Chapter 20
Evaluating E-Communities of Wireless Networks Worldwide

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ABSTRACT

Many people communicate among themselves using wireless networks. They have developed e-communities in order to discuss issues about their network development, problems, opportunities, and wireless technology advances among others. The purpose of this article is to present an evaluation framework and analyze the current status of such Electronic Communities of Wireless Networks (ECWNs) in four continents: Africa, America, Europe and Oceania. The evaluation framework contains fifty criteria categorized into four categories: 1) Usability, 2) Technical Characteristics, 3) Community's Commitment, and 4) Members' Commitment. Then, fifty-seven ECWNs were evaluated using these criteria. The results show that there are large differences among ECWNs with respect to the forum structure, archives accessibility, interactivity, services, members' commitment, participation and relationships. In most ECWNs, two major drawbacks are the lack of online forums and a newsletter service. Finally, suggestions are made in order to improve current ECWNs.

INTRODUCTION

Currently, wireless networks have spread all over the world. Wireless networks could be used to provide various e-services such as mobile learning (Vasiliou & Economides, 2007) and mobile

banking (Zarifopoulos & Economides, 2009). Using a wireless network protocol (e.g. IEEE 802.11x), antennas and web technology, people carrying wireless devices (Economides & Nikolaou, 2008) would communicate in a municipal or city-area (Gorp & Morris, 2008; Hampton & Gupta, 2008; Lawrence et al., 2007; Shankar, 2008; Szabo et al., 2007; Tapia et al., 2006). Such

wireless networks first appeared in the late 1990s, when IEEE 802.11 devices became available to the public. Nowadays, they have spread in many cities all over the world.

People who use such wireless networks have created electronic communities on the Web where their members share ideas, experiences and suggestions about the improvement of their network, as well as other general issues. According to Leimeister et al. (2004) "A virtual community consists of people who interact together socially on a technical platform. The community is built on a common interest, a common problem or a common task of its members that is pursued on the basis of implicit and explicit codes of behavior. The technical platform enables and supports the community's interaction and helps to build trust and a common feeling among the members". The focus of this article is on Electronic Communities of Wireless Networks (ECWNs). Members of wireless network communities are interested in developing their wireless network, learning advances on wireless network technology, exchanging ideas and experiences related to wireless networks, etc. Members of many wireless networks have created ECWNs websites. Some of these communities are very well organized, but others are still at a very early level of development. The purpose of this article is to evaluate the ECWNs' status in four continents (Africa, America, Europe and Oceania) by investigating their websites. After identifying their inefficiencies, suggestions were made for overcoming these drawbacks.

After extensive Internet search during 2006, fifty seven ECWNs were selected through multiple lists and information sources (e.g., Free Global Wireless Community, FreeNetworks, Municipal wireless network, Wikipedia, Wireless Communities). The websites that appeared in the majority of the lists and sources were chosen. One restriction was the language. It was decided to examine communities that use English as the communication language. The number of selected communities from each continent was representative of the total

number of communities in this continent. So, six ECWNs were selected from Africa, twenty five from America, eleven from Europe, and fifteen from Oceania.

In section 2, a framework for evaluating e-communities is developed. In section 3, ECWNs in the four continents are evaluated according to the evaluation framework. Finally, conclusions are made regarding the strengths and limitations of ECWNs and future research suggestions are made.

PREVIOUS RESEARCH

In order to evaluate the ECWNs, an evaluation framework is needed. Next, previous studies on evaluation frameworks are presented. For each previous study, the corresponding criterion of our evaluation framework (Table) is given in parenthesis.

Gregson and Ford (1998) recommended that both quantitative and qualitative approaches should be considered in evaluating community networks. Also, the community network goals should be considered. Unruh et al. (2002) provided an evaluation framework for digital community information systems. They emphasized that information should be objective and bias – free (Table: 3.1 Content). They also noted that the websites should support a wide range of access speeds and browsers (Table: 2.3 Openness). Koch et al. (2002a) showed how e – commerce can benefit from Internet communities. Communities' members provided all the needed personal data in order for suppliers to provide personalized offers to the members (Table1: 3.5 Services). Koch et al. (2002b) highlighted the importance of mobile access to the Internet. They underlined that the functionality of a community is based upon the participation of the largest part of its registered members (Table: 4.2 Participation). Borges and Baranauskas (2003) proposed ways to support the facilitator in e – learning communities. They emphasized on the interaction between all the

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