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Knowledge Management Point Incentive System Implementation: A Case Study

Karto Iskandar[1], Harvianto[2], Muhammad Taufiq Zulfikar[3], Gredion Prajena[4], Elidjen[5]

[1] Computer Science Department, School of Computer Science, Bina Nusantara University, Indonesia,
karto_i@binus.edu

[2] Computer Science Department, School of Computer Science, Bina Nusantara University, Indonesia,
harvianto@binus.edu

[3] Computer Science Department, School of Computer Science, Bina Nusantara University, Indonesia,
mzulfikar@binus.edu

[4] Computer Science Department, School of Computer Science, Bina Nusantara University, Indonesia,
gprajena@binus.edu

[5] Management Department, BINUS Business School Undergraduate Program, Bina Nusantara University,
Indonesia, elidjen@binus.edu

ABSTRACT

Knowledge Management System (KMS) has been widely used by companies to manage the intellectual assets of their employees. This research focuses on the problem to motivate employees to share their knowledge and use KMS. Bina Nusantara University in Indonesia becomes the object of the research since the university has implemented KM Portal system. Furthermore, the university has run the KM Award as the reward system. The research method of this study implements a Point Incentive System on the KM Portal for a year and compares the impact with the previous reward system. The reward system used were 1) KM Award System (2018) and 2) Point Incentive System (2019), each of which has been used for one year. This study focuses on comparing the two systems. The research applies quantitative research methodology to measure the number of user contributors and the number of contents in the system. When the numbers show an increase, then this is regarded as the indicator of success. The results show an increase in the number of user contributors by 34.92% and the number of contents by 68.85% stored on the KM Portal. This shows that the application of the KM Point Incentive System is more successful in promoting employees' motivation to use KMS.

Key words: Case Study, Incentive System, Knowledge Management Point Incentive Systems (KMPIS), Knowledge Sharing Motivation.

1. INTRODUCTION

The current development of organization allows the emergence of knowledge to become the most crucial strategic resources in organizations [1]. It consists of three pillars; technology, people, and culture [2]. Each pillar is related and integrated to one another, composing a fundamental cornerstone for knowledge management (KM) implementation. A number of previous research takes the issue on; KM implementation in an organization, evolving Knowledge Management System (KMS) capabilities, KMS implementation, KMS data processing, and KM organizational culture [3].

University, as an educational institution, understands the importance of how employees and lecturers take part in improving academic quality and operational processes. This is influenced by the notions of higher education; teaching, research, and community service, in which the three notions are closely related to knowledge creation, knowledge dissemination, and knowledge transfer [4], [5]. Hence, there has been a considerable number of universities implementing KMS to support the management of higher education system [6], [7]. As a leading private university in Indonesia, Bina Nusantara (BINUS) University manages to implement knowledge management to organize, store and distribute documents, such as paperwork, photos, videos, job description, organization structure, quality standard, and wiki-BinusPedia [8].

The development of knowledge management at BINUS University is considered to be well-managed as there has been a similar unit of KM. This unit has been officially established since 2014. The directorate endorses an essential task on the overall management of the university, particularly on; empowering existing knowledge; ensuring an ecosystem that may allow users to store knowledge, share with the other users, and search when needed, and optimizing existing knowledge for the benefit of the organization. Therefore, it is important to set the culture of all Binusian (BINUS University members) to hold a strong feeling toward KMS.

Like any other organization, there have been problems in optimizing both employees and lecturers (the people) to use KMS optimally. A reward system, called KM Award has been implemented until 2018 to support the KMS. Four categories are highlighted in the award: "Top Contributor", "Top Access Content", "Top Like Content", and "Top Ranking". Each category takes three winners so that a total number of 12 people would receive the award. However, there may be a deduction for the number of winners if a person finds to receive awards in several categories. The research problem lies in this instance, specifically on optimizing the distribution of incentives into a fairer system that may cover more people.

This study aims at designing an incentive reward system for knowledge contributors, system development, implementation and evaluation by comparing it with the previous system. It is expected that the incentive system would increase the number of content and KMS users compared to the previous system.

Based on motivation psychology, there are seven issues found related to incentive system [9]:
1. Transparency, to show the connection between motivation and the benefit.
2. Individuality, to appeal the specific motives for performance.
3. Sustainability, to maintain the participants' motivational structure.
4. Qualification, to ensure the participants' qualification in the KMS.
5. Flexibility, to adapt the system to changing conditions and circumstances.
6. Performance, to make performance results quantifiable based on adaptable measurement.
7. Economy, to ensure input and output balance.

