

Information System Development of Competence Based Appraisal

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Information System Development of Competence-Based Appraisal in Higher Education Institution

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Abstract - The performance appraisal system is considered an important factor for managing human resources in higher education institutions (HEIs). More importantly, when Information System (IS) is utilized for assisting such efforts, it inevitably makes the HEIs more efficient and competitive. This research attempts to integrate performance appraisal using competence-based appraisal (CBA). From this system, the HEIs are supposed to be able to manage all activities related to their human resources and carriers. The methodology implemented in this research is by making the software of CBA model (the concept) and then the try out was done to find out both

the weaknesses and strengths of the software, and finally the improvement was conducted as well. In addition, the evaluation of these software covers the aspects of validity and reliability testing so that the software are really proved to be completely applicable. The results provide the HEIs with information about both the weaknesses and strengths and therefore the system was made perfect based on such findings. It can be concluded that using CBA in HEIs, all the activities related to human resources in HEIs can be rated. Thus, this CBA system enables the HEIs to do their human resources appraisal more accurately.

Keywords - CBA, software, performance appraisal system (PAS)

INTRODUCTION

The realization of good governance and management system of Higher Education Institutions (HEIs) is considered an important pillar in all HEIs' long term strategy. For that reason, all HEIs in Indonesia are expected to adopt such good governance and management system their educational process management, including the human resources management (HRM). For example, performance appraisal system (PAS) is also an important part in the HRM so that it requires that all HEIs able to evaluate their staff's performance, provide coaching, and develop their carriers. From this, the all these activities can be done accurately for increasing HEIs' competitiveness.

It is argued that a good PAS is capable of developing the competencies and the corporate culture so that these allow the HEIs to attain their competitive advantage (Anderson, 2002). Considering the external challenges, in a particular regulation of the Republic of Indonesia Law Number 14 (UU no 14) of 2005 on Teachers and Lecturers and Accreditation Standards Institution and Study Program, the traditional PAS should be abandoned and replaced with a system of competency-based PAS.

The competency-based PAS can be recommended for the basis of merit rating. It can facilitate the HEIs to make policies related to payroll, implementation of reward-punishment system, career development, and HR development. A good governance and management system have a strategic

role in enhancing the HEIs to increase productivity and HR performance, as stipulated in the Law on Teachers and Lecturers as well as long-term strategic plan of HEIs. It is stated that the competency development of lecturers and supporting staff is very important for increasing the quality of graduates, productivity, and HEIs' performance. Eventually, all these will create the competitiveness of the nation.

More importantly, competency-based PAS is directed to merit rating implementation and ensuring the objectivity, fairness, and clarity for the lecturers and supporting staff and HEI management. From the aspect of HRM, the existence of competency-based PAS is absolutely necessary. There are several important considerations both from the aspects of external and internal interests of HEIs as summarized in the following:

1. External Considerations Adjustments to the regulations

The Law No. 14 Year 2005 on Teachers and Lecturers begins regulating the competence of lecturers and other regulations related to accreditation standards both international, national accreditation. It demands that HEIs should direct the management of its human resources to comply with the stipulated regulations and standards.

2. Competition

The intensity of competition among HEIs requires skill, knowledge, and positive working attitude of their people for being more productive and performing their jobs in accordance with the demands of stakeholders. For that reason, the performance assessment should consider the competence and productivity in accordance with their jobs. Therefore, competency-based PAS can serve as a foundation that will direct the staff into better working behavior.

3. The Global Competitiveness

Global era has heightened degree of competition, and influenced the HEIs management system. It is advisable for any university to have global competitiveness and performance so that they can be recognized both nationally and internationally. This effort requires a higher level of competency

for HEIs' human resources that should keep abreast of international standards, not just at the national level. In doing so, competency-based PAS can be designed in accordance with the desired competitiveness by the HEIs through the establishment of core competency, managerial competency and technical competency, adjusted to the competitiveness.

4. Internal Considerations

A good HRM apparently plays an important role in realizing the whole performance of HEI. The lecturers and other supporting staff eventually increase their productivity when the working behavior is directed to the culture of high productivity. Productive lecturers in teaching, research, and community services are also determined much by the competency and the working habit in implementing the three dedication activities (termed as *tri dharma*). Similarly, employees' productivity is influenced by intrinsic and extrinsic motivation through HRM system that is adopted by the HEIs.

FRAMEWORK

The information technology (IT) has penetrated our everyday lives so that it has been prevailing during the past decades. There is no time for any organization, regardless of their characteristics, whether they are manufacturing or services, living without IT that have been proved to be necessary and versatile. For both efficiency and effectiveness, IT appears versatile in terms of its implementation for making the organization more competitive.

