

Opponent's report of the dissertation work

Title of the dissertation: Predictive analytics: a data mining technique in customer churn management for decision making

Name of the student: Ing. Stephen Nabareseh

How is dissertation topic up to date?

In the age of global competition, especially in the telecommunication companies, the customer is a decisive factor in gaining and maintaining competitiveness. Therefore, it is necessary to constantly monitor customer behavior using all available methods. Data mining and predictive analytics is one of the important methods for analyzing customer behavior. Therefore the dissertation topic is up-to date and particularly important in areas where these methods are still not sufficiently widespread.

How were fulfilled targets set out in the dissertation?

In the dissertation are proposed six objectives:

- Cluster customer interest areas that make customer loyalty
- Mine the relevant patterns, which have a huge influence on the revenues and growth of the telecommunication companies.
- Produce a comparative framework that identifies the telecommunication company with the highest churn rate.
- Classify customers into various categories to enhance marketing and promotional activities.
- Rank products/services per the interest and preference of customers.
- Design a predictive model that predicts customer churn rate for telecommunication company in Ghana

All objectives were fulfilled through the research made by author. Results of the research are summarized in Chapter 5. First five objectives are published in Chapter 5.2. and the last one (Predictive model) in Chapter 5.3.

What research methods were used and what are results of the dissertation with a specific contribution of the student?

Author meets in his dissertation all necessary attributes of scientific work ie. formulates research problem, specifies relevant research questions and defines appropriate hypothesis. To find answers to the research questions author used first of all quantitative method via questionnaire. For analyzing of gathered data author created predictive churn model using IBM SPS modeler and Rapid Miner software.

The main contribution of the author I consider confirmation respectively. rejection hypotheses. The first hypothesis (duration a customer stays with telecommunication company) was rejected and the second ones (product innovation and number of networks a customer uses) were accepted.

Importance dissertation for practice and for father developing in the scientific field.

From the point of contribution to the development of the theory author demonstrated the applicability, usefulness and effectiveness of methods for predictive analysis and data mining. He also contributed to increase knowledge of these methods in the academic community in Ghana.

From the practice point of view, author indicated to the management of the telecommunication companies in Ghana what is necessary to do to gain competitiveness.

Formal presentation of the dissertation and its language level

Dissertation meets both the content and formal requirements for professional scientific works.

Publishing activities of the student

Publishing activity of Mr. Nabareseh is very high and represent 4 articles in journals, with impact factors, 6 indexed in database Scopus, 13 conference papers and 3 chapters in the book

Conclusions.

Author in his dissertation has proved his ability of independent and creative scientific research. His dissertation brings a new insight into knowledge in the field of using predictive analytics technics for decision making.

Therefore I recommend submit dissertation of Mr. Nabareseh to the defense to the competent committee



Prof. Ing. Zdeněk Molnár, CSc

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Comments and questions.

1. Which specific decisions should be done by the management of each company (SCANCOM, VODAFON, MILLICOM, AIRTEL MOBIL etc.) based on the results of your research in predicting customer churn?
2. What is your estimation of the cost and benefit of these decisions?