The above issues formulate the research question of the study: To what extent does Point Incentive System application impact KMS, particularly on the number of knowledge contributors and the total number of contents acquired on the system?

2. METHODOLOGY

Research methodology is a procedure in which a research is conducted [10]. This study applied a combination of experimental and quantitative methods to answer the research questions. The experimental method is performed by applying the Knowledge Management Point Incentive System (KMPIS) in a case study at BINUS University, Jakarta, Indonesia to prove whether it can answer the research question. With this viewpoint, the data were collected from the respondents by the system audit log. This process lasts for one-year period, which is used for data collection. Finally, the researchers processed the data with statistics to reach the conclusion.

This research adds more exploration from several previous studies regarding the development of KMS at Binus University [11], [12]. As well as some research related to knowledge sharing motivation [7], [13], [14]. In 2018, Binus University held KM Award. The award has four award winner categories in which 3 winners would be taken from each category. In total, there were entries of 12 categories. The system was improved by the implementation of KMPIS in 2019. Three processes structure KMPIS; (1) contributions of users to create and use the content, (2) process of point calculation, and (3) process of point exchange and voucher redeem.

The first process allows the user to contribute by uploading content on KMS application through Microsoft Sharepoint at BINUS University. Users are allowed to make several attempts to upload various types of files, such as documents, text, images, videos, and audios. These content would be stored in a folder that is adjusted to the type of documents. Several types of documents are found on KM portal application, for instance, wiki-BinusPedia, case studies, business cards, book reviews, etc. Each document has different formats, purposes, and benefits. For example, the case studies would contain photos, videos, documents, and cases studies that have occurred at BINUS University. It is hoped that users could learn from those cases and make the right solution toward the cases.

All contents can be accessed by other users in the KMS application (as tacit knowledge) [15] through Microsoft SharePoint. All user activity related to accessing content are recorded by the system and stored in an audit log database. Both processes of creating and accessing content indicate user involvement in the system which will result in points. The next process is point calculation. The process will count points collected by the user and calculated monthly. The system allows point calculation at the beginning of each month by accumulating the points from previous month(s). Points are calculated based on the number of contributions and accessed contents. Each 1 contribution or 1 accessed content will receive 1 point. Additionally, content in the form of image will receive 0.05 points. For example, user A uploads 10 contents and 20 image contents. Each content is accessed by 100 people, then user A will receive $(1*10) + (0.05*20) + (10*100)$ points which makes 1,011 points. The system will calculate points by accumulating it with the previous month(s) calculation. See Table. 1 for the example of point calculation simulation.

Table 1: Point Incentive Calculation Simulation

No.	Activity	Point Calculation	Point
1	Upload 10 contents	1*10	10
2	Upload 20 image contents	0.05*20	1
3	Content is accessed by 100 people	10*100	1,000
		Total	1,011

The last process is the process of redeeming points and collecting vouchers. The point can be redeemed thrice in a year from the 1st to 15th every April, August, and December. Point to voucher redeem is conducted through the web-based KMS portal application. The vouchers can be taken at the period of point exchange up to 1 week thereafter (from the 1st to 22nd of the same month). Points can only be redeemed when users has more than 100 points. For every 100 points user will get a voucher worth IDR 50,000.00

The implementation of KMPIS is carried out for one year from January to December 2019. Afterwards, an evaluation is done on the KMS by calculating 2 variables with the aim to know whether there is an increase in the number of knowledge contributors and the total number of contents. These two variables will be compared with the result in 2018 through KM Award system. The comparison of these two variables will be taken as the conclusion of the study to justify whether the KMPIS successfully answers the research question: To what extent does Point Incentive System application impact KMS, particularly on the number of knowledge contributors and the total number of contents acquired on the system?

3. EXPERIMENT RESULT

It is crucial to ensure that knowledge contributors take active participation and collaboration in knowledge management activities [16], [17]. Therefore, BINUS University carries out KMPIS with the purpose to (1) Provide appreciation to employees who perform knowledge sharing, (2) Expand employees' involvement/engagement in knowledge sharing, (3) Build the culture of knowledge sharing at BINUS University, and (4) Cultivate awareness for the quality of the content.