The performance impacts of IT investments in organizations have received considerable attention in recent years. In this research, the researchers attempt to investigate the factors used as indicators for performance appraisal (PA). This PA is finally implemented with the assistance of Information System (IS) designed as based on competencies that have been formulated in the previous research (the previous stage of this IS design). From this IS design, the study is supposed to produce the system which is applicable for measuring the HEI's staff's performance. This is the so called competence-based appraisal (CBA) with the help of IS design by the researchers. In order that such design can be suited to the HEIs' performance, all indicators reflecting the HEIs' performance should be revealed. The effort of finding

such important factors should be undertaken so that the IS design can be really applicable and efficient, as well as objective. Therefore, understanding HEIs and their factors is the first stage to be done before IS design is done.

Higher-order organizational learning occurs when a company adopts new principles, assumptions, and paradigms, which often turn into competitive advantage. Systems development and implementation offer an opportunity for higher-order organizational learning that is rarely exploited. Advanced information systems, in particular expert systems (ES) and executive information systems (EIS) provide ample opportunities for higher-order organizational learning if the development process is structured in certain ways. This work includes an analysis of three organizations in terms of project outcomes, organizational learning outcomes, and organizational performance. On the basis of these assessments, five critical success factors are identified that may contribute to organizational learning during advanced system development. The relationships between these factors and organizational outcomes are summarized in a preliminary model that can form the basis for future research. The work closes with some recommendations for ways information systems managers can encourage higher-order organizational learning during advanced system development.

Database Design and Application Development

The existence of the database is an important part of the development of information systems. Interactions that occur in the development of information systems between databases and applications (Mannino, 2007) can be described as follows:

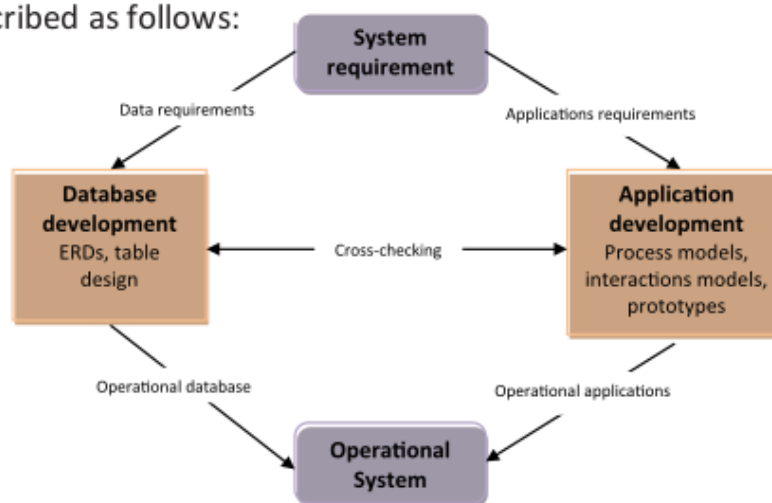


Figure 1. Data base design and application development

Thus, there three types of record-based models which are commonly used in the database. This need to be considered in building information systems (Bambang, 2004), namely: the relational model, network model, and hierarchical model. So far, the relational data model is the most dominant approach. The main thing is to pull from the relational database model and therefore it builds a mathematical structure that is simple and very natural. In the relational model, all data are structured in a logical relation between the tables, where each relation has the attributes.

1. Previous Research

The previous research on competency-based performance appraisal (PA) has been carried out by TatikSuryani (2004), on the work of editorship in a newspaper company in Surabaya. The PAS is based on technical and managerial competencies required for all jobs in the editorship such as editors, journalists, and reporters. It attempts to produce an objective system for PA for objectively assessing the competencies of employees in a particular period. The monthly incentives are made much more fair and objective. The elements assessed include such as managerial competence and technical competence. Managerial competency covers planning, organizing, implementation, and supervision while technical competence the ability to write, cooperation, ability to create features, and productivity.

Other research has been done is the development of competency-based PAS at the School of Economics Perbanas Surabaya (Lutfi, et al, 2007). It covers all the structural and functional positions (educators). Special for this research by Lutfi, it shows that the competency factor is considered important in competence-based PAS. It entails e.g., core competencies which cover managerial competence and technical competence. In general, the performance achievement can be seen from the gap between the required level more than the individual level (individual performance). In this case, achievements can be started from the lowest to the highest e.g., the marginal contributor (up to 60%), contributor (> 60% to 90%), performers (> 90% - 100%), high performers (> 100% - 150%), and superior performers (> 150%).

