Chapter 18
Towards a Framework for Weaving Social Networks Into Mobile Commerce

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ABSTRACT
This paper discusses a framework that supports weaving social elements into mobile commerce applications. This weaving takes place through different types of social networks that identify the stakeholders taking part in completing these applications. These stakeholders are consumers, providers, and brokers and are connected to each other through relationships such as competition, referral, loyalty, and collaboration. Each relationship is mapped onto a social network upon which a stakeholder relies before engaging in any of these applications and afterwards, making any decision. The value of social networks added to mobile commerce is illustrated with a set of experiments implementing a smart mobile restaurant guide.

INTRODUCTION
The Internet has made a huge impact on how individuals interact together and organizations operate. They both have access to a plethora of online services anywhere, anytime (Kouadri, Maamar, & Rana, 2005). As a result, new business practices are put in place, new global opportunities are offered, and new security threats and privacy fears are observed. Commerce is one of these domains that the Internet impacted heavily. Indeed commerce has evolved from the traditional way of buying-and-selling goods to launching online transactions from browsers and lately mobile handled devices. This shift from commerce to e-commerce and then m-commerce shows how people embrace quickly IT means and gadgets. But this embrace is done on the expense of fostering the social interactions that characterize the traditional commerce like bargaining with vendors, shopping around with friends, probing friends for recommendations, and checking oth-
Towards a Framework for Weaving Social Networks Into Mobile Commerce

ers’ purchases (Maamar, 2003). Injecting social elements into consumers’ commerce operations should make them aware of others’ success stories and pitfalls that they have come across prior to finalizing these operations. These social elements like fairness and trustworthiness are neither captured nor tracked, which raises questions about the soundness, correctness, and relevance of consumers’ and providers decisions.

With the emergence of Web 2.0 we witness a major change in software applications development by putting emphasis on the social dimension of end-users’ behaviors. Applications like Facebook, LinkedIn, and MySpace capitalize on the ability and willingness of users to interact, share, collaborate, and recommend. Social networking sites, blogs, wikis, and folksonomies exemplify social applications and, at the same time, reinforce the role of the Internet as a solid and inevitable platform for group collaboration. Users are now referred to as prosumers (Pedrinaci & Domingue, 2010), i.e., providers and consumers simultaneously. Goad (2010), Research Director at Experian Hitwise states that “... With currently only 7.51% of all traffic to transactional sites coming from social networking and forums, compared to 40.87% of all traffic from search engines, there is clearly a major opportunity for increasing traffic”. The same reference, also, reports that media-based social applications are a critical factor for driving online sales in 2010.

In this paper we discuss the weaving of social elements into m-commerce and illustrate the value-added of this weaving to consumers’ and providers’ decision making process. Social elements identify relationships between consumers (e.g., collaboration, referral), providers (e.g., competition, collaboration), and both so that each stakeholder can benefit from the other’s experience. A three-block framework to support social, m-commerce applications is discussed where two blocks correspond to consumers and providers and a third block corresponds to brokers (or middlemen). The rationale and characteristics of each block as well as the social networks that these blocks host are discussed throughout this paper.

In the following, we will start by motivating our work by examining e-/m-commerce from a social perspective and suggest a literature review on m-commerce and social networks use. We will then, present our framework to support social, m-commerce applications. Prior to concluding, a proof-of-concept implementation of our framework is presented.

BACKGROUND

This section discusses the motivations in the weaving of social elements into e-/m-commerce and then, proposes a literature review on m-commerce applications and social networks use in some application domains.

Motivations

Despite the variety of IT means and gadgets that are available to consumers and providers to reach each other, commerce still manifests itself with one of these forms (Liand & Huang, 2000): bargaining, bidding, auctioning, and clearing. The first two are bilateral (consumer and provider) and the rest are trilateral (consumer, provider, and broker). Briefly,

• Bargaining involves one customer who negotiates with a specific provider until an agreement is reached. In case negotiation fails, the customer looks for another provider and so on. In bargaining two social elements can be identified: trustworthiness of consumers in providers by not revealing their private details and confidence of consumers in providers to satisfy their demands as agreed upon.
• Bidding involves one customer and several providers. The customer calls for bids and then, compares the offers she receives