Knowledge Management & Innovation (KM&I) Directorate at BINUS University has implemented KM Award program until 2018. The program is then transformed and refined into KMPIS in 2019. Figure 1 in the following shows the architecture of KMPIS.
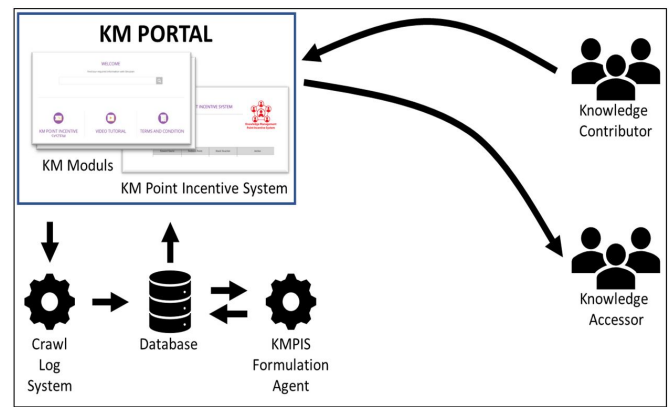

Figure 1: KMPIS Architecture

At KMPIS architecture, Knowledge Contributor and Knowledge Accessor interact with KM Portal to participate in knowledge management activity within the scope of BINUS University. Generally, KM Portal serves to support the daily work, such as taking minutes of meetings, processing working documents (text, images, video, and audio), retrieving the information from wiki-BinusPedia, composing the report of benchmarking, optimizing the use of case studies, filing business cards, utilizing book reviews, etc.

In the initial process of KMPIS, the system does not show users' performance, so that each user may work regularly without focusing too much on the ranking. Yet, KM Portal system applies the crawl log system so that activities on both user contribution and content accessed are recorded on the database system.

Subsequently, KMPIS calculates points based on the formulas carried out monthly. Users may see the points collected in the KM Portal of KM Point Incentive System module. In this module, the user may also exchange points with vouchers. The exchange period is opened 3 times a year, specifically in April, August and December. When the points are sufficient to be exchanged, the user can exchange the points into voucher through KMPIS module of KM Portal. Then, user may take the voucher directly to the KM&I office, in which data of voucher recipient is recorded by the staff.

After implementing KMPIS for one year, data of the number of knowledge contributors and the total number of contents are compared with the previous system (KM Award). Figure 2 indicates the comparison result of the number of knowledge contributor variable between KM Award in 2018 and KMPIS in 2019. It can be seen that there were 126 contributors in 2018, which added up to 170 contributors in 2019. The number demonstrates an increase by 34.92%.
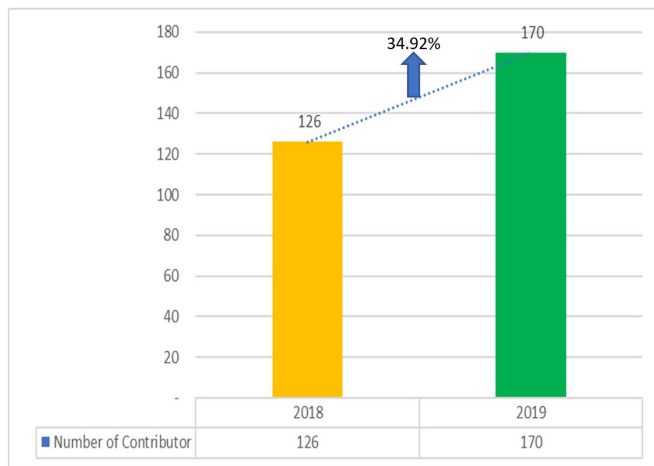
Figure 2: Comparison Result of the Number of Contributors from 2018 to 2019

