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### College Performance Based on QS-Stars Method: Model Designing of College Performance through Knowledge Management System (Empirical Study on A Accreditation Colleges in Java)

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#### ABSTRACT

This study purpose is to construct a collage performance model based on QA-Stars method: college performance design model to support competitiveness through knowledge management system. This study uses a descriptive survey to private colleges with A accreditation in Java. The research results showed that the determination of QS World University Ranking that must be considered by college leaders are: Asian peer review (30%), Paper faculty (15%), Citation per paper (15%), Student faculty ratio (20%), Asian employer Reviewer (10%), International faculty (2.5%), International students (2.5%), inbound and outbound student exchange (5%). The results showed that university knowledge saved with following structure: (a) 42% in employees mind (brain); (b) 26% in paper documents; (c) 20% in electronic documents; (d) 12% in electronic knowledge base. Knowledge management means the faculty and employees are still dominant to store the knowledge in their brain (42%). Therefore, the university leaders should be able to implement and transfer knowledge properly into model.

**Keywords:** Performance, Knowledge Management System, QS-Stars.

#### 1. INTRODUCTION

General phenomena related to colleges are very interesting to study because the competitiveness of Indonesian Colleges in ASEAN and even in world level cannot talk more. Law No. 20 Year 2003 on National Education System explains that education is a conscious and deliberate effort to create an atmosphere of learning and learning process to make the learners actively develop their potential to have powers of spiritual, religious, self-control, community, nation and state.

The globalization era is supported by creativity, innovation to improve competitiveness. It is also characterized by rapid development of science and technology. Increasingly severe competition makes college need to change the paradigm based on analysis of specific science areas such as a tree industry, packaging knowledge, metadata base, data mining, online analytic planning and so forth, and human resource development. Davidson and Philip (2003) said that knowledge management actually shows about how to manage staff, in fact they argue that knowledge management is how the people from different places start to talk each other, now popular with label learning organization. Nonaka & Takeuchi (1995), said that some of company's success in Japan is "a company that consistently create new knowledge, share it throughout the organization, and everyone knows the new technology and result", ie companies, skilled and expert in creation of knowledge of their organization (organizational knowledge creation).

Davenport and Prusak (1999) revealed knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices and norms. Actions and intentions of university interact with environmental elements that take a long time, while the decision makers cope with complexity and uncertainty to understand issues, identify appropriate alternatives, knowing the outcome and explaining and determining his wishes. Therefore, a rational decision requires information and knowledge on organization's ability to gather information/knowledge and process it at top of human capacity to do so. Delphi Group research shows that knowledge organization is stored with following structure: (a). 42% in employees mind (brain); (B). 26% in paper documents; (C). 20% in electronic documents and (d) 12% in electronic knowledge base.

One reference to assess the college quality is world university ranking system from independent agencies. Some ranking techniques are recognized and have become the benchmark as THE-QS, Webometric, Shanghai Jiao Tong Academic Ranking's (ARWU), as well as HEEACT. From many existing ranking system, one of most popular is The World University Ranking or known as QS-Star (Quacquarelli Symonds). Since its launch in 2004, QS Star rating system developed into most comprehensive in world. The results achieved at this time are Indonesian college's position in world. Determination of ranking by QS World University Ranking, which must be considered college leaders, include: Asian Peer Review (30%), Paper faculty (15%), Citation per paper (15%), Student faculty ratio (20%), Asian employer Reviewer (10%), international faculty (2.5%), international students (2.5%), inbound and outbound exchange student (5%). Table 1 shows detail list of Indonesian colleges that fit into 200 colleges in Asia according to QS World University Rankings.

**Table 1**  
**Ranking list of Indonesian Colleges in Asia**

<i>Indonesia Rank</i>	<i>Asian Rank</i>	<i>School Name</i>
1	50	Universitas Indonesia
2	85	Universitas Gajah Mada
3	109	Universitas Airlangga
4	113	Institut Teknologi Bandung
5	119	Institut Pertanian Bogor
6	161	Universitas Padjadjaran
6	161	Universitas Diponegoro

Source: <http://www.topcolleges.com/university-rankings/asian-university-rankings/Overalls>

The study problem is How College Performance Based on QS Stars Method: College performance design model to support competitiveness through knowledge management system (Empirical Study on A Accreditation Colleges in Java). This study purpose is to construct a collage performance model based on QA-Stars method College performance design model to support competitiveness through knowledge management system.

