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The Concept of Gamification to Increase Position Decision Support System based on SAAS Method

Rifky Lana Rahardian[1], Muhammad Anshari[2], Komang Oka Saputra[3]

[1][2] Department of Electrical and Computer Engineering, Post Graduate Program, Udayana University,

Email: hellboy.kiki@gmail.com

[3]Department of Electrical and Computer Engineering, Udayana University

Abstract - Evaluation Process performance do not match reality, and through a very complicated process. As the employees were assessed on one criterion alone but immediately get a promotion. Though these employees are not necessarily superior to the other criteria, the absence of standards or the weight of a definite value in determining the quality of its staff and the absence of a system that can provide an alternative solution to employee performance evaluation for a promotion. There needs to be a system that can facilitate the *General Manager* in taking decisions raise. If the decision-making process is aided by a computerized decision support system, is expected to subjectivity in decision making can be reduced and can be replaced with the implementation of all criteria for all employees, so expect employees with the ability (other considerations) the best is selected. By applying the concept of gamification is expected the decision support process becomes more attractive and employees become more motivated in their work.

Keywords: *Decision Support System, Gamification, Software as A Service*

I. PRELIMINARY

A. Background

Performance appraisal process carried no basis in reality and through a very complicated process. As the employees were assessed on one criterion alone but immediately get a promotion. Though these employees are not necessarily superior to the other criteria, the absence of standards or the weight of a definite value in determining the quality of its staff and the absence of a system that can provide an alternative solution to employee performance evaluation for a promotion.

There needs to be a system that can facilitate the *General Manager* in taking decisions raise. If the decision-making process is aided by a computerized decision support system, is expected to subjectivity in decision making can be reduced and can be replaced with the implementation of all criteria for all employees, so expect employees with the ability (other considerations) the best is selected[1].

SAAS application of decision support system carried on because it can be used not only for the company, but many companies. Systems based SAAS cloud computing services that can be accessed anywhere and anytime via a web browser.

Coupled with the adoption of gamification that employees who work more motivated and decision support process is expected to be more accurate promotion.

B. Problem Formulation

The Problem Formulation in this study is:

1. How to Use Decision Support System Based Position Increase in SAAS.
2. How to implement gamification and SAAS on decision support system of promotion.

C. Objective

1. To help managers make decisions to solve semi structured problems;
2. Support the assessment manager is not trying to replace it;
3. Improving the effectiveness of decision making managers rather than efficiency.

D. Benefits of research

Benefits Decision Support System is expected to increase in Position subjectivity in decision making can be reduced and can be replaced with the implementation of all criteria for all employees, so expect employees with the ability (other considerations) the best is selected.

II. LITERATURE REVIEW

A. Decision Support System

Definition beginning Decision Support System (DSS) is as a system that is intended to support decision-making managerial decisions in situations semi structured. Decision Support System is intended to be a tool for decision makers to expand their capabilities, but not to substitute their judgment. SPK is intended to decisions that require judgment or on decisions that simply cannot be supported by the algorithm [2].

From some of these definitions, it can be summarized that the decision-making in an organization is the result of a

process of communication and continuous participation of the whole organization. The result of the decision could constitute an alternative approved statement or inter procedures to achieve certain goals. The approach can be done, either approach the individual/group. Centralization/decentralization, participation/didn't participate, nor democratic/consensus. Behind there is a decision procedure, which starts, the decision-makers to identify issues, clarify the specific goals that you want, check out the various possibilities for achieving the stated goals and end the process by setting the option to act. In other words, a decision based on facts and values (facts and values). Both are very important, but it seems the fact predominate values in decision making. In the end it can be said that any decision it rests on several alternatives to choose from. Each alternative carries of consequence. This means, a number of alternatives it different one another given the differences of consequences that will be caused. Imposed on the selection of alternatives that should be satisfactory for satisfaction is one of the most important aspects in the decision. Model that describes the decision-making process. This process consists of three phases, namely:

- a. Intelligence This stage is the process of search and detection of the scope of the problems and the process of recognition of the problem. Data input is obtained, processed and tested in order to identify problems.
- b. Design This stage is the process of discovering, developing and analyzing alternative actions that could be done. This stage includes the process for understand problems, lowering the solution and test the feasibility of the solution.
- c. Choice at this stage the process of selecting among various alternative measures that may be running. The election results are then implemented in the decision-making process.

