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2013

The Second International Conference on Engineering and Technology Development

2nd ICETD 2013

27, 28, 29 August 2013, Bandar Lampung, Indonesia

PROCEEDINGS

In Cooperations With :

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INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

SURYA INSTITUTE

Hosted by :
Faculty of Engineering and Faculty of Computer Science,
Bandar Lampung University (UBL), Indonesia

2nd ICETD 2013

The Second International Conference On Engineering And Technology Development

28 -30 January 2013
Bandar Lampung University (UBL)
Lampung, Indonesia

PROCEEDINGS

Organized by:

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PREFACE

The Activities of the International Conference is in line and very appropriate with the vision and mission of Bandar Lampung University (UBL) to promote training and education as well as research in these areas.

On behalf of the Second International Conference on Engineering and Technology Development (2nd ICETD 2013) organizing committee, we are very pleased with the very good response especially from the keynote speaker and from the participans. It is noteworthy to point out that about 80 technical papers were received for this conference.

The participants of the conference come from many well known universities, among others : University Kebangsaan Malaysia – Malaysia, APTIKOM – Indonesia, Institut Teknologi sepuluh November – Indonesia, Surya Institute – Indonesia, International Islamic University – Malaysia, STMIK Mitra Lampung – lampung, Bandung Institut of Technology – Bandung, Lecture of The Malahayati University, B2TP – BPPT Researcher – lampung, Starch Technology Center – Lampung, Universitas Islam Indonesia – Indonesia, Politeknik Negeri Malang – Malang,University of Kitakyushu – Japan, Gadjah Mada University – Indonesia, Universitas Malahayati – Lampung, Lampung University – lampung, Starch Technology Center – Lampung, Universitas Riau – Riau, Hasanuddin University – Indonesia, Diponegoro University – Indonesia, King Abdulaziz University – Saudi Arabia, Parahyangan Catholic University – Indonesia , National Taiwan University– Taiwan, Surakarta Christian University – Indonesia, Sugijapranata Catholic University – Indonesia, Semarang University – Indonesia, University of Brawijaya – Indonesia, PPKIA Tarakanita Rahmawati – Indonesia, Kyushu University, Fukuoka – Japan, Science and Technology Beijing – China, Institut Teknologi Sepuluh Nopember – Surabaya, Researcher of Starch Technology Center, Universitas Muhammadiyah Metro – Metro, National University of Malaysia – Malaysia.

I would like to express my deepest gratitude to the International Advisory Board members, sponsor and also to all keynote speakers and all participants. I am also gratefull to all organizing committee and all of the reviewers who contribute to the high standard of the conference. Also I would like to express my deepest gratitude to the Rector of Bandar Lampung University (UBL) who give us endless support to these activities, so that the conference can be administrated on time

Bandar Lampung, 29 August 2013-08-26

Mustofa Usman, Ph.D
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Speaker

The use of CRM for Customer Management at Cellular Telecommunications Industry

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Abstract -*At this time the telecommunications not only as part of the lifestyle but have become an important necessity in everyday life. Requirement will result in the proliferation of communications service providers with a variety of rates and offer to potential customers. While the numbers show the loss of customers is also increasing, most customers only a short time on a single provider. Service providers are not only competing to gain new customers but also retain the loyalty of existing customers. CRM Data Mining using a proper solution to target new markets or retain existing customers.*
Keywords: *telecommunication industry, mobile, data mining, Customer Relationship Management, customer*

1. Preliminary

Growing number of service providers

The increase of mobile phone service users, not just the competition alone but rather the rate-based customer service. The number of customers with diverse backgrounds and different interests makes CRM data mining technology to become a mainstay. Currently the most effective way is to use data mining technology, which is referred to as the most powerful analytical tool in the area of the data warehouse. By using data mining for CRM applications can help companies to acquire new customers, more profit from existing customers, maintain the loyalty of customers, offering more services personal and others.

Although the basis of the CRM has been known since 1956, but only about 6 to 10 years ago began to be an important part of CRM in the business world. CRM can be regarded as a new management system that is intended to improve the partnership between the company or its customers. Further developed E-CRM is a combination of hardware, software, processes, applications and management commitment to improving customer service, increasing the number of customers and offer better personal service. E-CRM use has increased dramatically in recent years and is predicted to continue to grow in the years to come.

With the advancement of technology and management strategy, companies can integrate customer data with business processes, and produce a more satisfactory service for customers. Of course not the independent of the company's goal to attract potential customers, maintaining customer loyalty and ultimately bring benefits to the company. CRM also offers solutions for marketing, customer service and decision-making processes. So the use of CRM is ideal, on the one hand to provide solutions to an increasing number of customers and on the other hand reduce company costs.