## **2. LITERATURE REVIEW**

### **2.1. Definition of Intellectual Capital**

Intellectual capital consists of three elements, i.e. human capital, structural capital and relational capital. As the university is one of types of organization, thus it is clear that intellectual capital is also a major asset for colleges. A university is an organization; therefore, it is clear that intellectual capital is a major asset for the university. Furthermore, the education quality directly influences organizational performance. Intellectual capital may have a significant impact on colleges performance (Jones, Meadow and Sicilia, 2009; Lu, 2012; Meihami and Karami, 2014). Human capital is the greatest critical component as the heart of intellectual capital. Literature indicates that past studies have also focused on the impact of human resources management practices on university performance with academicians as the center of focus . A study by Amin, Ismail, Rasid and Selemani (2014) found that human resource practices: recruitment, training, performance appraisal, career planning, employee participation, job definition and compensation have a significant relationship with university performance.

Generally, structural capital of organizations comprises of infrastructure, system policies and procedures, (Khalique et. al., 2011). An organization cannot live on without human capital. The mere creation of knowledge by individuals is useless without a structure to determine how that knowledge leads to better products. The consideration that the characteristic of public university operation direction, university funds, and the operation expenditure of the schools in teaching, research, education, and training, guidance and assistance etc. These factor serve to strengthen the internal organizational and energize research and teaching (Lu, 2012). Relational capital as an invisible asset that made based on developing, maintaining and nurturing high quality relationships with any organizations, individuals or groups that influences organization performance. Lu (2012) stated the new economic model has pushed the colleges to explore how to get profits from the knowledge that they possess as educational institutions. If a university has a strong relationship with numerous customers, it is likely that the university will continue to be profitable and reputable.

### **2.2. Knowledge Management System**

Pratomo (2004) explains the data is a collection of an objective fact regarding to the event. Information is processed data, typically using statistical rules, to create the meaning. Knowledge as a habit, expertise, skills or understanding is gained trough experience, training, or learning process.

The definition of knowledge management still varies among various experts. Experts in information field explain that information is presented to a person's knowledge in a form that can be understood; or data that has been processed or arranged to present the facts with the meaning. The knowledge is derived from relevant information absorbed and integrated into one's mind. It relates to what is known and understood

by someone. Information tends to manifest, while knowledge is interpreted and integrated information. Knowledge consists two part. First, tacit knowledge is knowledge that dwell in human mind in form of intuition, judgment, skills, values, and belief that very difficult to be formalized and shared with others. Second, explicit knowledge is knowledge that can be been or codified in form of documents or other tangible form, it can be easily transferred and distributed using various media.

Knowledge transfer is a process or way where researchers conducted the deployment of proof a theory or disseminate new knowledge (Profetto, 2004). According to Jacobson et. al., (2004) in Profetto (2004), knowledge transfer is the exchange, synthesis and ethical application of knowledge within a complex system relationships between researchers and users. According to Lengyel (2007), knowledge transfer occurs between colleges - government and industry. It is divided on two levels: individual knowledge and organizational knowledge. According Szulanski (2000) in Liao and Hu (2007), there are five basic elements that need to be considered in knowledge transfer. These five elements are: source, recipients, channel, message and context. Meanwhile, according to Duanet. al., (2010), knowledge transfer consists of individual, intra - organizational, inter-organizational and transnational levels

### **2.3. Performance**

Melinda in Mulyanto (2008) distinguishes the performance measurement system on three issues: tactical, operational and strategic. Tactical performance measurement emphasizes on the point of view of consumers. For example, quality can be measured through external measures such as the consumers needs fulfillment that are detected based on number of claims to the product sold. Student Grades Services is measured by percentage of needs that can be served on time, and so on. Measurement is emphasized on operational performance of internal operations and internal capabilities of organization. Management paradigm of Colleges has the objective to support the performance of Colleges in Indonesia. It always refers to improvement of ongoing quality (continuous improvement), and this can be achieved only if all parties directly involved in colleges may play a role in framework of job obligations and clear authority. University quality level decision is a very important effort, because the performance quality often determines the survival of a university. There are five components or Colleges management paradigm used as a reference in determining the colleges performance. They are quality, autonomy, accountability, accreditation and evaluation (Melinda in Mulyanto, 2008). The availability of human resources is an important requirement to improve the quality of colleges. Study and field experience of organization show that creativity, ingenuity and productivity of an organization are more stimulated by flexible work patterns and independent structured and rigid work pattern. It can become a strong reason to make university can be managed based on autonomy principle. Colleges operations are always linked and depend on environment and surrounding communities. This creates values, norms, laws and regulations that become signs and guide to the development of society, always aware and become a reference in college management. Autonomy principles applied in colleges management must always be accompanied by responsibility or accountability. Communities as stakeholders have right to high quality information and college performance. It needs an independent agency to assess the performance of each college.