2. PAS and the Procedure

PAS adopted is a competency-based PAS and equipped with individual performance targets (IPT), especially for structural officials. Evaluation

method used is top-down, the assessment made by the officers or supervisors who directly assess or evaluate their subordinates. Top-down assessment is conducted at the level of positions ranging from the executives. For example, the engineering employee performance assessments is conducted by (a) supervising (direct observation), (b) looking at the periodic reports or the existing personal data, (c) exploring information from the subordinates' fellows (if any), or cross-section supervision from the supervisors who have worked together with the employees related to any related jobs, (d) filling in the form of corrective action records & events in every 3 months, which summarizes the events during the current month. In this form, an official assessor records employee working behavior both the positive or negative sides related to the competencies required in the work activities, (e) considering individual performance targets which has been agreed by both the employees and their supervisors, and so on. Another result provides a basic reference for further research such as by including other types of HEIs: universities, institutes, and colleges. When this is done, the results are obviously very inspirable for HEIs to adopt the competence-based PAS.

3. Elements of Competency in HEIs

According to the Law on Teachers and Lecturers (UU RI no. 14, 2005: Paragraphs 3-7), competency is a set of knowledge, skills, and behaviors that must be owned by teachers or lecturers in accordance with the type, level, and format of working units' assignment. In addition, competencies include 1) pedagogical competence is the ability to manage learning, 2) the competency of personality, the ability of a solid personality, noble, wise, and dignified and to be the model for students, 3) social competence, the ability to communicate and interact effectively and efficiently with students, fellow teachers (lecturers), parents/guardians of students and surrounding communities, and the last is 4) professional competence, the ability of mastering the subject matter is broadly and profoundly (State Act no. 14 / 2005: 44).

4. PAS Development of CBA model

According to Achmad (2006: 112) stages of developing the competency model starts with: 1) determine the criteria for achievement of individual and work unit, 2) identify individuals and work units who perform satisfactorily, according to the standard or less satisfactory; 3) interviews with selected incumbents in the sample; 4) observe the incumbent at his

job everyday, 5) develop a model of transient and comparable with other data that exist; 6) conduct focus group discussions involving a wider sample; 7) analyze the results of focus group discussions and sharpen the model, and 8) validate the competency model; 9) finalizing the competency model. According to Ainsworth (2002:7), employee performance management can be done in several stages as shown in Figure 2.1, starting from the process of performance planning, conducting performance appraisals, and corrective action and adaptive to each other through feedback discussions.

5. Competency Standards

Competency standards are formulas on the behavior of minimum performance that must be achieved in one particular type of competence, which includes (a) what is expected to be done by employees at a certain position (b) how far the expected performance can be achieved by someone, (c) how to measure that an employee has achieved such performance. Standard of competence in the required level (Lutfi et al, 2007) is a measure of the minimum level of competency which must be achieved by individuals on these competencies. Accordingly, the individual level is the achievement of individual competence. Positive gap can occur if an individual level is higher than the required level, while the gap is said to be negative if the individual level is lower than the required level. The performance information on this gap will be very useful for staff development planning process.

OBJECTIVES OF THE STUDY

This research attempts to design a PAS for encouraging the development of HR competencies. The specific objective is to produce a system for PA procedures using IS design suited to all indicators as discovered in the first stage-research findings. The second objective is that to see the applicability of PAS with CBA with the help of IS design. Therefore, the model of such IS design for PAS with CBA can be displayed to show its versatile implementation for HEIs performance appraisal.

MATERIALS AND METHODS

This research is development research on information of performance appraisal system (PAS) which is based on competencies, the so called

competency-based appraisal (CBA). This is actually conducted in four phases as the following: (1) the phase of job analysis and making dictionary of competency; (2) the phase of system analysis; (3) the phase of model design; and the last phase is information system development.