2. The Importance of applying data mining for CRM on mobile communications industry

Use of large amounts of data to get the right analysis and trend forecast is very important for the development of mobile business. In the area of data mining becomes important that role. Business activity in the mobile telecom business are as follows: setting up and taking care of business licenses, network planning, construction and maintenance, marketing, customer registration, allocation of telephone numbers, billing and customer service record. These activities require a

lot of data such as customer information, database calls, database and other bills.
Application of data mining in the CRM is as follows:

a. Classification analysis of customer groups
   Customers are grouped in different classes according to similarity is owned. Dimilik attributes on each different class as needed. Data mining will help companies categorize these classes, then for a certain class with a certain type of customer will be offered a certain kind of personal service that is considered the most appropriate and can meet customer satisfaction. This grouping is very important in business strategy.
b. Analysis of customer spending patterns
   The analysis of data obtained from the records of telephone subscribers, such telephone area, length of call, time of call and others. In this way the habit of calling the majority of users of the service can be seen, at this point a lot of the decision making process. This habit is also influenced by the social norms prevailing in a particular region.
c. Marketing analysis
   This analysis is used to provide simulation strategy judged most suitable based on the model of the simulated data mining and tariff bills. This simulation will show the problems that may arise when applying a particular promotion.
d. Analysis of customer arrears and fraud prevention
   Through data mining companies can determine which laws or regulations applicable to any type of fraud, delinquent behavior, and delinquent customer payments by customers. With the basic rules of the company can anticipate measures to reduce the risk of loss that resulted in the bankruptcy of the company.
e. Analysis of customer loss
   With data mining can be obtained to record the data is likely to lose customers due to the implementation of a particular strategy, it also can observe the number of lost customers or new customers.

From all the analysis above the key was lost customer analysis and customer classification analysis. Because the analysis result in customer segmentation with certain consumption patterns and implement appropriate business strategies and legal action taken in the event of fraud.

3. What to data mining for CRM on mobile telecommunications industry. In the specific implementation steps are as follows:

a. Defining and analyzing the problem
   In the data mining applications must be analyzed first, including goals and review the application itself. Without defining the problem first then we will not know the extent of the problem has been resolved and will be difficult at the time of data collection. After identifying the problem and define user requirements to be met then the data can begin to be collected.
b. Choose data mining tools from the corresponding
   First of all adjust as problems to be solved into a series of data mining tasks, the task of data mining are: classification, evaluation, prediction, association rules, aggregation and descriptions. This task will facilitate the construction of a model based on existing data and determine the most suitable tools with business processes and corporate strategy.
c. Data preparation
   Solve problems using data is the foundation of data mining. Data preparation consists of two aspects: the first from many different sources and integrated with each other. Make sure you get a comprehensive data quality, and can be used. The second aspect is to get the required index of existing data is highly dependent on the experience of the analysis of the data

miner and the suitability of the tools used.

d. Model
The goal of data mining is to make a model of the real business world. Good models do not have full for consistent data, but rather the data and the accuracy in the prediction of future trends.

e. Estimated Model
The result of data mining requires estimates, to determine whether there are irregularities in the results of data mining. Results should be confirmed as valid value, meet the needs of service users. Estimated study represents business models that can be understood by users of the service, to optimize multiple levels in the data mining process based on user demands until the desired result is achieved.

f. Visualization of data and knowledge management studies.
Visualization of data means the data or the results of data mining is presented in the form of pictures, so easily understood by users. Management refers to the study of the science of data analysis results of data mining before taking certain actions, if not carried out any possibility of perceived effects would be minimal changes.

4. Maintain customer loyalty and attract back lost customers

Many studies show that attracting new customers to cost five to ten times higher than the cost to retain existing customers. Moreover, if we have losing the customers it will be difficult to get those customers back. Companies can lose money, especially if the customer is a customer with a great value for the company revenues. Therefore the way to win back customers lost to one of the important topics in CRM.

Many scholars argue that the partnership should have a value of confidence, emotion and commitment. This paper discussed above is the opinion of scholars.

a. Model and Assumptions

Mela, Gupta and Lehmann (1997) argues that if customers are not as price or promotion generally the customers average will not be sensitive to prices and services average providers. While the opposite is obtained based on the customer's competitive prices and tariffs usually be very rational in their consumption patterns, they are only interested in the promotion that offers the cheapest rates. Therefore, customers who won re-price approach, is likely to have very little emotional commitment. This is according to the opinion of Donavan, Brown and Mowen (2004) that the commitment will take the effects on emotional ties.

In the first study of customer loyalty is only limited to the user's habits, but later user behavior and emotion are included. Some scholars also believe that customer loyalty is the phenomenon of having feelings or a tendency to rely on a particular service provider. At this point the customer will make the psychological commitment to continue to use the services of a particular provider therefore we can assume that the relationships are based on commitment to customer loyalty.

5. Conclusion

The high level of competition makes service providers to expand the core business of mobile telecommunications just became internet services and much more. War is only part of the way rates offered promotion, non-price advantages like extensive network, fast internet access or other special features. Almost everyone depend on telecommunications in everyday life, which is very much the number of customers has resulted in many emerging needs while many customers are tempted by the promotion of other service providers that are considered less expensive.

By using data mining for CRM, both of these things can be managed simultaneously. Data mining allows companies to integrate personal data and

other data to produce a new data that can be studied to the company's business strategy. With predictions of trends and actions that should be taken, the company can meet the demands of users while minimizing the risks that might occur. Retain existing customers and win back customers who turn to also be the key to business strategy. The actions thatcould increase the loyalty of the customer ultimately who increase the profit of the company.

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