Government has established the National Accreditation Board of Colleges (BAN-PT) to make independent assessment. Decision-making in Colleges should be supported and guided by facts, data and information collected, processed and concluded through the evaluation process. Most colleges do not

manage knowledge well, it hinders the knowledge transfer. When a professors or researchers leaving the College, the knowledge go with them. Knowledge is the only key to for competitive advantage. Successful colleges consistently can generate new knowledge, disseminate and implement the new technology or product. Knowledge sharing is the basic problem in knowledge management implementation. Lecturers do not have will and action to share knowledge in written form. It will not encourage the students to share the knowledge. Mental construction is needed to increasingly share the knowledge actually. Colleges Research is part of academic efforts to find scientific solutions to problems of human beings or the creation of new knowledge. Dikti Guides (2013) explains the process of research and development of a science and technology that cannot be separated from the condition of three basic elements of (1) scientific community and technology itself, (2) system of science and technology related to social, political, economy and culture where the science and technology are developed, and (3) organization that becomes a kind of catalyst for community to grow in a wider system. Implementation of knowledge management in university environment can has many forms. First is the process of collecting, organizing, classifying and disseminating information/knowledge to all units in organization so make the information/knowledge useful for anyone. Second is policies, procedures and technology used to operate a database connected to an intranet network to keep it up to date. Third, information technology is used to capture the knowledge in minds of researchers or lecturers to share the knowledge easily shared. Knowledge management has objective to collect knowledge needed by researchers to save at central storage and deleting the unused information.

Research performance analysis is based on colleges data. The data from each college were obtained after the operators fill the mapping and upload the supporting documents through Simlitabmas. Before analyzed, Ditlitabmas will perform validation by checking the uploaded document and/or visit the college to confirm the data from every component has been included as standard operating procedures (SOP), evidence of publication, and other supporting evidence. Based on all the information obtained, further defined the main components on which the process of classifying the performance of research colleges. After thorough analysis, the colleges are classified as Independent, Primary, Medium or Patronage. In other words, these groupings are not based on subjective factors. Each part in assessment component has a value as a percentage. All components on value is obtained by multiplying scores and weights. Performance assessment of colleges researches are based on four (4) components with different weights of Research Resources (30%), Management Research (20%), Research Output (35%) and Revenue Generation (15%).

Colleges with Independent predicate has excellent research resources, has implemented a quality assurance system in research management, very high research productivity outcomes at international reputation journal and has been used by stakeholders. College with this predicate should be able to produce units to can generate revenue independently, as business unit of college intellectual product. Colleges with Primary predicate have good research management system, but produces small quantity of research outputs at international reputable journal and can be utilized stakeholders. College with this title should strive to improve the utilization of research outcomes and develop product-based intellectual business units. Colleges with Medium predicate colleges have quite good research management system with a limited research outcomes. Colleges with this predicate need to increase the capacity of resources, management, and research outcomes. Colleges with Patronage predicate has been pioneering university research implementation. The colleges are new to manage research programs by taking into account the resources owned. College with Patronage predicate should seek to develop research capacity in order to be able to manage research and better research outcomes.

## 2.4. QA-Stars

QA-Stars is a system to facilitate students to get a broad picture of an institution quality, based on graduate, employees, sports facilities and community involvement. QA-Stars is designed to reflect the nuances of university's mission and students needs who might be interested in something other than the traditional ranking that highly limited. QS-Star evaluates an institution with 50 different indicators, and colleges award between one star, five-star up to star eight broad fields as overall rating. The criteria of QA-Stars can be explained below.