1. Job Analysis and Dictionary of Competency

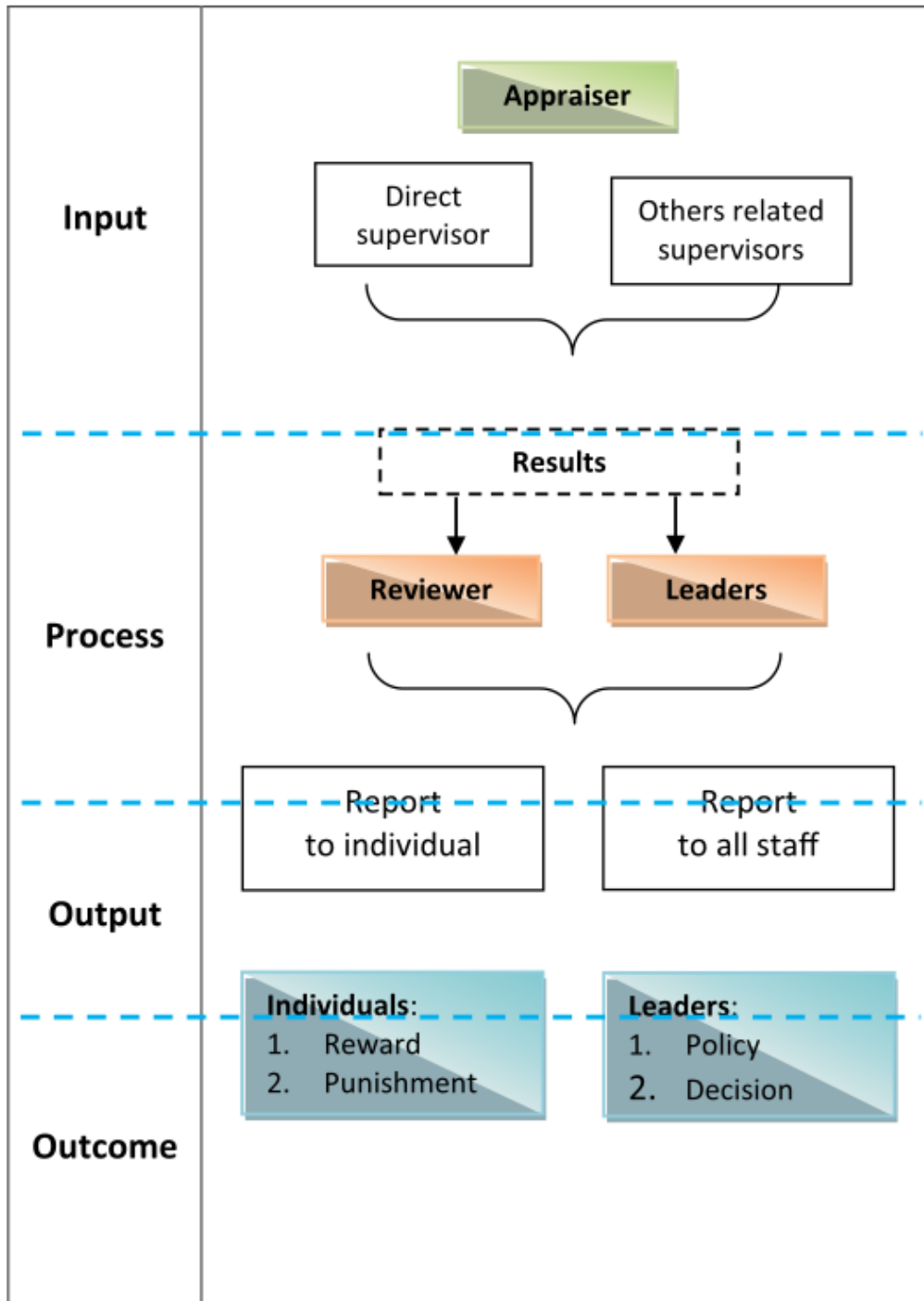
In this phase, the analysis is conducted as the following. The researchers conducted job analysis in three HEIs. In this phase, the researchers attempted to identify all job description and the requirements for such jobs as the key to HEIs' operation. The results cover job description, job specification, and the procedures of job analysis that can be used for analyzing job analysis implementation.

Composing dictionary of competency with the steps as follows:

- a. Defining each competency.
 - 1) Core competency consisting five aspects such as integrity, customer satisfaction orientation, professional attitude, sustainable learning, adaptation and capacity to change.
 - 2) Managerial competency covering nine aspects such as planning, personal influence, problem solving, conflict resolution, job optimization and subordinate development, visionary leadership, and networking and job relationship.
 - 3) Technical competency depending on each job, this includes three competencies such as computer operation, English, and campus activity involvement.
- b. Defining the level of capability of each competency. Each competency is described in some levels of proficiencies. These levels are used to measure the gap of the competencies between the needed competencies and the present competencies of each job.
- c. System arrangement and administration procedures of performance appraisal.. In this phase, the purpose is to arrange the appraisal forms, forms distribution, appraisal period, rater-ratee determination, results, processing data and appraisal. Follow up, and mapping.