B. Characteristics of Decision Support Systems

Decision Support System has the following characteristics:

1. It offers the flexibility, ease of adaptability, and rapid response.
2. Allows the user to start and control inputs and outputs.
3. Can be operated with little or no help professional programmers.
4. Provide support for decisions and problems whose solution cannot be determined in advance.
5. Using data analysis and sophisticated modeling tools[3].

C. Position

There are definitions of some experts:

1. Edwin. B. Flippo. Principles of Personnel Management. McGraw-Hill Book Company. Inc., New York. Toronto, London. 1961. Now that a position can be defined as a

group of similar positions, both the type and the level of work.

2. Dale Yoder. Personnel policies Principles and Modern Manpower Management. second Edition, Maruzen Company, Ltd., Tokyo. An office is a group of tasks, duties and responsibilities, which as a whole is seen as work that is common for an employee. An office can cover many positions, because a position is a position or set of tasks performed by an employee himself. Thus, an employee of a position, but many positions may be the same or a lot of resemblance to form a separate office.
3. Dale Yoder, Ph. D. et al., Handbook of Personnel Management and labor relations, McGraw-Hill Book Company, Inc., New York, Toronto, London, 1958. A group of positions is almost the same position in a factory, company, institution or organization more. One or more people can be employed in the same office. Each office can be seen as consisting of a series of tasks or elements. From these definitions, we can conclude that the office is a group of nearly the same position in an agency, institution or company. Work done by two people lackey example cannot be exactly the same number or same weight[4].

D. Gamification

Gamification is a process of using game design techniques and game mechanics in non-game contexts to bind the user to achieve a goal. While Nugroho stated that gamification is an attempt to implement the concept of the right game to be able to present a fun process and the benefits are real for all parties involved. Education can be provided through the mechanism of Instructor-led or Computer-based. Instructor-led emphasis on learning style with the supervisor and commonly used in formal education (school, college) and also non-formal (parents with children). Advantages of this mechanism is that learning becomes interactive as it involves the interaction of more than one. The drawback is that its effectiveness will be reduced by increasing the teachable. While Computer-based learning style is done alone without a guide. Advantages this mechanism is cheap or even is free and everyone can do whenever you want. Gamification in education can combine the advantages of the two learning mechanisms and eliminate shortcomings. Gamification can make people bound and motivated to learn without having to have mentors like the learning mechanism Instructor led. Gamification can make the learning process becomes interactive if exercised with Computer based mechanism[5]. Generally, in the game there are four types of players:

1. Achievers: Must be in the top position
 2. Explorers: Must be looking for something new
 3. Socializers: Must interact with other players
 4. Killers: Must eliminate the other players
- While the players are at least life cycle three, namely:

1. Newbie: new players, players of this type need a guide. Starting level should be easy and helps players to get accustomed to the game.
2. Regular: Once the players know the game, the game should be a habit for this type of player. The next level should provide some satisfaction for every type of player.
3. Enthusiast: This player mode has become a master in the game and it took a further twist and challenge to play.

B. Software as A Service

SAAS is now a kind of computing services *cloud* are the most popular and productive because it has the flexibility and high scalability, high performance with better availability, great service and minimal maintenance. Yahoo mail, Google docs, ERP, BPM and CRM applications are examples of SAAS. With SAAS that customers need to do is register and subscribe, login to the central system and select the desired features. Users are free to use the application anywhere. SAAS get major recognition in companies, because it is very effective in lowering business costs and provide businesses access to applications at a cost much cheaper than the cost of licensed applications that may have a monthly fee[6].

SAAS characteristics include:

- All activities are managed from a central location instead of at the location of each individual user, which allows modification and troubleshooting must be completed quickly by vendor applications and eliminates the need for end users to upgrade or patch.
- A network-based application so that business users are free to use the service from anywhere, and they can choose to use virtually all types of electronic devices. Each application is paid by each use, which allows business owners to predict their budgets to use the number of applications according to business needs.
- Meeting the needs of *end-users* for downloading and the upgrading patch automatically.
- Manage complexity while reducing the cost of software.
- SAAS allows to have a regular integration with large network software that can communicate in the form of mashups, or in the form of a platform.
- SAAS is unbelievably efficient as multitenant structural design make the same source code for each customer.
- Unlike traditional applications where significant customization with simple customization, SAAS can meet any requirement such as functional, data integration and others.
- Every new technological innovation easily integrates with the service provider, the same source code for each customer and is available to all customers[7].

