

**An Intelligent Model for Accessing Market Information via Mobile Phones: Case of Nyeri
Farmers**

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ABSTRACT

Marketing Intelligence (MI) is defined as the process of acquiring information required to understand the market. It has been used for instance by rural farmers to obtain the price of agricultural commodities in order to make decisions on where and when to sell their products. Recently, farmers have been able to use mobile phones to get market information in real time. In order to enhance the MI function, there is need to define a model that would characterize the farmers price information needs using previous transaction data. The formulation of an intelligent MI function using the k-modes clustering technique is reported in this thesis. This study therefore designed and built an intelligent model to automate the MI function using qualitative data collected from rural farmers in Nyeri District. The system was tested and evaluated using the cognitive walkthrough technique. A simulation of the proposed solution was also carried out using sample training data to test the clustering process. The results showed that the k-modes algorithm was able to cluster the dataset and reveal patterns of transactions in the market which the model used as profiles to send price alerts. This model was found to significantly improve the quality of services to users: First, the response time of each request is improved since the most frequently accessed item sets in the database are profiled and easily matched with current prices. Secondly, the model uses knowledge from clustered data to send price alerts, hence automating the MI function. The auto-alerts also reduce the cost of transaction since it is a one-way message. Evaluation results showed that users expressed enthusiasm on the prototype's potential to improve MI function though improvement is still needed on input mechanism. Further work is required to enable the relay of market information to mobile users

using their current location. Also, a suitable way to remove outliers in the clusters is necessary to improve cluster quality.