2. System Analysis

In this analysis, the process is divided into four parts as the following:



3. Information System Development

Information system is developed using software of database application, Visual FoxPro (Wahana, 2007). The stages are as the following:

- a. Arranging the process chart and general outline of information system. This stage is intended to find the general process chart to ease the system and database integration.
- b. Making the database, table, and relationships among the tables. At this stage, a database is made for saving the data and integrating all tables in master transaction tables.
- c. Making the model for input, process, and output. At this stage, a model is arranged for data input forms, data processing, and final calculation of the results, as well as the layout of all reports.
- d. Making information system application that is the application development stage based on the analysis of system, model, and process chart as previously made.
- e. Implementing the result of the system development. At this stage, the software is implemented for evaluation and improvement of the weaknesses so that the reliability and validity of the software system are attained.
- f. Documenting information system that has been developed in which there are two kinds of documentation: (1) operational manual book and (2) documentation of system development in the form of tables,

forms, report, programs, and menu designs.

RESULTS AND DISCUSSION

General Outline of the Application System

The general outline of the system application can be seen in Figure 4.1

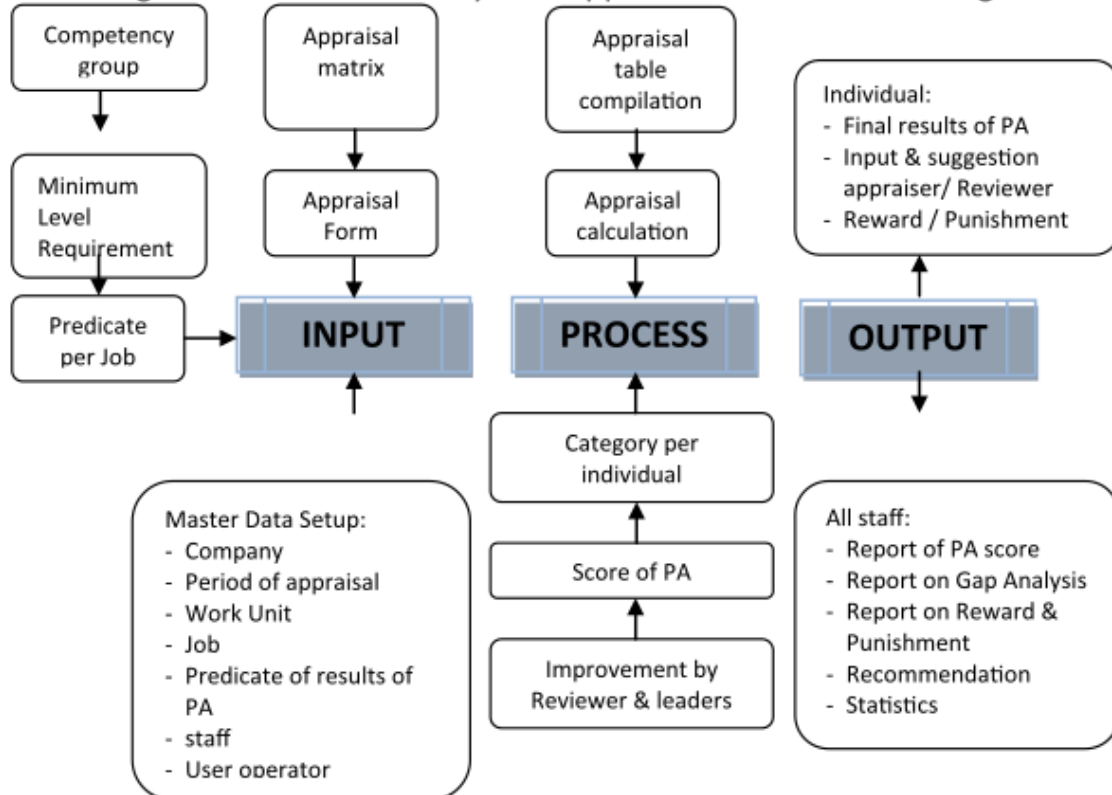
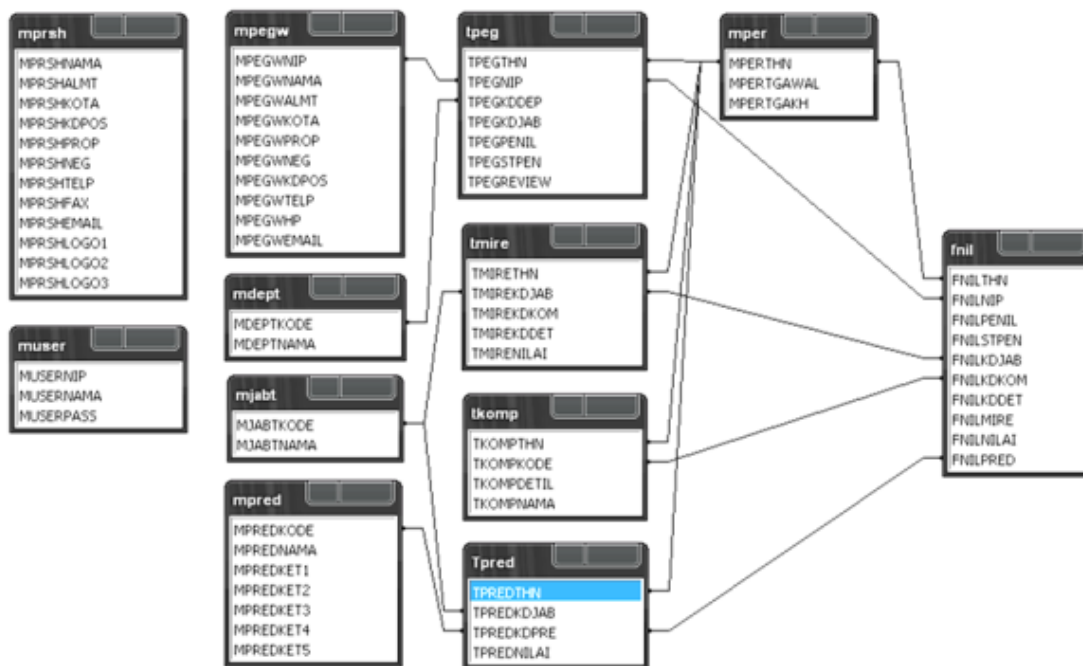


