on Valued partnerships** – to ensure that valued technical and industrial partnerships as well as key suppliers are taken care of properly in order to achieve the institutional goal of academic excellence.

9. **Performance Measurement/Assessment** – to ensure that an institution of high education has put in place a mechanism of regular and systematic measurement or assessments/audit/review of all collegial processes, functions and outcomes to find the extent to which the institution is achieving its mission?

10. **Continuous Improvement** – to ensure that an institution of higher education has evolved itself into a 'learning organization' whereby it is continuously improving all its processes, functions and outcomes.

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11. **Focus on Institutional Performance Results** – to ensure that the performance results of an institution in various key areas are not only visible clearly but also monitored regularly with the aim to serve as a feedback to the entire management system of the institution. The key areas of performance results of an institution of higher education aiming at achieving academic excellence may be as follows:

   ➢ Students Learning Results
   ➢ Stakeholders Results
   ➢ Operational Results
   ➢ Faculty and Staff Results
   ➢ Societal Results

The development of quality systems has been described with references to Deming's, Plan, Do, Check and Act (PDCA). The process based on the Quality Management System involving four stages of PDCA cycle has been shown in Figure 2.4.
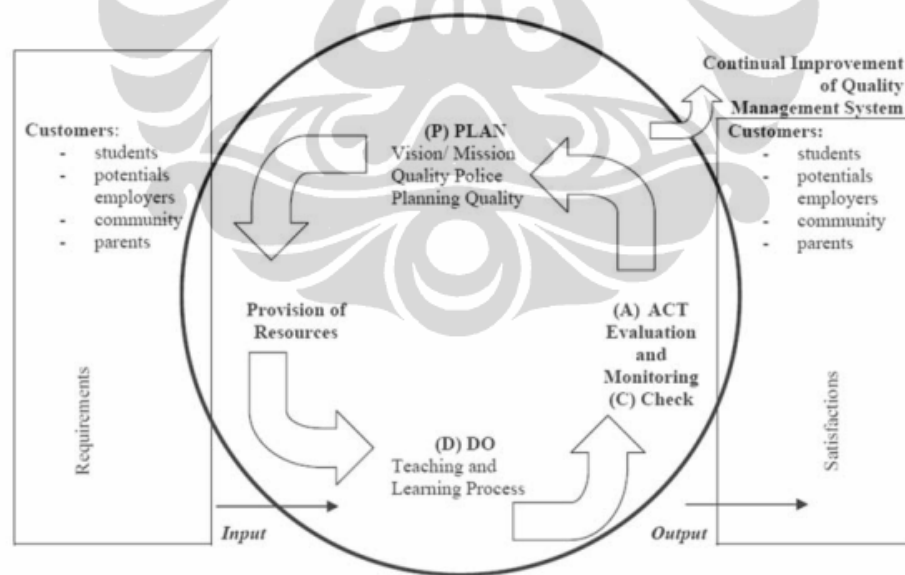

Figure 2.4 processes based quality management system in education

The implementation of quality management system (QMS) in higher education should be done in the phases:

The preparation phase (5 steps process):

1. The decision of top management about implementation of QMS based ISO 9001 as inherent part of management

2. The declaration of mission, vision and strategy (quality policy)

3. The definition of project team for implementation of QMS

4. The definition of terms

5. The reservation of sources (financial, HR)

The implementation phase (7 steps process):

1. The training the staff about QMS

2. The implementation of process approach. It consist of :

   a. Identification of processes and definition of the process map

   b. Definition and documentation of processes

   c. Definition of criteria for process performance assessment

3. The comparison of existing processes with ISO 9001 requirements

4. The implementation so far missing procedures (control of document, control of records, internal audits, control of nonconforming product, corrective actions, and preventives actions)

5. The trial period

6. The improvement of existing processes based on evaluation of trial period

7. The certification of QMS.

Approaches Quality in Higher Education

In general, three approaches apply: audit, assessment, and accreditation. Each can be performed internally through a self-evaluation exercise or externally through an external quality assurance agency (Tadjudin, 2009).

Audit performs a check on an organization's explicit or implicit claims. By stating its objectives, an institution is implicitly laying a claim on what it will do. Quality audits check the extent to which the institution is achieving its own objectives, in principle asking "are your processes effective?" Typically, an audit's output is a descriptive report. Direct audits are conducted by external agencies to determine the effectiveness of institutional processes.

Assessment are the most widely used method of quality assurance, can be conducted either internally or externally. It assesses an institution or its programs to determine whether they meet agreed-upon or predetermined standards established by designated stakeholders. Although it does not provide a quality label, this process can establish greater confidence among stakeholders. In principle assessment asks: "how good are your outputs?"

Some of internal assessments are:

➢ Regular self-evaluation (a complex analysis) in all aspects of Polytechnic activity; monitoring of progress

➢ Regular systematic monitoring of educational programs, curricula and working programs in Polytechnic disciplines with a view to updating them;

➢ Analysis of the feasibility of current educational programs and quality assurance in specialists' training: initial evaluation, stage evaluation; final evaluation, post-final evaluation;

➢ Systematic SWOT-analysis and internal audit of the educational process;

➢ Analysis of the accreditation indicators, control over the compliance with the licensing regulations and basic conditions providing for the implementation of education process;

➢ Monitoring of quality and quantity indicators in education process;

➢ Continuous evaluation of the degree the students' and graduates' demands to the quality of the educational process are met;

➢ Evaluation of the employer's feedback in terms of quality o university training.

And external assessments are

➢ Assessment carried out by the external foreign experts (independent audit, audit of the international consortium.);

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> ➢ Employers' expert assessments (sociological surveys, internships, involvement into the educational process);
> ➢ Accreditation.

Accreditation constitutes a process in which an institution is evaluated to determine whether it qualifies for a given status defined by explicit criteria. Accreditation implies consequences for the institution itself (e.g., permission to grant diplomas) and/or for students (e.g., eligibility for employment or further studies). Accreditation asks: "are you good enough to be approved?" Typically, results are classified in several categories across measures stratified by relative excellence. Accreditation can be institutional or programmatic.

2.3   Quality in the Indonesian Higher Education System

The basis of quality in the Indonesian higher education system is the basic law on the National Education System (Law no. 20/2003) and other government regulations derived from this law. One of the derivatives is the **Higher Education Long Term Strategy** 2003–2012 (HELTS) (UNESCO 2010).

Three strategic goals were set to carry out the HELTS: (1) improvement of the relevance, quality, and academic atmosphere of HEIs; (2) establishing geographical and social equity; and (3) improvement of higher education management (leadership, efficiency, effectively, sustainability).