Figure 4: Comparison Result of the Amount of Content from 2018 to 2019

Furthermore, this comparison is also conducted quarterly (from Q1 to Q4). Quarterly comparison occurs for the total amount of content variable (see Figure 3). Figure 3 shows an increase in the number of contents in each quarter. Additionally, the figure shows an uneven distribution in which there was a significant increase by 761 contents in Q4. This phenomenon indicates 50% increase from the content uploaded in Q3. In contrast, data in 2019 shows a more even distribution (see Figure 3). The result demonstrates a better and more stable use of KM Portal through KMPIS in 2019.
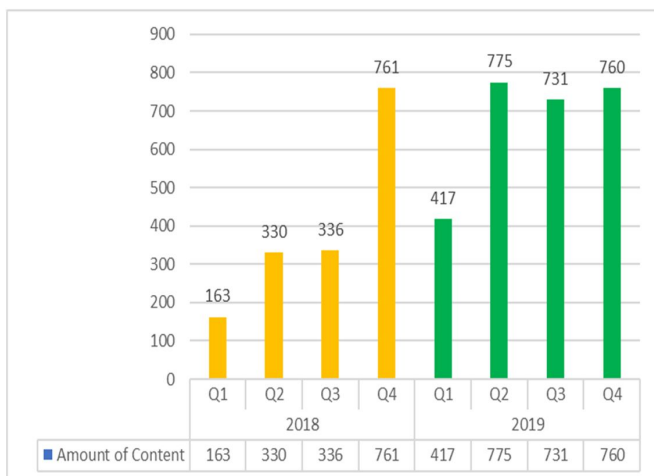

Figure 3: Comparison Result of the Amount of Content Quarterly

Figure 4. displays the accumulation of the total amount variable. In this figure, it can be seen that the amount of content in 2018 is 1,589, while in 2019 it increases to 2,683. The figure shows an increase by 68.85%. The data indicate that the use of KM Portal during the KMPIS period impacts to a more optimal result.
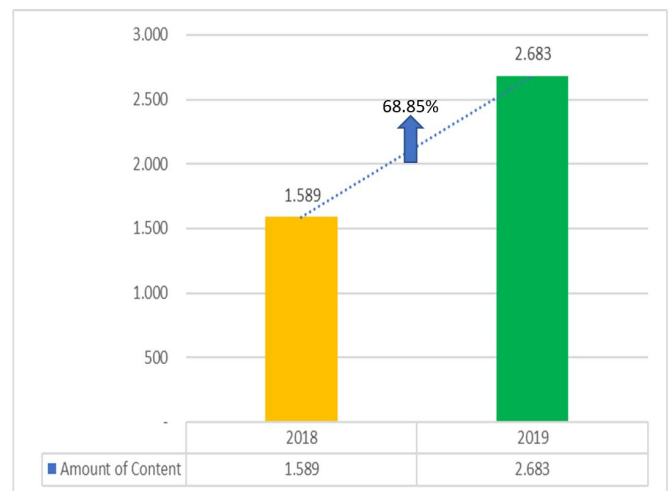
4. CONCLUSION

In consonance with the preliminary effort to endorse the usage of KM System, this study produces the implementation of Knowledge Management Point Incentive System (KMPIS) for a case study at Bina Nusantara (BINUS) University, Jakarta, Indonesia. From this angle, the study compares the KMPIS that is implemented in 2019 with the previous system, KM Award that implemented in 2018.

The result reflects that the KMPIS in 2019 obtained a better result than KM Award in 2018 on the effort to improve (1) the number of knowledge contributors (2) the total number of contents. The KM Award obtained 126 new knowledge contributors, and the KMPIS had 170 new knowledge contributors. The difference between these systems underscored that KMPIS provides a better result with the improvement of 34.92%. This is due to the fact that KMPIS covers a lot more chances of winning for Binusian, whereas, KM Award provides the award to only 3 winners for each category.

The same thing occurs for the number of contents collected on the system. In 2018, the total number of contents was 1,589, and in 2019 the total number of contents was 2,683. The difference between these systems underscored that KMPIS provides a better result with the improvement of 68.85%. The conclusion from this study shows that the application of the KM Point Incentive System is more successful in motivating the employees to use KMS.

To support the study, the testimonial is provided from employee as the respondent in the experiment with the KMPIS application. The testimonial is as follows:
> "In my opinion, this KM Point Incentive System provides more advantages than the previous system. The system shares an equal and even prize distribution,

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as well as, the more frequent prize
distribution, to be 3 times a year. I
believe this system could motivate
employees to contribute in knowledge
sharing."
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Mr. Imam Budi Prasetiawan, employee

In general, all employees who receive benefits from this KMPIS admit obtaining a positive experience in the KM environment. In this direction, the KMPIS system has proven to be successful and can be applied in other fields of study and/or case studies to complement this research for further work enhancement.

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