Figure 4.1 General Outline of Application System

Database and Relationship of Tables

The interrelatedness of the tables in the database can be done based on the fields with their similarities from each table. The form of interrelatedness



of the tables is shown in Figure 4.2

Figure 4.2 Interrelatedness of all Tables

Names of tables needed for saving the data are as follows:

1. Table MPRSH, for company master data.
2. Table MUSER, for users' data in which the users who are allowed to operate the information system application.
3. Table MPEGW, for the staff's master data.
4. Table MDEPT, for department or work unit master data.
5. Table MJABT, for job master data
6. Table MPRED, for PA results of predicate master data.
7. Table TPEG, for the data of the staff being evaluated and the reviewers.
8. Table TKOMP, for data of competencies' names.
9. Table TMIRE, for data of level minimum requirement
10. Table TPRED, data of minimum score of every predicate.
11. Table MPER, for appraisal period master data.
12. Table FNIL, for PA score data.

4.3 Model of Input, Process, Output, and Outcome

The forms of filling up model for input, calculation process, output, and outcome are described as follows:

1. Model of Input

Structural Position (heads and sections above)	Nonstructural positions(Operation)
<ol style="list-style-type: none"> 1. Core competency of 5 aspects evaluated 2. Managerial competencies of 9 aspects evaluated 3. Technical competencies of 3 aspects evaluated 	<ol style="list-style-type: none"> 1. Core competency of 5 aspects evaluated 2. Technical competencies of 3 aspects evaluated

2. Model of Process

Determining the categories based on the process determination as follows:

- a. Counting the gap analysis of every rater with appraisal composition:
 - 60% when direct supervisor
 - 40% when other than direct supervisor
- b. Calculating the value of each competency based on the following.

Structural Position	Nonstructural position
<ul style="list-style-type: none"> • 40% core competency • 30% managerial competency • 30% technical competency 	<ul style="list-style-type: none"> • 60% core competency • 40% technical competency

- c. Calculating the value of final score by combining every competency.

d. Giving category based on final PA.