TEACHING	
<b>Faculty student ratio</b> The ratio of faculty to students	50
<b>Overall student satisfaction</b> Proportion of students expressing satisfaction with overall experience in student survey	40
OR	
<b>Completion</b> Proportion of students scheduled to graduate succeeding in doing so	
<b>Satisfaction with teaching</b> Proportion of students expressing satisfaction with teaching through student survey	40
OR	
<b>Faculty with PhD</b> Proportion of faculty with PhD or equivalent terminal degree	
<b>Further study</b> Proportion of students pursuing further study within 12 months of graduation	20

EMPLOYABILITY	
<b>Employer reputation</b> Number of employer referees endorsing institution in QS Global Employer Survey	50
OR	
<b>Campus employer presence</b> Number of companies present at events on campus	30
<b>Graduate employment rate</b> Proportion of students employed within 12 months of graduation (excluding those not actively seeking work e.g. pursuing further study)	50
<b>Career service support</b> Number of full-time careers advisors	50

RESEARCH	
<b>Academic reputation</b> Number of academic referees endorsing institution in QS Global Academic Survey	40
<b>Citations per paper</b> Citations per paper – adjusted for institutions with negligible activity in medicine, science and technology	40
<b>Papers per faculty</b> Research papers (Scopus) per faculty member	40
<b>OR</b>	
<b>Arts-related outputs</b> Recognition of academic outputs in disciplines where journal articles are not pervasive	
<b>Prolific academic experts</b> Number of faculty members achieving international recognition through awards (e.g Nobel)	30
INTERNATIONALIZATION	
<b>Institutional research collaborations</b> University research collaborations or joint degree programs with QS top 500 universities in previous three years published rankings	50
<b>International faculty</b> Proportion of international faculty	20
<b>International students</b> Proportion of international students	20
<b>Inbound exchange students</b> Proportion of inbound exchange students	20
<b>Outbound exchange students</b> Proportion of outbound exchange students	20
<b>Religious facilities</b> Provision of appropriate facilities for international students of different religions	10
<b>International diversity</b> Number of nationalities represented in student body	10

### Previous Researches

Puspitahati et. al. (2011) examines the IC exposure at Indonesia public universities. The samples are University of Indonesia, Institute of Technology Bandung and University of Gadjah Mada. They use a component that refers to Leitner (2002), which consists of 39 items. The results showed that disclosure practice of intellectual capital is relatively low at official website. This can be proved by total disclosure components at university that below the maximum score, highest percentage of disclosure has not reached

## Facilities

<b>Sporting Facilities</b>	20
Provision of key, popular sporting facilities (e.g. swimming pool, gym, track, sports courts etc...)	
<b>Student accommodation</b>	20
Number of student rooms relative to size of student body	
<b>IT infrastructure</b>	20
Number of computers on campus; proportion of wired student rooms or campus Wi-Fi coverage	
<b>Library Facilities</b>	20
Value or number of acquisitions with the past 12 months	
<b>Medical Facilities</b>	10
Provision of medical facilities appropriate to the size of the student body	
<b>Student societies</b>	10
Number of student administered organizations	

## Online/ Distance Learning

<b>Latest technology</b>	20
Use of new technology for program deployment	
<b>Track record</b>	10
Length of time the institution had been operating successful online programs	
<b>Student faculty engagement</b>	20
Regular access to faculty for one on one support	
<b>Student interaction</b>	20
Opportunities to meet and interact with fellow students	
<b>Commitment to online</b>	10
Number/proportion of programs made available online	
<b>Reputation</b>	20
Number of organizations using programs and technology for staff training	

## ARTS & CULTURE

<b>Concerts and exhibitions</b>	20
Concerts and exhibitions featuring the work or performances of students and faculty	
<b>Credits and cultural awards</b>	20
Credits or cultural awards for students, faculty members or the institution as a whole publically accessible works	
<b>Cultural investment</b>	10
Financial contribution to arts projects outside the university OR investment in cultural preservation	



## INNOVATION

### Patents

Active patents registered with national or international patent offices

20

### Spin-off companies

Spin-off companies established in the last five years still operating and no longer requiring support from the university

10

### Industrial research

Joint research projects with distinct research corporations (non-university), yielding publications in Scopus in the last 5 years

