A New User Segmentation Model for E-Government

Ran Tang, Beijing Jiaotong University, Beijing, China
Zhenji Zhang, Beijing Jiaotong University, Beijing, China
Xiaolan Guan, Beijing Institute of Graphic Communication, Beijing, China
Lida Wang, China Software Testing Center, Beijing, China

ABSTRACT

E-government in China has entered the development stage of personalized services, and user segmentation has become an urgent demand. On the basis of systematic interpretation of e-government development stages, in this article, the authors introduce CRM and customer segmentation concept into e-government areas, construct e-government user segmentation model, and obtain user segmentation results by empirical analysis. Comparing with existing segmentation methods based on experience, because of the introduction of customer segmentation concept and K-means algorithm, e-government user segmentation model presented makes segmentation more scientific and reasonable and can adjust dynamically as the user needs change, continuously improving.

Keywords: Cluster Algorithm, Customer Relationship Management (CRM), Customer Segmentation, E-Government User, K-Means Algorithm

1. INTRODUCTION

After many years of construction, e-government in China has made tremendous achievements. E-government has played an active and visible role in government center work, in events about the people’s livelihood, in the actual needs of enterprises and social public. From the perspective of public service, e-government in China has gone through development stages from services provided by the departments to services provided by means of user object or application theme (Zhang, 2009). Currently, we meet the development stage of personalized service (Alshehri, 2011). E-government users’ needs always change with the change of environment and the development of e-government, different service objects always have different needs (Faizullah, 2012). Consequently government should provide personalized and customized services on basis of users’ various needs adequately.

However, most e-government websites provide generic services facing all the service objects, lack of characteristic and pertinence, unable to satisfy general users’ various needs (Chan, 2008). In order to solve this contradic-
tion, first of all, we should fully understand user’s needs, then make the segmentation and provide personalized services for segmentation groups.

At present, customer segmentation mainly surrounds variables like population statistics, behavior and customer value. William proposed AIO (Activity, Interests, Opinion) segmentation and value concept segmentation. Many marketers believe that behavior variables are the best starting point to make market segmentation. Benefit segmentation was first proposed by Haley, he considered that we should get the real benefit behind by customer’s behavior, attitude and motivation. Customer value segmentation was proposed based on CLP model, with comprehensive application of variables like customer lifetime value, psychological factors and using frequency, segmenting customers into platinum level, gold level, steel level and lead level. It can be seen that research on customer segmentation in e-government is rare.

Therefore, in this article, we introduce CRM and customer segmentation concept into e-government areas, referencing the main cluster algorithm in CRM----K-means algorithm, construct e-government users segmentation model to segment users and provide premise security for personalized services.

1.1. E-Government Development Stage

From the perspective of public service, e-government in China has gone through three development stages.

The first stage is services are provided from the perspective of government function, that is providing services according to institutional setting (Levillain, 2005). For example, services are segmented according to departments. E-government public services in this stage have characteristics as: (1) Low service availability. In early e-government construction stage, most e-government websites provided services according to departments. Users have to understand the government organizations’ functions so as to choose correct department to get the corresponding service. (2) Low service usability. Most e-government websites provided services according to departments, leading to repeated and complex transaction procedures (Van, 2005). Users need to visit many department websites, service usability greatly reduced. (3) Poor service effect. Due to lack of business collaboration in early construction stage of e-government, transaction efficiency is low, and it is almost impossible for online services to play an efficiency role.

The second stage is services are provided from the perspective of user object. That is one-stop service according to application theme or user object, such as, marriage and fertility, education and employment these application themes, or enterprises, individuals these user objects (Lawson, 2008). E-government public services in this stage have characteristics as: (1) Service availability has been greatly improved. Services provided according to application theme or user object greatly reduce the difficulty of users to accept services. Users can access to government information and services from a single e-government website. (2) Service usability needs to be improved. Although services have a preliminary classification according to application theme or user object, service matters are not segmented according to users’ needs. Therefore, when users choose corresponding theme, they often don’t know what to do next facing a large number of matters (Premkumar, 2006). (3) Service effect increased significantly. E-government in this stage begin to focus on cross-department cooperation, business collaboration has been strengthened (Weerakkody, 2007). Different departments get together over the network, providing one-stop service, effectively saving service time and improving service efficiency.

The third stage is services are provided from the perspective of user’s specific needs. That is personalized and customized services according to users’ various needs (Chen, 2009). For example, users are further segmented into groups such as farmers, young and old invalidity. This is called comprehensive response e-government, with all the needs including user’s personalized needs response anywhere and anytime (Ong, 2011). E-government in China
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