To carry out HELTS, a new paradigm of higher education management was introduced consisting of four elements. (1) Institutions would experience increased autonomy along with greater public accountability; (2) these changes would take place simultaneously with the establishment of internal quality assurance systems by the institutions; (3) this would interface with a new external quality assurance/accreditation system; and (4) that would result in public accountability of higher education institutions.

In the context of the new paradigm, accreditation performs the function of external quality assurance as part of public accountability by assessing higher

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education institutions. The results of accreditation are used for public certification of the quality for higher education institutions, eligibility for public funding, and as input for evaluations of the higher education system.

2.4 Diagnostic the advantages of implementation the education quality in AP

A number of significant outcomes provide motivation for development of a quality culture in AP. Primary benefits are for both administrative and service functions. As the expectations of students as consumers of HEIs products grow in line with increased levels of competition within and across national borders, it would be dangerous to ignore the quality of these functions.

And others of the expected outcomes of quality culture are enlisted below.

1. Foremost is the improvement in the quality of products and services;
2. A quality control system improves productivity, which is a goal of every organization;
3. The system is continually evaluated and modified to meet the changing needs of the customer;
4. Such a system reduces cost in the long run;
5. Increased academic autonomy of the AP from external evaluators;
6. Increased magnitude and level of contribution to national and regional economic and social development;
7. Increased internationalization level in higher education with greater frequency of student and faculty mobility across border, provision of cross-border education opportunities and partnership;
8. Enhances status in globalization arena of higher education to achieve the benefits of competitiveness in international market with highly skilled professionals;

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CHAPTER 3
RESEARCH METHODOLOGY

3.1   Methodologies and mission planning

Final project was carried out in four months. Beginning in March until mid-July. During this time we tried to meet the goals of this final project. I added a mind map to facilitate the explanation of the process that I have done.

Figure 3.1 steps of final project

At the end of March 2011, International multidisciplinary congress in quality and dependability (QUALITA 2011- Angers) which was held in Angers. Conference gave me an idea of the importance of the quality and the evolution of the quality in the world. One of the topics discussed about the quality of education.

With the congress, we have prior knowledge about the education quality. The Congress is very important for me because, I have little knowledge about educational quality. And also I must understand the basic of the implementation of quality education. Apart from the results of the Congress, several books and journals to be a reference to find answer, what is the meaning of quality in higher education?

We also provide information about the benefits of quality approaches. Addition, we also expect something does will impede the quality approach in AP. These difficulties could be the implementation of the quality more difficult and will take

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more time. To overcome this case, we tried to formulate a few steps to reduce the problems.

Lack of guidance/examples of educational institutions that have implemented the quality it be one of difficulty for us to formulate a map process of the AP. therefore, we must review the map process of French educational institutions.

Self-assessment is an activity that must be doing in a quality approach. Self-assessment can help internal audit process. Therefore, we should also develop indicators process for self-evaluation for AP. By looking at the examples that have been made by ISTIA, we can understand the indicators for self-assessment. In addition, we consider the assessment guidelines provided by National Accreditation Agency in Indonesia, and supplemented with an analysis of the activity is not the process of education as a business activity.

Finally, I am reconstructed the organization structure of the AP. It is necessary to eliminate the waste processes (can be combined with other processes), and the goal is fund the efficient organizational structure and more reactive.
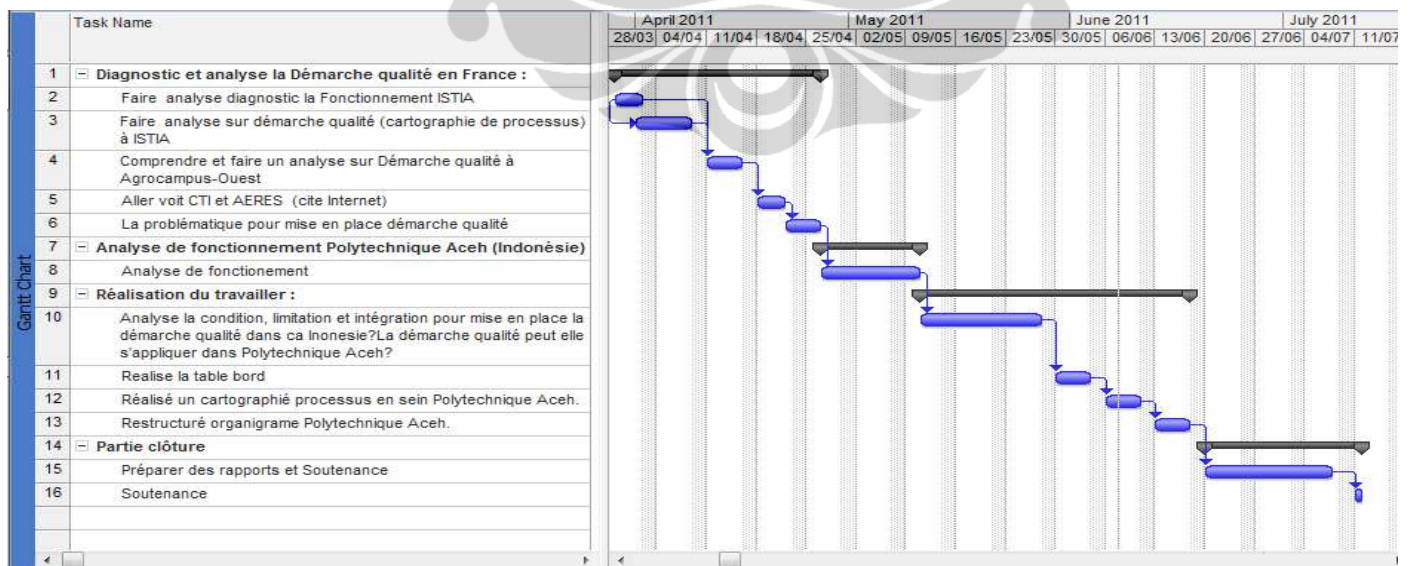
3.2   Schedule

Figure 3.2 Schedule of final project (GANTT Diagram)

CHAPTER 4
DISCUSSION

4.1 Analyzing the problematic of setting up education quality in Aceh Polytechnic

The problematic analysis is necessary to be able to see the problems that may arise. Basically, all these are common problems that occur in the implementation process. But, it would be better if the AP respect of the issue.

The root of this problem can be grouped into two sources, namely: internal and external. Directly, this problem does not make this implementation process failed, but will cause the execution time longer. Unfortunately, the institution generally aware of problems that will occur, but no action was taken to overcome them and tend to remain ignorant of the situation. For this reason, I try to find solutions to reduce the impact of an issue.

4.1.1 _Find the external problematic_

Some things are going to be an obstacle from the outside. AP can't avoid it, because it comes naturally. First problem may occur is at the relationships with industry. It attracted my attention. The problem usually occurs from the desire of industry to perform at the AP. Industry provide many of the provisions and get fickle. This makes the AP have difficulty to standardize the graduate, because demand is constantly changing.