3. Model of Output

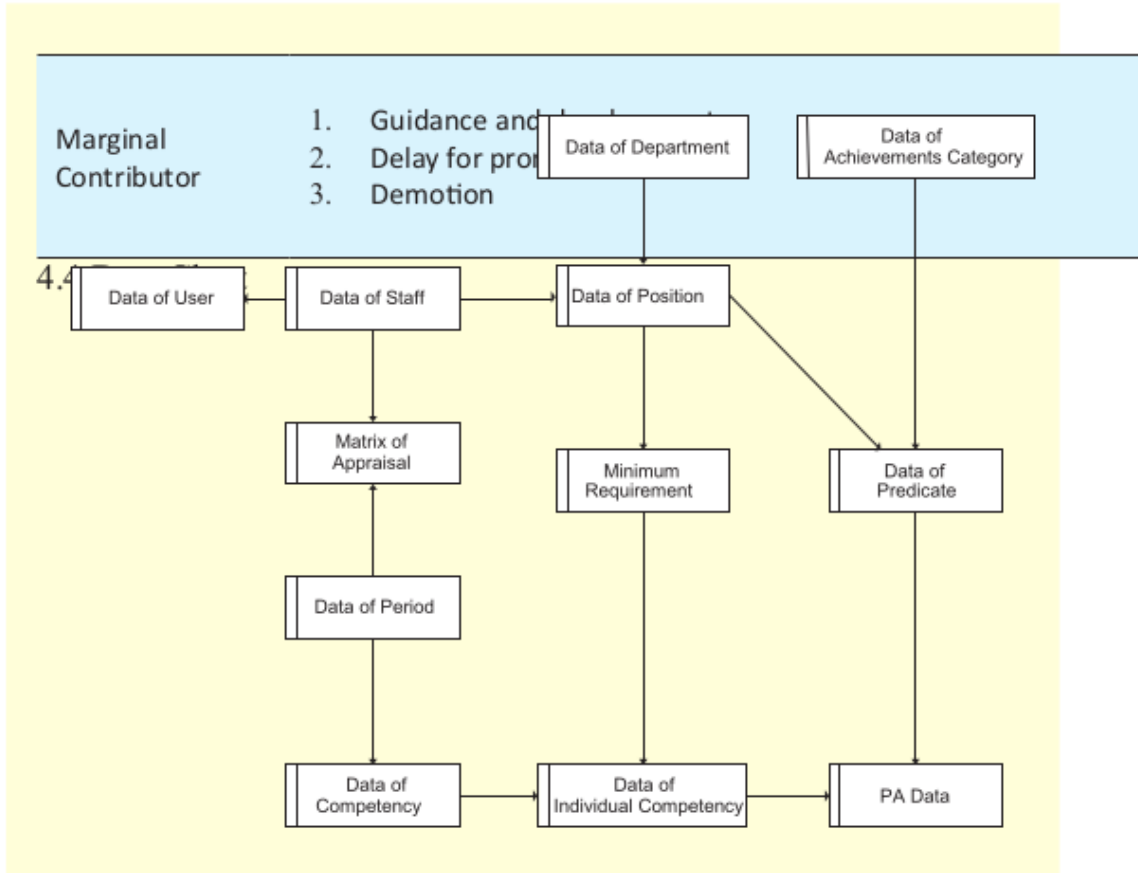
Output resulted from information system in two categories:

Individual Report	All staff Report
<ol style="list-style-type: none"> 1. Report of PA score 2. Inputs and notes from appraiser/ reviewers 3. Reward / punishment 	<ol style="list-style-type: none"> 1. Report of PA score 2. Report on Gap Analysis 3. Report on reward / punishment 4. Recommendation 5. Statistics