20

## SOCIAL RESPONSIBILITY

### Community investment and development

Financial or in-kind contributions to community projects within 200km of any campus or affiliated facility

20

### Charity work and disaster relief

Financial or in-kind contributions to national or international causes and charities

10

### Regional human capital development

Proportion of graduates employed in the region OR proportion of students from the region

10

### Environmental impact

Performance against a checklist of environmental indicators

10

## INCLUSIVENESS

### Scholarships and bursaries

Financial value of, or number of students granted access through, scholarships

20

### Disabled access

Proportion of campus with wheelchair access

10

### Gender balance

Recognition of gender parity

10

### Low-income outreach

Proportion of students identified as low-income OR investment in promotion to low-income families

10

## DISCIPLINE RANKING

### Faculty area ranking

Ranking performance in any one of five broad faculty areas conducted

150

OR

### Specific subject ranking

Ranking performance in specific disciplines in rankings conducted by QS or respected alternate publisher

**ACCREDITATION**

**Internationally recognized accreditations** 50

Programs accredited by internationally recognized and applicable standards

**OR**

**Nationally recognized accreditations**

Programs accredited by internationally recognized and applicable standards

50% of university IC items. Bezhani (2010) examined the 119 UK colleges listed in Sunday Times University Guide 2006 at “TIMES” website using Intellectual Capital framework for colleges in Europe. The results show that category of human capital is the highest academic and research staff. The most structural capital is in library, and most disclosures of relational capital are new partner collaboration and conference. Ulum (2011) examines university IC components, modified from Leitner (2002). The modification is done by considering the standard of Indonesia colleges as stipulated in accreditation National Accreditation Board of Colleges (BAN-PT). The problem formulation is How to Practice Disclosures on University IC Website with QS-Star 2011 in Indonesia? According to Saturn (2010), knowledge-based economy is an economic system with following characteristics: (1) based on intellectual assets, not physical assets or place; (2) the competitive advantage will make the organization can learn and innovate; (3) workers must be able to think critically; and (4) the mastery of technology will make the organization can manage knowledge and labor can continue to learn. Cycle of knowledge management is a phase to describe the capture, creation, codification, sharing, accessing, applications and reuse of knowledge within an organization, (Tan Robby 2010 ).

Tobias (2007) explains several challenges that must be answered by an organization to win competition, namely: collaboration, innovation, adaptation, technology and market mastery and management of intellectual assets. The challenges are to support emergence of need for implementation of knowledge management (KM). Implementation of knowledge management in organization will provide benefits to organization, among others: (a) knowing the strength of resources within organization; (b) re-usage of existing knowledge; (c) accelerating the process of new knowledge creation from existing knowledge; (d) keeping the movement of organization remains stable despite the current human resources.

Space (2008) explains three stages that can be done to organize an effective knowledge management. First is to build a Knowledge Portal. This portal can be initiated with construction of intranet knowledge portal. It can be accessed by any academics. The content is diverse menu folder and relevant knowledge that may involve articles on practical management; paper on dynamics of science and technology involved; internal training materials; and also paper the lecturers/researchers experience to work in a particular project. This portal should be managed by a dedicated person (knowledge officer) in charge to identify, codify and organize a various sources of relevant knowledge. This person would be helped by a team of IT to set up a database infrastructure and intranet portal. Second is Knowledge Sharing Session. This session should be held for about two hours, at least once every month. This sharing session can be conducted at Faculty or performed by departments by inviting speakers from outside or internal. The material can be either practical management knowledge or experience of a lecturer in a task/project. The result of this sharing session is uploaded to Knowledge Portal to make everyone can access the material. Knowledge sharing session will be very useful in exploring and distributing knowledge potential within every academics. Third

is Online Knowledge Bulletin publication. This bulletin will be issued monthly and contains latest update knowledge on management or dynamics of science and technology. This bulletin should be distributed through multimedia email. Lectures knowledge can be updated continuously through the bulletin.

### 3. RESEARCH METHODOLOGY

The research methodology can be stated in Figure 1 below.