On the other hand, demographic factors can be the problems. Indonesia is composed of many islands. Distance between Banda Aceh and Jakarta reaches 2855 km and the different islands. Aceh located in Sumatera Island and Jakarta in Java Island. Demographics creates decentralizes occurred on the Java island. Industrial activities and the flow of funds more engrossed in the Java Island. It caused, the existence of number the industries is not much in Aceh.

And other problem concerning about the social-economic in society, it is associated with the motivation. As well as the circumstances in which poor

students, it's cannot focus to continue his education, but also must think about their lives.

4.1.2 *Detect the internal problematic*

The problems are more found in internal campus. Generally, the internal problematic can be classified into 3 types: (1) the information about the quality in higher education; (2) commitment of the top management of AP; (3) commitment of participants of the educational process and; (4) availability the resources.

First problems are Lack of information and knowledge about the quality of higher education for all the elements involved in AP. It is one of the problems that may arise. The advantage of quality in higher education and the effect obtaining must be issued to all components in AP. This becomes important, because it will make multi-state ambiguous interpretations about what to do and how to do it.

The role of top management could be an obstacle to implementation. A desire without the action makes these efforts of AP were unsuccessful. Top management plays an important role when first it will be implemented.

The next problem comes from the participants of the educational process, related to the work culture. Any changes made will inevitably lead to a change in their work; they have leaved the comfort zone of their work. I think it should be noted, because the implementation of the quality is not as the installation of a product as plug and play, but they apply to many people with different ideas.

Viability the Resources also become a problem. Resources can be divided into human resources, equipment and financial.

4.1.3 *How to reduce the problem*

Not all problems can be avoided. Include some of the external problems. The objectives of this chapter are how the problem can be reduced and some of steps can be taken?

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Some problems unresolved relates to the geographies condition; the education system of Indonesia and; about the socio-economic of society.

Socio-economic problems could possible to reduce in the context of student. How to reduce? With given the scholarships. Scholarships are not automatically able to solve the problem of socio-economy. But at least there are some students who are able to continue their learning process.

Top management must issue a decision of the implementation quality in AP. With the decision, the implementation should be a shared commitment. Top management needed to monitor the progress of the implementation.

The AP should prepare the team to learn how apply QMS. The team consists of top management, teachers, administrative staff, students and industry. The team became a part in the dissemination of information to all elements of the AP. The team can find the information about the quality of various sources such as in-training, seminars or symposia.

Information from the team that will implement the QMS must be clearly and continuously transferred to all elements in the AP. and must keep their commitment. So, before implementing the entire element, whole element must be the same perception about the QMS. Understand what needed to do and how to do it.

For technical support issues, the AP also must prepare the financial, human resources and laboratory facilities. To reduce costs, the AP does not need help from consultants or experts in that field. Team formed can be equipped with knowledge in order to replace the function of the consultant. It is less efficient in terms of time, but from the other side, the AP is able to implement QMS moreover AP also has a team who understand about this processes.

In essence, some problem can be solved if all aspects in AP can maintain the commitment to implementing the quality.

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4.2   Realization the map processes

Map of processes is one of the phases of implementation of the QMS. Diagram refers to the development of quality systems with reference to Deming, Plan, Do, Check and Act (PDCA). The Map of processes is a graphic representation of all the processes of an organization (company, school, association …). It allows identifying the interactions between the different processes of the organization and also the various sorts of processes.

In a standard Map of processes, the processes are classified in three big families:

1. **The execution processes** corresponding to the production of the product or the service and so corresponding to the activity "profession" by the organization;
2. **The support processes** represents an internal activity, generally transverse, allowing to insure a well-functioning of the organization. The support processes are generally transparent for the customer (beneficiary). It can involve for example financial management, human resources management, the training, etc;
3. **The management processes** correspond to the establishment of a policy and a strategy for the organization and the management of the actions implemented to reach its objectives.

4.2.1   <u>Analyzing the map processes ISTIA and AGROCAMPUS Ouest</u>

ISTIA

The Sciences and Technical Engineering Institute of Angers (ISTIA) was created in 1991. Department of the University, then UFR, the ISTIA is an Engineering school of the University of Angers authorized by the Committee of Engineers Titles (CTI) to deliver an engineering degree.

The Quality and Dependability Department of ISTIA from December 17th, 1998 until July 22nd, 2008.

ISTIA it's be the reference, because one of department was certified ISO 9001 version 2000. This makes ISTIA has made as it should be carried out by educational institutions that have been certified.

From the analysis and asked a few people who are experts in this field, I can understand the map processes of higher education in particular map processes of ISTIA. So, it could be a reference to develop the map of processes the AP. The ISTIA map processes can be viewed on appendix 1.

ISTIA have the simply map processes, and it is easy to understand. The cartography proved by clear distinction between the process of implementation processes, management processes and support processes. It's not a complicated map of processes.

However, the map processes of ISTIA is a classical cartography. Classical in the sense is the map processes is not a special for the engineering school but form standard for all higher education institution. And even as I see the realization is same with that owned by realization processes in industrial map processes (premiere materials – process- delivery).

AGROCAMPUS Ouest

Founded in 1830, AGROCAMPUS OUEST is a university with honored traditions. Today, with the diversity of its students, a global outlook, and outstanding world-class research, the university is undergoing compelling changes.

AGROCAMPUS OUEST (AO) is the result from the merger of two schools, it consist of engineers Agrocampus Rennes and Angers National Institute of Horticulture. It is the first engineering school in agriculture was certified according to ISO 9001-2000 since 2007.

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AGROCAMPUS Ouest annual report can be reference to me. Their annual reports contained they perform activities, including the map of processes and also the organizational structure.

Map of processes describes the process of education specific in colleges of agriculture. They are very well describing the activities in the realization process. AO present the activities in parallel, which means these activities are carried out simultaneously. The map of processes of AGROCAMPUS Ouest can be viewed on appendix 2.

Another difference, they clearly define their customers. This is consistent with the explanation of the Vroeijenstijn: the stakeholders in the educational process are students; employers; Government and; community.

Nonetheless, the disadvantage of map of processes the AGROCAMPUS Ouest is, map processes not explain which parts are involved in the each process, but just describe what activities they do.

