
Forward Thinking

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Abstract

The widespread practice of forwarding is a distinct aspect of the electronic mail ecosystem with implications for security, knowledge management, and the design of email interfaces. Forwarded email messages have increased or decreased credibility or significance depending on the sender's reputation. They provide information about an individual's social network, and function as a personal news clipping service. To date, there has been minimal research published on email forwarding behaviors and we hope to add to the research community's knowledge in this area.

In this paper we explore email forwarding in terms of gift giving within a social network, and the collective action dilemmas present in each decision to forward or not forward and to read or not read (and act on or not act on) any piece of email that could be sent to one or more recipients.

1 Forwarded Message Characteristics

Forwarded messages are written by someone other than the person who sends them and are sent to someone who was not the original recipient; by definition they are not original works. As people encounter new information that may have relevance for others in their social network, they may decide to forward some or all of the content of interest. Forwarding can be understood in terms of the concept of gift exchange.

In the "gift economy" model forwarded messages can be viewed as low cost tokens that are exchanged in order to maintain both weak and strong social ties. Just as people once regularly clipped articles from print publications and mailed them to friends and colleagues, forwarded email is often based on clippings

from a pool of content that includes news and formal documents along with the artifacts of less visible and more interpersonal interactions.

Forwards may consist of pointers, complete texts, images, sound recordings, presentations, or other digital objects. The choice of when to forward a complete item, or just a pointer may depend on the complexity of what is being forwarded, or the technical capacities of the recipient. For example, forwarding a complete Web page to a user's mobile device is often inconsiderate and it is typically better to just forward a link.

Forwarding an item is a gift that establishes or re-establishes a tie between the sender and recipient(s). Forwarding a message carries implicit meaning: "I still think about you, have some mental model of your interests, want you to remember me and hope to get credit if this is valuable to you." When describing the forwarding of clips, Marshall notes that "in almost half of the total cases, senders' motive was to demonstrate knowledge of the recipients' interests or emphasize a connection between sender and recipient (e.g. a shared sense of humor)." [Marshall and Bly 2004]

Like other kinds of gifts, receiving a forwarded message may be valuable or impose a cost of the time it takes to recognize redundancy or irrelevance and discard the message. The recipient may also incur the additional cost of an obligation to reply. Forwards carry an implicit endorsement that may make the original material more credible. Forwarded email gains (or loses) credibility depending on the prior relationship with the sender. Forwarding can have negative consequences for senders. If they are consistently wrong about what content is of actual interest to recipients their reputation may drop in the implicit system people must apply in order to triage their email.

Forwarding is dangerous when email carries a potentially harmful payload (such as a virus) or links that can be passed along without understanding their consequences. The damage to the social capital of the

sender can be as severe as the technical damage to the recipients. Without direct authorship, senders' credibility may be more insulated from the effects of forwarding redundant, irrelevant, or harmful information. The burden of fact checking is subtly forwarded to the recipient along with the message.

2 Gift Exchange and Sharing

From a macro perspective, forwarding practices can aggregate into a form of knowledge management, in which information a person desires starts to flow towards them as their social network gains awareness of the information they prefer and value and they reward those who deliver higher quality content with more attention among other rewards. [Plickert et al. 2005]

3 Personal Practices, Etiquette, Corporate Policies and Dilemmas

Etiquette concerning forwarding of messages has evolved from the earliest days of email. Nearly every introductory document on email usage and set of corporate email guidelines contain information on forwarding. Forwarding can invoke complex ethical dilemmas between preserving confidences and sharing needed or valuable information. [Markus 1994] Forwarding a message to one person may jeopardize a relationship with another (the boss says he's thinking of firing you), or even illegal (company results will be disappointing, sell your stock). Forwarding can be problematic within corporate environments for reasons ranging from inappropriate forwarding of intellectual property to inappropriate forwarding of libel inducing jokes and adult content. These problems have counterparts outside of the domain of email and can often be mitigated with training and policies.

4 Email System Design Implications

Understanding the social forces that shape patterns of email forwarding can provide some guide to the development of email systems that are more robust in the face of attacks that leverage social network connections, deliver more effective forms of knowledge management, and support the creation of socially aware user interfaces.

Email systems can be improved to accommodate message forwarding a variety of ways. If desirable for the institution, email clients can be adjusted to track forwarded messages. Many existing clients allow for sorting by subject line already; this capability could be expanded to help identify the persons with whom forwarded messages are most often exchanged. These cor-

respondents are likely to be especially relevant subset of the population of email correspondents.

Some work in this area includes Forwardtrack's Eyebeam, an open source system that allows tracking forwards for the identification of contributors to online communities, petitions and political action groups.¹ The Microsoft Research SNARF project analyzes personal email stores to calculate relationship measurements that may help visualize patterns of connections. [Neustaedter et al. 2005] Projects like SNARF are beginning to map patterns of forwarding to assist people in evaluating the information they receive.

5 Future Work

We have sketched a set of ideas that focus on the social practices of exchange as mediated through email. Further exploration of email forwarding should gather both qualitative and quantitative data on email forwarding patterns including both online logs and in-depth interviews about email usage. In interviews with self-described heavy users of email, we seek to identify patterns of reciprocity, reputation building, fact checking, frequency of sending and receiving forwards, and types of content forwarded.

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¹<http://forwardtrack.eyebeamresearch.org/>