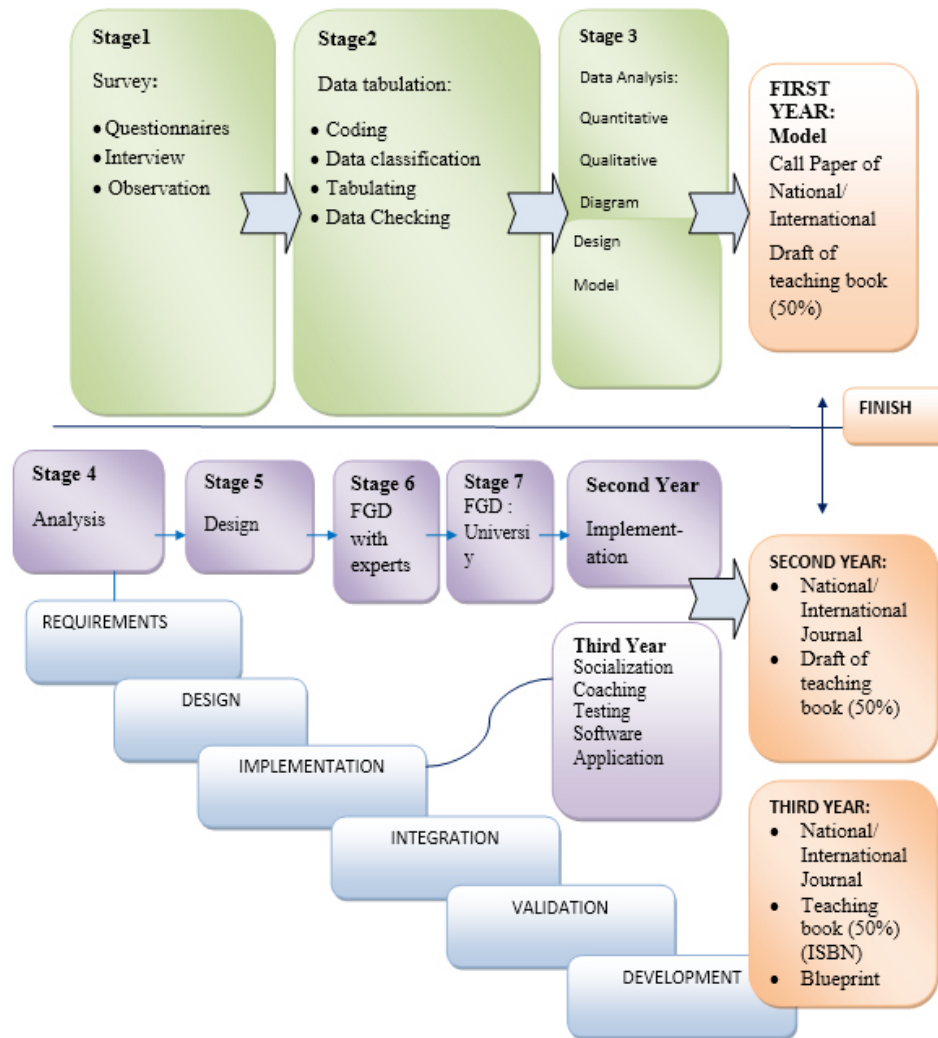


Figure 1

### 4. DISCUSSION OF RESULTS

Collage performance model based on QA-Stars method: college performance design model to support competitiveness through knowledge management system.

College Performance Model based on QA-Stars of Knowledge Management must emphasize on the vision, mission, goals and objectives of colleges and business processes that will be developed. Points that must be understood and developed by university leaders for knowledge management models are:

defining the process, understanding the people and specifying the technology. The element that must be considered are:

- (a) Key resource influences, including: financial and cross-factors expertise
- (b) Key managerial influences, include: coordination control and measurement
- (c) Leadership

The model development can be illustrated by Figure 1 below.