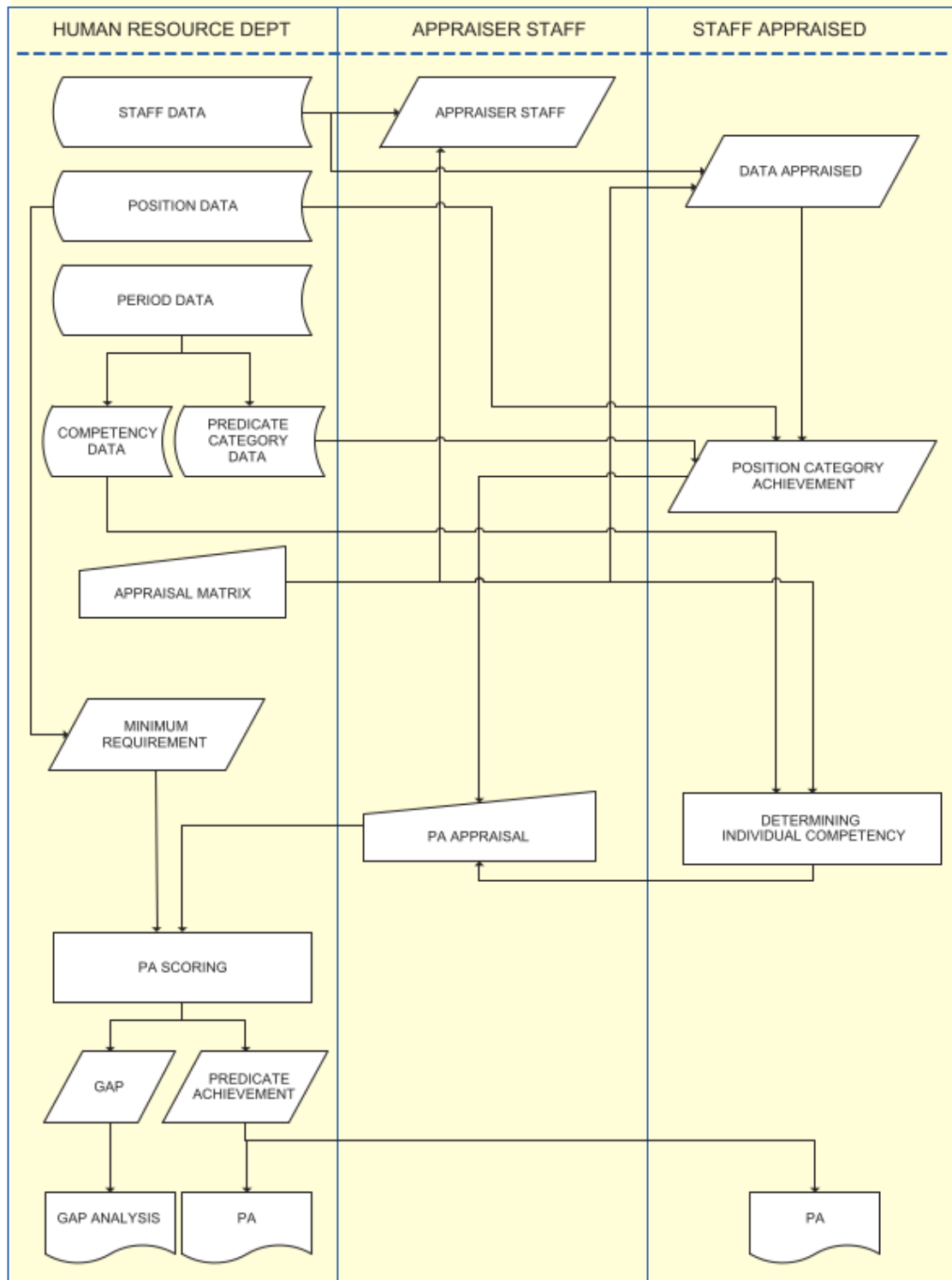
4. Model of Outcome

The outcome resulted in reward / punishment and policy from leaders:

category	Reward / Punishment
Superior Performance	<ol style="list-style-type: none"> 1. Bonus 100% salary and 100% allowance (when structural position) 2. Promotion based on the regulation
High Performance	<ol style="list-style-type: none"> 1. Bonus 50% salary and 50% allowance (when structural position) 2. Promotion based on the regulation
Performance	Promotion based on the regulation
Contributor	<ol style="list-style-type: none"> 1. Guidance and development 2. Delay for promotion 3. When twice being contributors, sanction will be given e.g., demotion



4.5 Process Chart



CONCLUSION

The conclusion from this study can be described as follows.

It is of high demand for HEIs to integrate the HEIs' staff competencies with IS based PAS of CBA because this system enables them to evaluate their staff more efficiently and accurately. With the help of IS, any policy made by HEIs leaders for their staff's development and careers can be done more objectively so that the results are deemed to be fair for all concerned. In order that the IS design for the PAS with CBA can be adopted by all HEIs, the IS of PAS with CBA should be initiated by exploring the competencies that are actually evaluated. Such competencies are derived from the research as described in the following: (1) Core competencies consist of integrity, customer orientation, achievement orientation, initiative, cooperation, empathy and adaptation to changes is an aspect which was considered in the PAS of CBA; (2) Managerial competence which consists of work planning, problem solving, influencing others, empowerment of employees, supervision and control, an aspect which was considered in the PAS of CBA; and (3) Operations technical competence which consists of the use of information technology, English language mastery and proficiency in the field of duty is an aspect which was considered in the PAS of CBA All these should be revealed before the IS of the Pas is designed.

It can be asserted that the PAS with CBA and supported by Information System (IS) can make the HEIs easily evaluate their staff's performance so that the results can be used for making decision, and finally can make them more competitive compared with those without such system.

Suggestion

First of all, it is advisable that HEIs implement PAS of CBA model in accordance with the corporate culture that exists in each college, so that it can eliminate the resistance and make the HEIs sustainable. PA is the process that is sometimes vulnerable to subjectivity or bias. This PAS with CBA should be supported by IS and all competencies are adapted to such system. Secondly, other researchers need to consider other kinds of competencies that might not be covered in this system.

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