4.2.2   *Creating the map processes of AP*

After analyzing and studying the map of processes of ISTIA and AGROCAMPUS Ouest, I tried creating the map processes for Aceh Polytechnic. Figure 4.1 illustrate the map process of AP
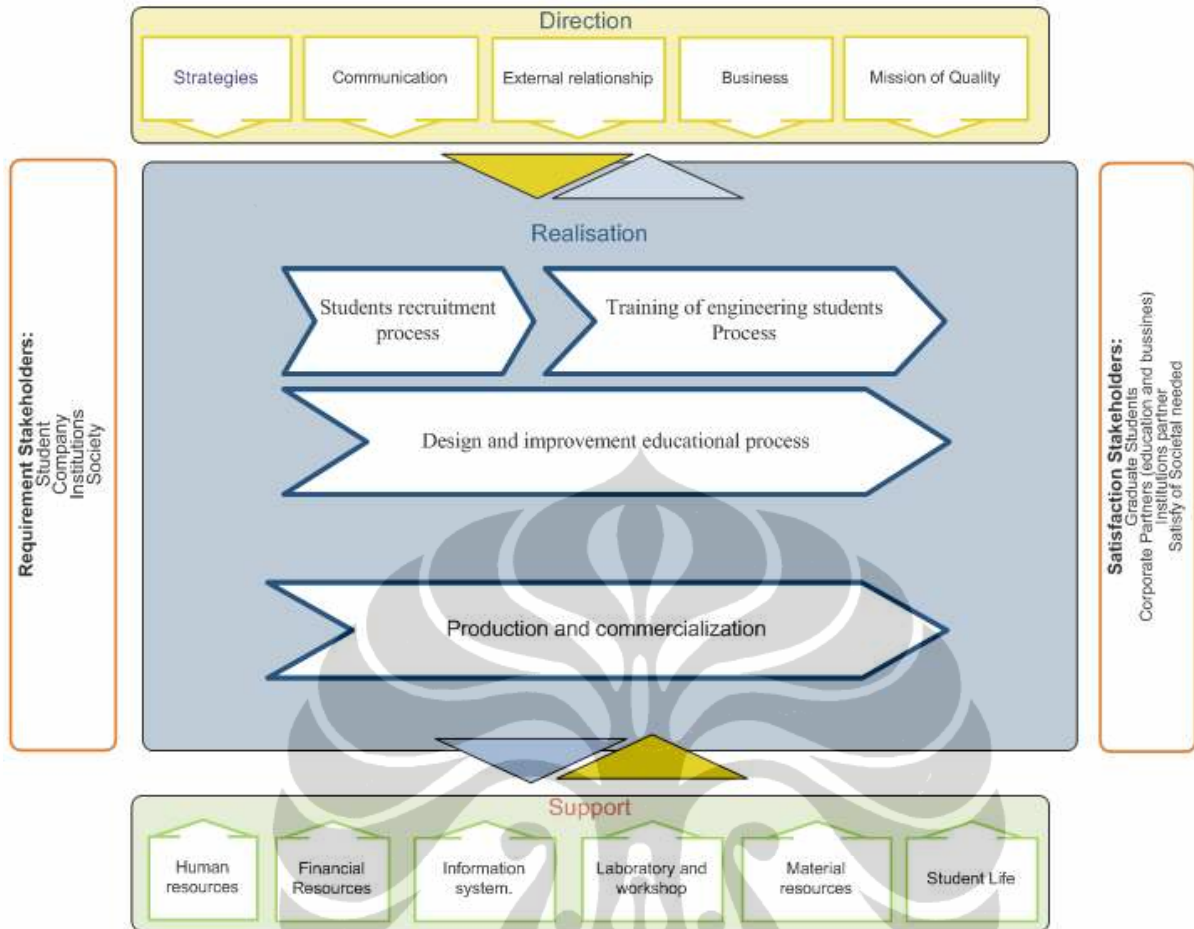
Figure 4.1 Map processes of Aceh Polytechnic

The map processes will assist in developing the AP. Its first Map process that owned by AP. Explanations about the parts of map processes AP are described below:

Realization processes:

> ➢ Students recruitment process (this process describes all the modes of recruitment of engineering students)
> ➢ Training of engineering students process (this process describes the implementation and execution of all aspects of training)
> ➢ Design and Improvement educational process (this process shows how to improve the courses in AP)

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> ➤ Production and commercialization process (this process shows activity in AP for produce and sell the Product or services that has been done in AP)

In general terms, there are two main activities carried out by the AP. The first is education and the second is the production and commercialization activities. The education activity in AP is almost similar to the educational process in general in the engineering school.

Commercialization process is a process aims to seek profit. That is slightly different with ISTIA or AGROCAMPUS Ouest. This process is important because AP is a private polytechnic.

Customers in the process marketing are industry, educational institutions, and others. Product or service produced of technicians who are worked in the workshops and laboratories. In certain circumstances, teachers participated in commercialization processes. But, students were not involved in process because typically the client requests a product or service performed in a short time.

To implement the knowledge gained by students. AP also has a program the production and commercialization processes that involve students. Processes included in the training of engineering students. The objective of the students participation is learning about the process manufacturing of products that refers to the existing rules and standard.

Support Processes:

> ➤ Human resources (this process describes all the modes of recruitment of the AP)
> ➤ Financial resources (this process describes how to set the budget)
> ➤ Information system (this process describes all the utilization the IT)

➤ Laboratory and workshop (This process describes the interaction of laboratory and workshop in the education process and also for supporting the production)

➤ Material resources (this process helps to standardize the purchasing and equipment maintenance)

➤ Student Life (this process describes all aspects of student life)

Management Processes:

➤ Strategy (this process shows how the school develops its strategy and adapts to its environment)

➤ Communication (this process allows to formalize all modes of communication available to the AP

➤ External relationship (this process can flatten all the activities of the service relation with the industry and other institution)

➤ Business (This process provides activities to assist communities and commercialization activities)

➤ Mission of quality (this processes responsible for designing, implementing and ensuring a sustainable process of improvement development and quality assurance)

All activities in production and commercialization are under supervision of business department. Business department is the processes direction that one of the missions is positioning AP in the society.

The shapes of commercialization are not just seeing the profit in the form of money. But, also in form the community assessment to AP. AP active participation in society. For that reason, AP develops the training to increase the skills of the communities are living around the AP. AP hope the people can life more independent.

And also AP created the competition for senior high school, for example the competitions of intelligent robots or PLC. The objective is how to stimulate their curiosity about technology, especially the control.

AP and Indonesia Red Cross have a commitment for ensure the availability of blood stock. It held a blood donation activity in periodically. And many other activities for fulfill the mission of AP.

For business activities, business department section provides all commercialization activities. For examples: Initial contract, budge estimation, completion time and so on.

4.3 Developing the process indicators

For completely the map processes of AP, must be develop the process indicators. The indicators are an important element for facilitate the audit and also be an indicator of self-assessment.

To achieve the indicators, I have studied some of the references. One of which is the process indicators of ISTIA. It's not enough, and also considers the process indicators issued by the National Accreditation Agency in Indonesia. And also we added indicators related to production and business activities.