III. RESEARCH METHODOLOGY

Study was conducted using the method PIECES which includes:

1. PERFORMANCE
Based software system is built, so that the processing of information will be more accurate and can shorten the time of processing data.
2. INFORMATION
Based software system will be able to process, document and publish information more quickly.
3. ECONOMIC
In the short term, the cost will be quite large. But for the long term less because only cost software services.
4. CONTROL
system based on cloud software will facilitate the control so that the risk of error can be suppressed.
5. Efficiency
Software is more efficient because the processing and documentation of data will be done by the system.
6. SERVICES
Services on the company and the employees concerned will be faster because the processing and checking of data is done with the system.

IV. DISCUSSION

A. Excess Decision Support System

1. DSS expands the capabilities of decision makers in processing the data / information to the wearer.
2. DSS help decision makers in terms of saving time needed to solve problems, especially problems that are complex and unstructured.
3. DSS can produce solutions faster and reliable results.
4. DSS can be a stimulant for decision makers in understanding the problem, because the CMS is able to present a variety of alternatives.
5. DSS provide additional evidence to justify so as to strengthen decision-making positions.

B. Assessment Test Psychological

1. Aspects of Intellectual Intelligence or (using Test IST) Things that are measured in the aspect of intelligence work is the wit, intelligence and problem solving ability.
2. Work attitude aspect (using test Pauli) Things that are measured in the aspect of working attitude is a tendency to behave in the work, and the results as a function of motivation and ability.
3. Aspects of Behavior (using test Pauli) Things that are measured in behavioral aspects of human behavior that emerged in reaction to an environment that is antagonistic to delight in anticipation of both the environment.

C. System Features

1. Page is displayed:
 - a. Page Login (For those who have signed up for the service SAAS)
 - b. Employee Data Page

- c. Test page Pauli (If you want to do the questions test Pauli) → *User Employee*
 - d. Test page IST (If you want to do the questions test IST) → *User Employee*
 - e. Reward page:
 - 1) Badges (Rank / Badge)
 - 2) Point
 - 3) Level
 - f. Weather Report (Viewed outputs the results of employee assessment by *General Manager*) → *Users General Manager*
2. Data required when doing the Test:
 - a. Name Employee
 - b. Identification Number Employee
 - c. Problems Test Pauli and Test IST
- D. Adoption of Gamification**
1. Game have an affinity for very large
 2. Strength game:
 - a. Wants to Play Longer
 - b. Wants to Retain Attention longer → Even a very long time



Figure 1 Game Mechanics

E. Badges

With their employee badges will feel to get an appreciation for what they do, it is similar to the compensation that he should be on the work he did during the first month of work time. Because why should the existence of an award that employees feel valued for what they do for the company.

Examples of its application itself, if done for the employees is, 1st Attendance (the first employee is present), Speak Out! (most active employees when the *meeting* took place), or also the Best Group (best employee group).

1. Point
Displays the points that have been owned by the employees, the points are owned by the criteria for the assessment of employees
2. Level
 - a. Beginner Level, with a range of points between 0 to 1000 points.
 - b. Elementary Level, with the range between 1001 points and 2500 points.
 - c. Intermediate level, with a range between 2501 points to 4500 points.
 - d. Advanced Level, the member points above 4500 points.
3. Badges

Badges by Level and owned Point Employee

4. Leaderboard
Showing the achievement of all employees between one employee with another employee with the highest and lowest ranking order. Leaderboards itself can stimulate positive competition between employees if implemented.
5. Quest
Addition as directives on what to do in training future employees, the quest can also be used by the HRD as a benchmark for the performance of employees at work. How many quests that can be completed, and also the extent of success when running it.



Figure 2 Gamification Criteria

V. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

From the research and design concept of gamification for Decision Support Systems Increase Position Based SAAS can be concluded as follows:

1. Designing a Decision Support System for the promotion serves to assist the General Manager determines the employee is entitled to be promoted through the calculation of matching profiles.
2. Designed system can cover the process of granting or weight standard employee performance evaluation.
3. The final result is achieved is an accurate data because it is through a series of calculation process.
4. By applying the concept of gamification employees who work are more motivated to achieve higher office.
5. Implementation of software as a service (SAAS) is applied to the development of the system can be applied not only to one company, but many companies are able to use decision support system's advancement.

B. Recommendations

Advice can be given related to this research is in the process of promotion votes to be developed further by other methods that are more efficient and are no longer using the test-psychological test.

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