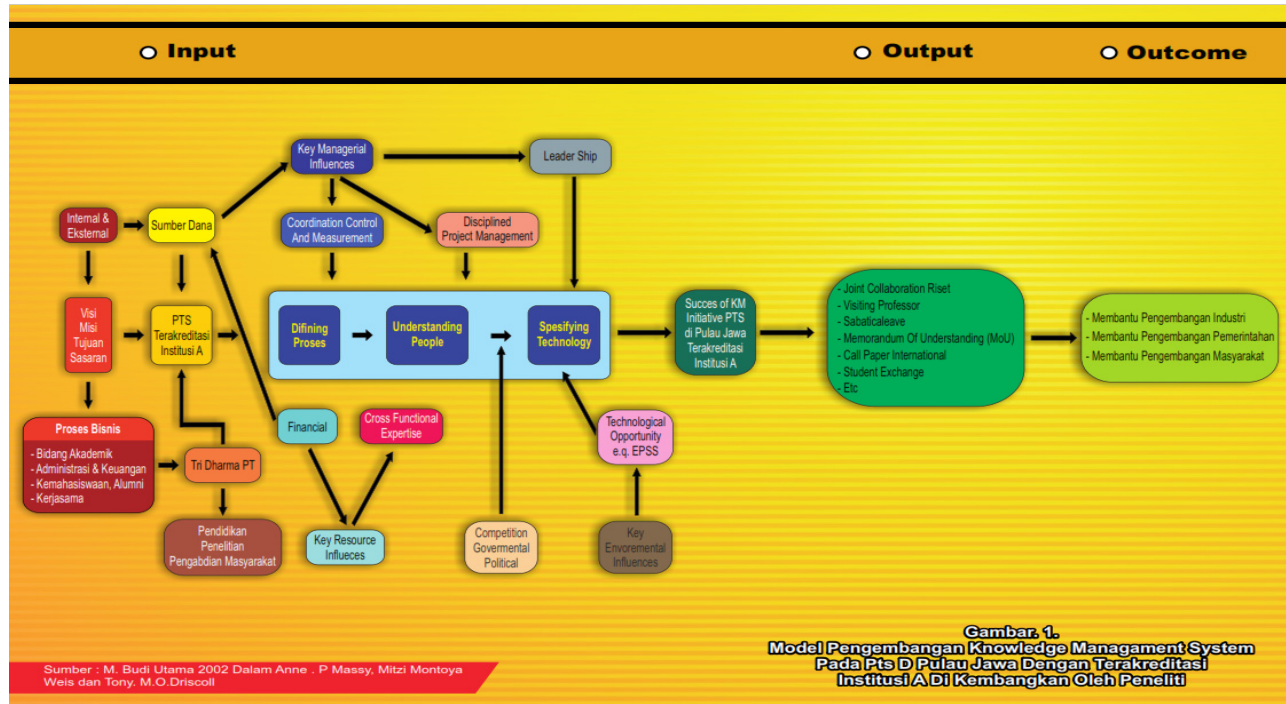


Figure 1: Knowledge Management System Model developed by Researcher

Based on above model, it can be constructed the Colleges performance in Indonesia based QA-Stars, as shown in Figure 4.2 below.

## 5. CONCLUSION AND SUGGESTION

The research results showed that the determination of QS World University Ranking that must be considered by college leaders are: Asian peer review (30%), Paper faculty (15%), Citation per paper (15%), Student faculty ratio (20%), Asian employer Reviewer (10%), International faculty (2.5%), International students (2.5%), inbound and outbound student exchange (5%). The results showed that university knowledge are saved with following structure: (a) 42% in employees mind (brain); (b) 26% in paper documents; (c) 20% in electronic documents; (d) 12% in electronic knowledge base. Knowledge management means the faculty and employees are still dominant to store the knowledge in their brain (42%). Therefore, the university leaders should be able to implement and transfer knowledge properly into model.

Based on above result, university leaders should encourage the lecturers, staff and students to be able to develop their competencies, knowledge, skill and attitude.

RATING	UNIVERSITY	LOCATION
Overall Rating	<input type="text" value="Search for universities..."/>	
★ ★	University of Surabaya	Indonesia
★	University of Lampung	Indonesia
★ ★ ★	University of Brawijaya	Indonesia
★ ★	Universitas Pendidikan Indonesia	Indonesia
★ ★	Universitas Nasional	Indonesia
★ ★	Universitas Muhammadiyah Yogyakarta	Indonesia
★ ★ ★	Universitas Islam Indonesia	Indonesia
★ ★	Sebelas Maret University	Indonesia
★ ★ ★	Bina Nusantara University (BINUS)	Indonesia
★	Ahmad Dahlan University	Indonesia

Figure 2: Colleges performance in Indonesia based QA-Stars  
 Source: <https://www.topcolleges.com/QA-Stars#sorting=overall+country=97+rating=+order=asc+orderby=uni+search=>

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