Process indicators describe the important processes that contribute to the achievement of outcomes. Examples of process indicators are the quality of training, assessment and needs assessment. The process indicators highlight things that APs do that are expected to lead to desirable outcomes and which can be observed and described. Process indicators are particularly useful in reviews focused on improvement.

Figure 4.2 present the illustration of process indicator of AP

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Process	Indicators	References
Management Processes		
Strategies	Evolution of the education process based on industry needs	Institutional statutes, strategic plan, program directories, curriculum, related regulations and policies.
	Rate of graduates per year received	
	Rate of recruitment from other schools (competition)	
	Rate of number the project for comerzialisation	
	Adequacy of the information booklet to welcome students	

Figure 4.2 process indicators of AP

Process Indicators of AP can be seen completely in appendix 3.

4.4   Modification organization structure of AP

Organizational structures should be shaped and implemented for the primary purpose of facilitating the achievement of organizational goals in an efficient manner. Organizational structure affects organizational action in two big ways. First, it provides the foundation on which standard operating procedures and routines rest. Second, it determines which individuals get to participate in which decision-making processes, and thus to what extent their views shape the organization's actions.

The efficient organization structure is very profitable because, responsibility at department is not overlapping and also, flow of the decision-making processes more easy. It gives me motivation to analyze the existing process indicators of AP.

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4.4.1 *Analyzing an existing organizational structure of AP*

AP has been adopted an organization structure which been recognized and legalized by Indonesian Government via Minister of Education in 2010. It was accordance with the Indonesian Government regulations concerning management of the educational organization.

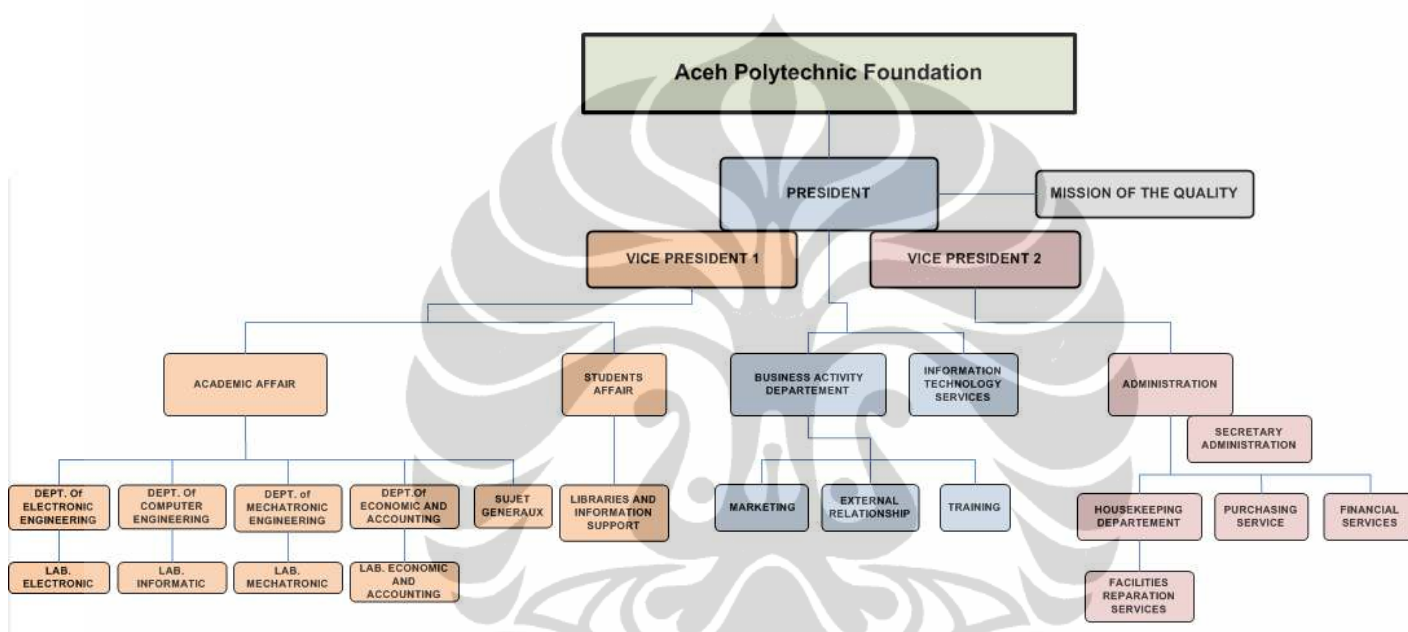Figure 4.3 described the organization structure owned by AP.

Figure 4.3 the organization structure of AP (existing)

Analyze process notice by the basic functions and responsibilities of each part. Goal of this process are increasing the efficiency and become more reactive.

The results of my analysis are:

1. The first part that interests is the laboratory. In think, the laboratory must not be in depth hierarchic. The laboratory will be more difficult to develop.

2. Furthermore, the AP had not a communications department. This section gives space to all kinds of publications about PA.

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3. Studies division and academic division can be combined, because I believe that could be in one part. This makes the more efficient operating system.

From several considerations, I tried to modify the organizational structure of the AP.

