Chapter 10
Evaluation of Organization Structure Based on Email Interactions

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ABSTRACT

In every company, employees are in communication via phone, email, text messages, chats on a forum, co-author documents, events, and so forth. They collaborate with each other creating and maintaining mutual relationships in one complex social network. In this paper, the authors use this social network to evaluate company structure and based on this evaluation recommend some changes that have to be made within a company to improve its structure. The evaluation process and an example of its usage are presented in the paper.

1. INTRODUCTION

The growing number of opportunities and ways people can communicate and exchange information within an organization provide us with a previously unknown way to evaluate company's structure (Kascarone, Paauwe, & Zupan, 2009; Palus & Kazienko, 2010). The data extracted from email services, phone calls, documents co-authoring, and other communication systems or common activities allow to create social networks which contain information about humans interaction and collaboration (Kazienko, Musiał, & Zgrzywa, 2009; Musiał & Juszczyszyn, 2008). On the other hand all companies have always sought to obtain the best and most effective structure. By utilizing,

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already existing within company, social network we can help to archive this goal. In this paper it is presented how to do this. First the analysis of Enron company (Section 2) and its hierarchical structure (Section 3) is presented. Then the Enron e-mail data set (Section 4) together with social network extracted from this set (Section 5) are presented. In Section 6 the social network based approach to evaluate organizational structure is described and next the example of its usage on the Enron company is presented in Section 7. At the end the discussion (Section 8) and conclusion (Section 9) are presented.

2. ENRON CASE

Enron was formed in 1985 under the direction of Kenneth Lay (Diesner & Carley, 2005). The company was based in Houston, Texas. Within 15 years Enron became one of the nation's biggest companies in revenue by buying electricity from generators and selling it to consumers. Enron identified areas where energy needs were higher than energy capacities, built power plants and sold them before their value diminished. In 2002, there were 21,000 people employed in Enron in over 40 countries (BBC News, 2002).

From 1985 on, Arthur Andersen had been Enron's auditor. Andersen earned millions of dollars from accounting and internal and external consulting services for Enron, which was one of Andersen's largest clients worldwide.

In 1999, Enron officials began to separate losses from equity and derivate trades into "special purpose entities" (SPE) - partnerships that were excluded from the company's net income reports. The systematic omission of negative balance sheets and income statements from SPEs in Enron's reports resulted in an off-balance-sheet-financing system (Sanborn, 2004).

In December of 2000, president and chief operating officer Jeffrey Skilling took over the position of chief executive from Kenneth Lay. Lay remained chairman while the Enron stock hit a 52-week high of $84.87. In August 2001, Skilling surprisingly resigned. Lay was named as Enron's chief officer and CEO again in 2001 (CBS News, 2003). In the same month Sherron Watkins, Enron's Vice-President of Corporate Development who became famous as Enron's whistle-blower, wrote an anonymous letter to Lay in which she accused Enron of possible fraud and improprieties such as the SPEs (Watkins, 2002). Andersen knew about this information.

In October 2001 the losses transferred from Enron to the SPE's exceed $618 million and Enron publicly reported this amount as net loss for the third quarter. By the end of the year Enron disclosed a reduction of $1.2 billion in the value of shareholders' stake in the company. One of the people associated with the crash was Andrew Fastow, chief financial officer, who had supported Enron in inflating profits and hiding debts (Sanborn, 2004).

On October 31, 2001, the Securities and Exchange Commission (SEC) started an inquiry into Enron. Enron announced that the SEC investigation revealed that the amount of losses for the previous five years was actually $586 million. The market reacted with a fast drop of the value of Enron's shares to levels below $1 in November 2001. Being forced to transfer stocks in order to satisfy the losses, Enron became insolvent and filed for bankruptcy in December 2001. The fallout and investigations into the Enron collapse continued throughout 2002. Lay resigned as chairman and CEO in January of 2002, and less than two weeks later from the board ("A Chronology of Enron Corp", 2004).

Long before Enron's official insolvency, Andersen had possessed knowledge of Enron's organizational situation and financial performance but did not communicate the information to the public (Sanborn, 2004). Andersen and Enron intentionally categorized hundreds of millions of dollars of shareholders equity that were a decrease as an increase. Andersen, who did some of En-