

Chapter 3.11

Designing E-Mail for Knowledge Management in Distributed Organizations

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ABSTRACT

E-mail has become so ubiquitous that it has surpassed existing only as a tool of asynchronous communication. E-mail has contributed to the rise of the distributed organization that is widely dispersed across nodes and locations. Email is being used in diverse ways and for an increasing range of unintended purposes. This chapter charts the history of e-mail, from early investigations of handling e-mail overload, to a review of software applications designed to ameliorate unanticipated outcomes. It suggests that while e-mail has been appropriated for information and knowledge management, there has been minimal analysis of this beyond the individual. By presenting a case

study of a distributed organization, detailing the process by which e-mail was leveraged for organizational knowledge through the design of an application that enabled visualization of e-mail data, this research shows e-mail technology can become a core repository of corporate knowledge.

INTRODUCTION

This chapter examines e-mail as more than just a communication tool. In contemporary society, e-mail has grown to be both an information database and a potential system for knowledge management. The pliability and accessibility of e-mail data makes it a worthwhile technological tool to examine communication norms and social interactions. Hence, we argue that much knowl-

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edge discovery is possible when e-mail traffic flows and patterns are made visible.

E-mail is an instrument by which learning occurs when information is disseminated amongst individuals and groups. However, it is not leveraged by organizations as an information resource in the same way as the World Wide Web. As work processes become increasingly distributed, studies of the use of e-mail for knowledge mining have been undertaken. This chapter will provide an overview of research in this area and will discuss Visualization Using E-mails (VUE), an application researched and developed as a collaboration between the Australasian Cooperative Centre for Interaction Design (ACID) and a commercial tested organization. This case example will detail the process of participatory, user-centred interface and interaction design underpinning VUE's first release for public testing and evaluation in 2008. Overall, the chapter aims to provide an insight into the critical role of e-mail in the ways that individuals and organizations interact and disseminate knowledge, as well as demonstrate through the case example a design intervention to improve these processes.

BACKGROUND

The academic literature on studies of e-mail fall into two main categories. The first is concerned with how volume of e-mail is managed in the context of "information overload" (Mackay, 1988, p. 344), to the extent that e-mail is now used perisynchronously, or nearly synchronously, rather than just asynchronously (Tyler & Tang, 2003). Such studies largely relate to individuals and their approaches to and feelings about e-mail, rather than the role of e-mail within an organization and its business relationships. As early as 1996, Whittaker and Sidner (1996, p. 276) noted that "there is little systematic data on its usage and utility as a workplace technology". Although much has since been written about personal strategies for

archiving e-mails and using it to manage tasks in work settings (Mackay, 1988; Tyler & Tang, 2003; Whittaker & Sidner, 1996), there is scant research on the larger scale implications of using e-mail to manage and archive knowledge at an organizational level.

The second body of literature complements the first by attempting to address the problems identified in managing e-mail data through the development of software applications that enable alternative forms of information retrieval and visualization. These software applications share similar characteristics by seeking to represent aspects of e-mail interactions not as apparent in standard e-mail clients. The various ways in which this is done encompass: visualizing patterns of e-mail exchange over time (Viegas, Boyd, Nguyen, Potter & Donath, 2004; Yiu, Baecker, Silver & Long, 1997), visualizing patterns of e-mail exchange between people (Heer, 2004), clustering similar sets of messages (Nardi, Whittaker, Isaacs, Creech, Johnson & Hainsworth, 2002), clustering people (Donath, 1995) and enabling more powerful search and retrieval functions beyond what is available in standard e-mail clients (Fernanda, Golder & Donath, 2006).

A range of case studies have documented the development of such applications. Donath (2004) provides an overview of those which primarily visualize, but do not allow much interaction or manipulation of the visualization and/or data, and which are concerned with individual and personal e-mail. An early example is TimeStore which plotted the messages within an individual's e-mail inbox as dots on a two dimensional grid, with one axis being people and the other, time (Yiu, Baecker, Silver & Long, 1997). Likewise, PostHistory visualises "long-term e-mail exchange rhythms within an interface that is structured through a calendar" (Viegas et al., 2004), concentrating on dyadic communication, which refers to e-mail sent between two individuals. In addition, there are applications which use e-mail to represent an individual's social networks, such as Visual Who

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