

## Chapter 7.3

# Assessing the Total Cost of Ownership of Virtual Communities: The Case of the Berlin Stock Exchange

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### **ABSTRACT**

The usage of social software and virtual community platforms opens up opportunities to bridge the gap between customers and companies and to integrate customers into the value-added process. Ideas generated by members of a virtual community can be utilized to improve and to innovate a company's value adding activities. However, the implementation and operation of virtual communities may have a considerable impact on financial performance  
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measures of a company. Hence, to measure the profitability of a virtual community appropriately, means of efficiency calculations have to be employed. The objective of this chapter is, therefore, to develop a measurement framework to evaluate the financial performance of a virtual community. The focus is on calculating the total cost of ownership. After introducing a general measurement framework, a particular measurement system is derived from the framework and is subsequently applied to a real life example of the Berlin Stock Exchange.

## **INTRODUCTION**

In recent years an increasing number of virtual communities have been founded by companies, non-governmental and non-profit organizations (Jeppesen & Frederiksen, 2006;). Virtual communities convey the exchange of digital goods, services, and knowledge within organizations and between companies and their customers (McAfee, 2005; O'Reilly, 2005; Wenger, McDermott & Snyder, 2002). A continuous participation of community members can result in an increasing customer loyalty and enables companies to learn more about the preferences and the opinions of customers. Additionally, through the development of a community with a high user density, the level of awareness with regard to a business or a product can be increased, which further supports a positive communication of the business image (Stieglitz et. al., 2008). Ideas that are generated by community members can be analyzed and assessed to improve and to innovate a company's value adding activities (von Hippel, 2005; Harhoff, Henkel & von Hippel, 2003).

Though highly relevant, the economic perspective on virtual communities has yet received little attention within academic work compared to the high number of contributions focusing on technological aspects in this particular field. Assessing a virtual community in terms of financial measures, a variety of aspects regarding the development, set-up and adaptation of web 2.0 platforms and issues reflecting community maintenance and business model related turnovers have to be taken into consideration. To measure the financial performance, means of finance calculations and performance measures specific to the assessment of web 2.0 communities have to be applied.

The analysis of the financial performance usually unveils the overall profitability of the community implementation with measures such as the Return on Investment (ROI) or the Net Present Value (NPV). However, in identifying benefits and associated positive cash items accountable to

a virtual community initiative still proves to be difficult and predominantly depends on the community type and scope. In this context, Markus distinguishes the social-oriented, the professional-oriented and the transaction-oriented community (Markus, 2002). As may often be the case, therefore only out-payments are readily quantifiable. In that case the financial performance may be debited by means of Total Costs of Ownership (TCO) analysis for the first time. In order to identify and assess relevant in- and out-payments as the drivers for the financial performance, support for deriving, structuring, and consolidating payments over time is required.

In this paper design principles of an appropriate measurement system for the financial performance of a web 2.0 virtual community set-up initiative will be presented. In order to define these principles, a design science approach is applied (Hevner et al., 2004). Therefore, relevant constituents of web 2.0 applications and virtual communities are discussed. Subsequently, the concept of an appropriate measurement system is introduced on the basis of principles of decision theory and capital budgeting. The system is then applied to the case of the Berlin Stock Exchange which serves as a proof of concept. Finally, major results and limitations are summed up comprising discussions about future trends as well as the demand for further research.

## **BACKGROUND**

Since the year 2000 new web-based collaboration technologies emerged and revolutionized the internet (O'Reilly, 2005; Sester, Eder & Scheichel, 2006; McAfee, 2005). In 2005 the term web 2.0 was used as an umbrella term by O'Reilly (2005) to refer to these applications and trends for collaborative involvement of the users. Web 2.0 applications are often associated with "social software". Whereas traditional software focuses on productivity and process support, web 2.0 ap-

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