4.4.2 *Modification of organization structure AP to obtain efficiency*

We tried to modify according to some consideration of result the analysis the organizational structure. Figure 4.4 is the organization structure modify of AP
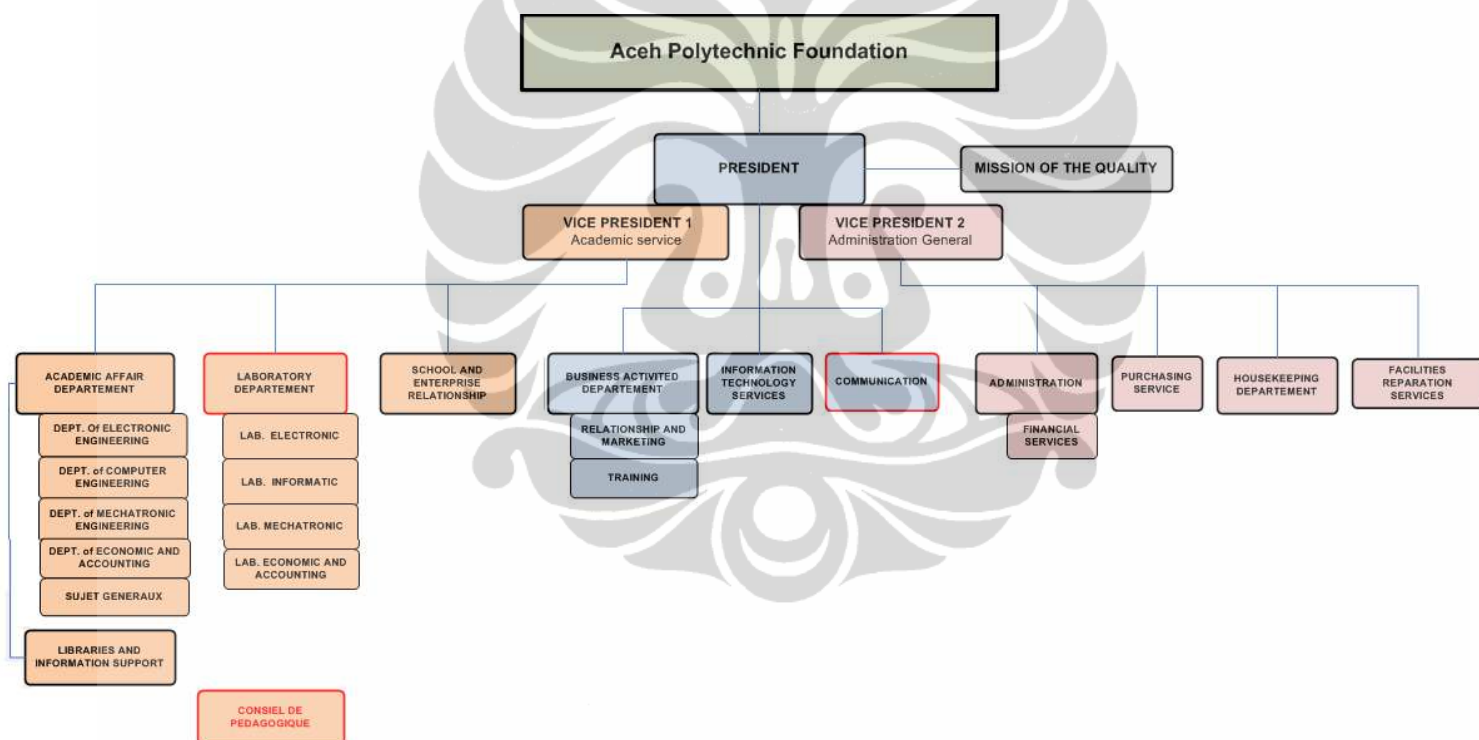

Figure 4.4 the organization structure of AP (modify)

Visually, organizational structure has been modified look more simply. First part of modification is a laboratory with develop the laboratory department. It makes the laboratory is managed by the department, and are not managed by training programs. En effect, laboratory has uniform standards of operational procedure. Lab became more autonomous.

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And also combine the academic division and student division into one department in academic affairs department. The academic affairs department manages the processes of education and library.

Next, I divided the external relations into two parts. First, relations with industry for academic process. And other the relations for business activity.

Academic affairs department, laboratory department and school company relationships for academic process are under the supervision of the first vice president (Academic service).

President General is directly related to the strategies process. Such as business activities department, Information Technology and communication department. Department of communication is a part that we've added. Previously existing the functionality, but is collect with the commercialization process. Not several in a department.

All activities related to administrative general and financial are under supervision of the second vice president (administration general). It is not only handling the administrative issues, second vice president is also responsible for equipment maintenance, housekeeping and purchasing.

4.5   Presentation of the result expected and comments

From the final project, I get an overview of the implementation process of quality in higher education. I am understood what elements that must be prepare and what to do. And I know, the quality management systems not a state but a process which purpose is to tend to perfection in field of its application

I am suggesting for Aceh Polytechnic, they should respect all the things that will be obstacles in implementing quality. The implementation process takes much of time, but it will be shorter if all parts participate in these activities.

To fulfill the desire of Aceh Polytechnic, we try to conclude the following seven-step roadmap may be used toward the development, maintenance and improvement of the higher education quality management system (ISO 9001)

1. Establish top management commitment. Organize an ISO 9001 project committee that will lead and coordinate the project. The committee should include faculty, staff and student members.

2. Decide on the scope of the quality management system (administration, teaching / learning and research activities). Perform an initial gap analysis between the requirements of the standard and the existing quality system. Address possible synergies between accreditation and ISO 9001 documentation.

3. Structuring the map of processes of all elements, i.e. Learning and research processes, support processes and direction processes. Identify their mutual interactions and synergies.

4. Organize the quality management system documentation in several levels, starting from the school and departmental quality manual, through procedures and course, instructions (e.g. for teaching and technicians) and quality records.

5. Develop objective measures of the quality management system performance, including the educational processes and support processes quality indicators. Measure and monitor selected indicators based process indicator that I have made in point 3.8. Perform internal quality audits.

6. Undertake corrective and preventive actions to improve performance. Record and track the progression.

7. Register the quality management system through an external audit.

At the next opportunity, I would like create the input - output scheme for each process in the map processes. Scheme consists of inputs elements, activities process, output elements and indicators process elements.

CHAPTER 5
CONCLUSION

The quality system is not a state but a process which purpose is to tend to perfection in field of its application. The introduction of quality systems of education became a reality, polytechnics fulfilling the legal requirement started this task and obligation to introduce mechanisms which determine it. The efficiency and effectiveness of these introductions and also their tasks and purposes is becoming an important and particularly present question at the beginning of the way associated with forming the quality standards of education.

Solutions from the sphere of the quality of education utilize rich experience associated with introduction and maintenance of systems based on ISO 9001 standard. It is necessary to begin a discussion which purpose is to create an approach in the field of the quality management systems in the field of education.
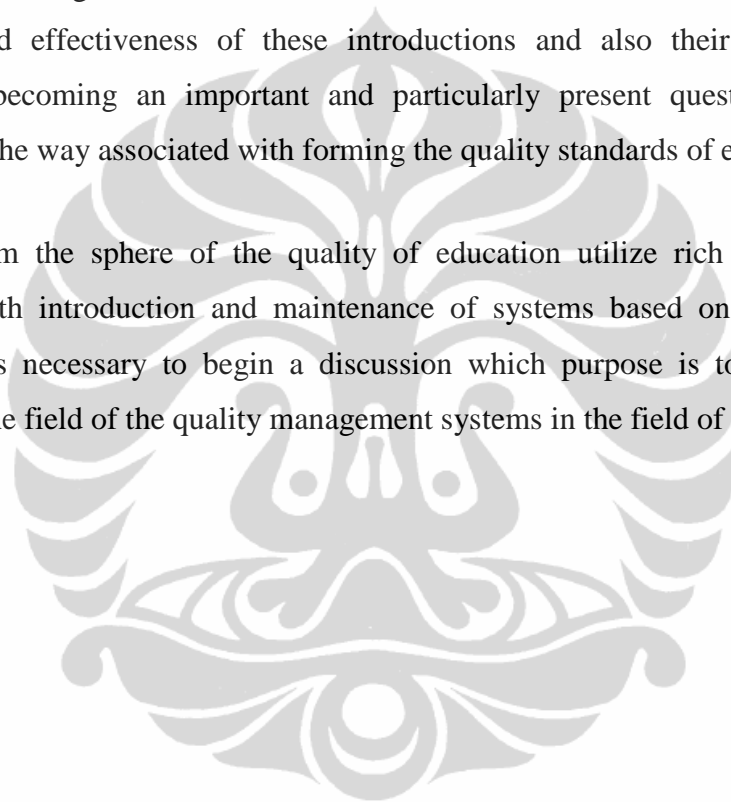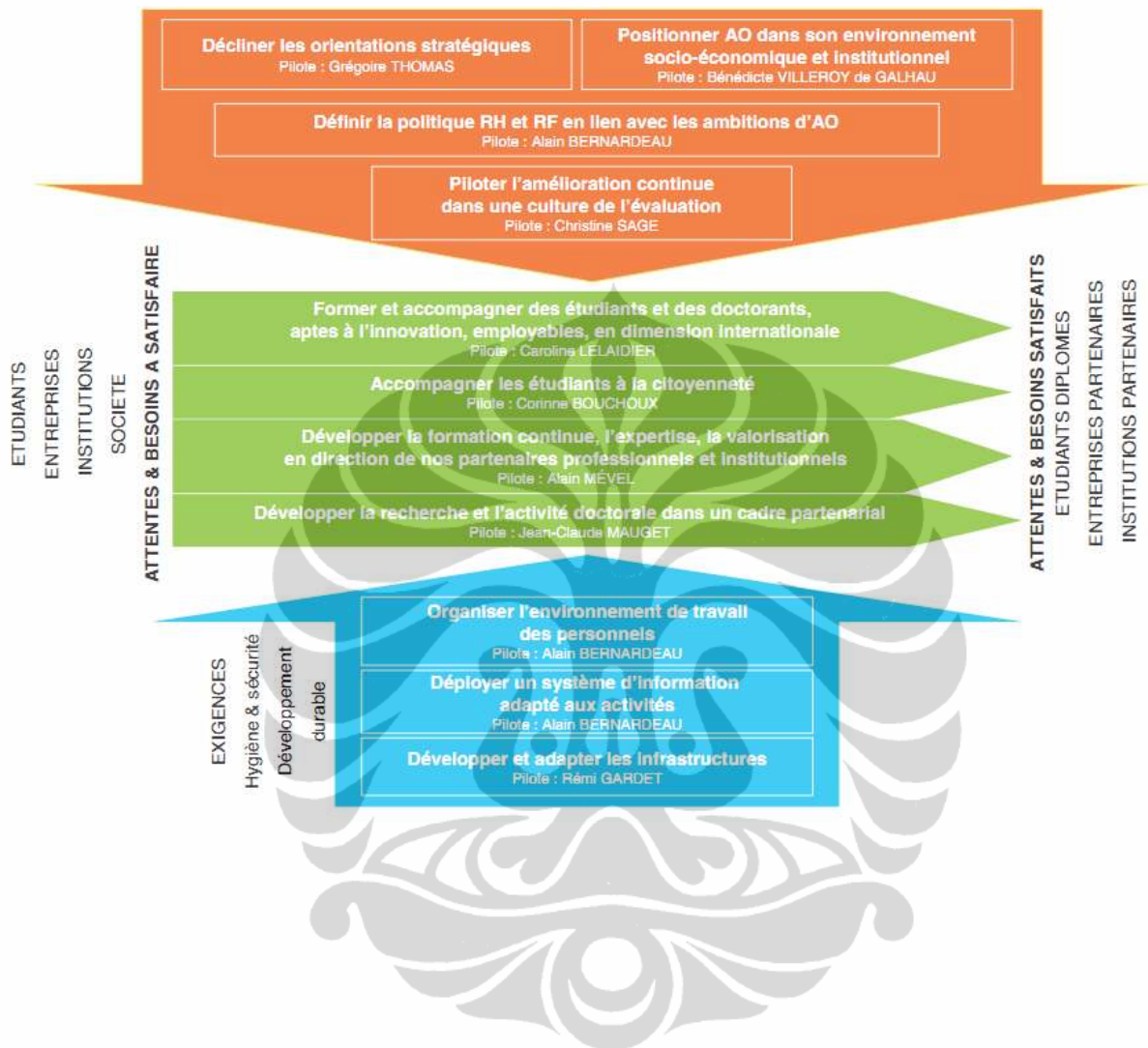
References

Sirikanth, G. and Dalrymple, J. (2001). A Fresh Approach to a Model for Quality in Higher Education, "The Sixth International Conference on ISO9000 and Total Quality Management", 17-19 April 2001, Scotland, UK.

Schereens, J. (1992). Process indicators of school functioning. In: The OECD International Education Indicators: A Framework for Analysis. Centre for Educational Research and Innovation (OECD), Paris, pp. 53–76.

Roszak, M. (2009). Systemic approach to problems of the quality in education, Journal of Achievements in Materials and Manufacturing Engineering 37/2, pp. 751-758.

Vroeijenstijn, A.I. (1995). Improvement and Accountability: Navigating between Scilla and Charybdis. Guide for External Quality Assessment in Higher Education, Jessica Kingsley Publishers, Higher Education Policy 30, pp. 15-20.

Barnett, Ronald. (1992). Improving Higher Education, Total Quality Care. London: Open University Press.

Tadjudin, M. K. (2009). Quality Assurance in Indonesian Higher Education. Higher education in Asia/ Pacific: Quality and the Public Good, pp. 149-164.

UNESCO. (2010). Secondary education regional information base: country profile – Indonesia, Bangkok, http://unesdoc.unesco.org/images/0019/001902/190270e.pdf.

Rapport d'activités. à http://www.agrocampus-ouest.fr/infoglueDeliverLive/Profils/telechargement/rapport-activites, Monday 11 April 2011 09.18.04.

COIGNARD, S. (2009). Mise en place d'indicateurs de performance sur la cartographie des Processus de l'ISTIA.

Appendix 1: Map processes of ISTIA
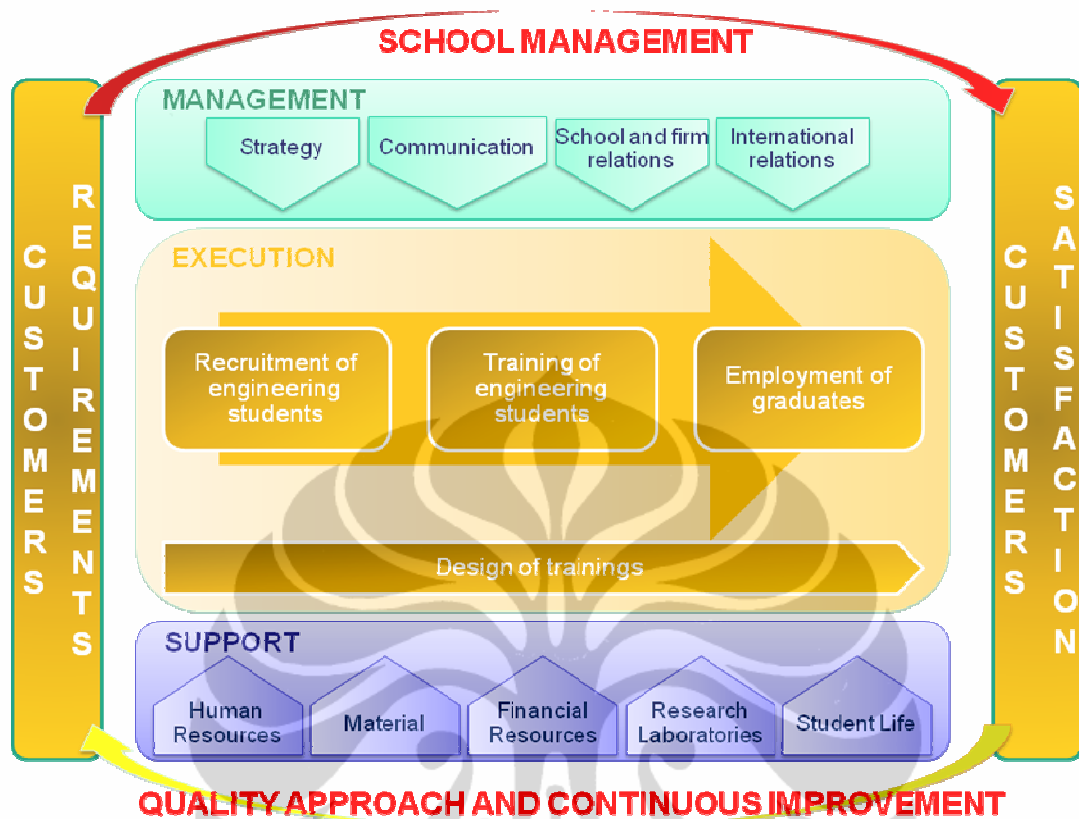
Appendix 2: Map processes of AGROCAMPUS Ouest

Appendix 3: Process indicators of Aceh Polytechnic

Process	Indicators	References
Management Processes		
Strategies	Evolution of the education process based on industry needs	Institutional statutes, strategic plan, program directories, curriculum, related regulations and policies.
	Rate of graduates per year received	
	Rate of recruitment from other schools (competition)	
	Rate of number the project for commercialization	
Communication	Adequacy of the information booklet to welcome students	Strategic plan, annual management reports
	Number of participants in open houses	
	Number of families of students presented at open house	
	Sponsorship / number of meetings	
	Sponsorship / number of company visits	
	Sponsorship / number of students placed by the company	
	Platelet count of school distributed at forums or fairs	
	School Participation in events	
	Number of visits of former students in other schools Aceh Polytechnic	
	Number of reservations made by the public to visit Aceh Polytechnic (Exposition in local or national)	
	Number of "News" published this year.	
	Number of Visits Aceh Polytechnic site on the Internet	
	Number of Applications filed for new student	
	Number of teachers contacted outside	
	Platelet count sent in high schools	
	Platelet count sent in Exposition in local or national	
	Visits staff of a company	
	Visits staff of the Government Indonesia	
	Number of newspaper articles published after an event	
	Number of newspaper articles	
	Number of radio broadcasts	
	Number of broadcasts on TV	
	Number of articles on the Internet	
	Number of contacts after the release of Internet advertising	
	Number of visits high school	

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	Number of briefings of staff by management annually.	
	Number of events organized by the institution (family gathering).	
Relation company	Number of job training available on the number of students	Annual/semi-annual graduation reports, tracer study reports
	Number of hours worked to establish job training	
Business Activity	Number of project commercialization	Strategic planning, annual management reports
	Number of training has been completed	
	Number of project finished	
	Rate satisfaction the enterprise	
Mission of quality/improvement continues	Number of actions implemented	Strategic planning, annual management reports, minutes of management meetings, guidelines for internal quality assurance
	Possible means of implementation actions (finished)	
	Completion percentage of shares	

	Realization processes	
Recruitment of students	Number File registration new student	Guidelines for student recruitment and selection, institutional academic regulations
	Number File Download registration new student	
	Number of documents received for registration new student	
	Number of documents received outstanding students receiving special	
	Number of candidates selected for an interview	
	Number of candidates selected for medical check up	
	Registration number for new student	
Education process of students	The rate of employability of students	Annual/semi-annual graduation reports, graduates' transcripts, study program graduates' directories, tracer study reports
	Number of teachers who are able to teach	
	Rate of student drop out	
	The rate of student satisfaction, team teaching and administrative staff	
Design of education process	Enabling the numbers Aceh Polytechnic	Guidelines for evaluation of student achievement, : observation, annual management reports, institutional academic regulations, related regulations and policies
	Rate of satisfaction the stakeholder	
Production and commercialization	Number of received the project	strategic plans, annual financial reports
	Number of finished the project	
	Rate satisfaction of subscribers	
	Amount of funds obtained	

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	Support Processes	
	Support Processes	
Human Resources	Recruitment new lecturer	Guidelines for personnel recruitment and selection, study program directories, staff development program, management annual reports.
	Measuring added value	
	Measuring the social climate	
	Measurement of social risks	
	Rates effective resources	
Financial Resources	Shares of the various actors involved in the school budget	Annual financial reports, strategic plans, institutional development program, management annual reports
	Balances from the budget of the school year	
	Measurement of costs per service	
	Budget comparison	
Information System	Adequate availability and congruence of human resource, supporting facilities and infrastructure for the empowerment of information systems.	Special reports on information services (use of information systems)
	Number of interruptions of the internal network more than one hour	
	Rate of student, team teaching and administrative staff satisfaction about network	
Laboratory and workshop	Number of teachers participating in research	Annual management reports, institutional academic regulations
	Number of projects business on going in the laboratory	
	Number of projects student on going in the laboratory	
	Number of companies associated with a program	
	Rate of satisfaction with the results of associates	
	Accident rates and severity	
	Return of results and their impact on business partners	
Material Resources	Number of people who come to see reparation staff for an application for intervention	Annual financial reports, strategic plans, institutional development program
	Number of requests equipment	
	Financial amount missing to satisfy all requests	
Student Life	Number of student participating in outside activity	Strategic plan, Annual management reports
	Number of student participating in internal activity	
	Quantify the number of events offered by the students per year	
	Measuring the impact of initiatives on students	

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