Examining the Effects of Organizational Procedures and Policies on "Appropriate" Computing

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Abstract:

Internet access for knowledge workers has become much more commonplace in the last 3 years. Along with the benefits of the Internet access come potential problems, including productivity loss and improper usage. Many companies today are trying to sell software solutions to control knowledge worker usage of the Internet, enabling managers to organizationally govern the Internet usage of employees on a constant basis. The author examines the overall effects of procedures, policies and computing "solutions" for eliminating the productivity vacuum in organizations with respect to Internet usage and presents a model of effects of information monitoring relating to worker outputs. Proposals for a field test of the model are included.

Background

The Internet is rapidly becoming available as a common communications tool to the knowledge worker (Retkwa 1996). Applications for the knowledge worker on the Internet include electronic mail (e-mail), file transfer protocol (FTP), telnet, usenet, and the World Wide Web (WWW). Each of these applications can be vital to a knowledge worker in today's business arena. Many communications and business tasks can be handled electronically through the use of asynchronous communication, from simple communications to conducting electronic commerce. However, with the introduction of any new technology there is also the potential for misuse and abuse.

The media today consistently reminds us of the productivity vacuum which can be set in motion through installing Internet access on worker desktops (e.g. Currid 1996, Magid 1996). Stories abound of workers wasting time through perusing non-work related WWW pages (Hayes 1995), sending and reading non-work related e-mail, and participating in usenet discussions on arcane topics. Managers have good reason to want to minimize sources of unproductivity in their organization and hence look for solutions to aid them in their quest. As a response, some companies have developed "acceptable use policies" (AUP) for the Internet (Retkwa 1996). These policies range from general guidelines to very specific policies. These policies also range in enforcement from virtually none to policies where the company makes an example out of offenders. Companies with large enforcement programs need an effective method of enforcement (Straub 1990), and many software companies have produced programs to aid in this enforcement.

Much prior research in IS is concerned with increasing the adoption of a particular technology (e.g. Davis 1989, Hartwick and Barki 1994). The WWW and Internet are unique examples of technologies which have the potential for great user adoption and/or decreased productivity. A user has the capability to become a "power user" of Internet technology at work, but may also use the Internet for non-productive purposes. The presents a potential dilemma for managers when introducing Internet technology to knowledge workers.

There is a general lack of MIS research which looks at the *type* of usage of the computing tools. Past academic research in computerized monitoring has focused mostly on monitoring that measures productivity with repetitive tasks, such as word processing (Wright 1982), focusing on clericals (George

forthcoming). The WWW and Internet force us to look at the *use* of the technology or corporate asset, much as ensuring that company vehicles are not used for weekend vacations. Users, who may at one time have had full access to the Internet at work without restriction, may feel threatened if monitoring is introduced. This type of electronic monitoring probably does not exist for any other activity in which most knowledge workers may participate. In a majority of companies, workers can safely assume that their telephones are not wiretapped and a camera does not follow them around the office throughout the work day. It is possible as well that firms may face invasion of privacy lawsuits from monitoring personal electronic mail, as well as other potential liability issues associated with personal privacy (Straub and Collins 1991). One can begin to see the dilemma for managers and the need for research in the area based on these observations.

Research Questions

1. Is monitoring and/or blocking access to content areas on the Internet effective for the firm, or are policies without electronic surveillance just as effective at decreasing non-work related Internet usage? To answer the question, we must examine several factors. If the number of (attempted) accesses to banned content areas decreases after monitoring begins, this doesn't necessarily mean that the productivity levels have increased. Employees may have found a different way to be unproductive where they are not subject to "the eyes of Big Brother" (Retkwa 1996), or they may have decided not to use the Internet and related technologies at all. While workers would not be spending time at non-work Internet sites in the above situation, the shunning of the tool, may make the corporate investment nearly worthless. We can compare multiple organizations to gain insight into the effectiveness of the monitoring and policy-making decisions.

2. How will monitoring affect employee morale and acceptance of the technology? Employees may become discouraged after monitoring is introduced (Guthrie and Gray 1996, Danaan 1990). They may feel as if the organization has violated a trust that should exist between employer and employee concerning company resources. Furthermore, the acceptance of the Internet technologies may be hindered or eliminated. Employees may see the Internet as something which can only get them into trouble and will refuse to use it at all. On the other hand, monitoring may be seen as a way of keeping honest people honest and a silent reminder that the workplace is for work and not play (Grant and Higgins 1991).

Research Model

To initially examine the effects of organizational policies toward computing productivity, we must develop a model which supports the reasoning and inferences of the related literature. This research draws heavily on "junk computing", which is defined as the use of information systems in a way that does not directly advance the goals of the organization (Guthrie and Gray 1996). Key output measures of the effectiveness of the policies are the actual usage statistics. In this paper, we look at two different usage statistics. First, work-related usage (WRU) is defined as the ratio between work-related uses to total uses of a technology. Second, usage, is the per capita total usage of the Internet tools. Finally, we will examine the effects of the policies and procedures on worker morale. Having declared our dependent variables, variables, we must identify the antecedents to productivity and the ways in which they can be manipulated to determine the presence and valence of any causal relationships between the variables. Using the previously defined questions, we postulate the following model in Figure 1.
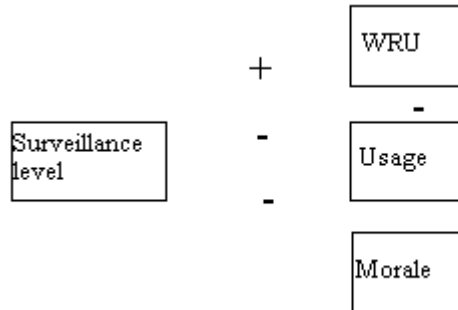
Figure 1. Model of Surveillance Effects on Organizations

The research questions themselves beg several hypotheses. Some of these are presented in the popular press (Retkwa 1996) while others are hinted in the research literature (Guthrie and Gray 1996). Regardless of how they are asked, we can examine them as follows:

H1: As the level of intensity of an organization's monitoring increases, WRU will also increase.

H2: Organizations with strong (weak) AUPs will have the fewest (most) instances per capita of non-work related use of the Internet.

H3: As the level of restriction on Internet usage increases, *ceteris paribus*, the morale of workers will decrease.

Conventional views of organizational behavior (see Hollinger and Clark 1982 for a review) suggest that people are less likely to try to perform non-work related activities in the workplace when they are being watched than if they are not. Blocking is a merely a method of stopping access to a particular resource, while monitoring keeps a log of the offending computer's identity. Monitoring, therefore, should be a stronger deterrent to unauthorized behavior, giving us **H1**. Written policies and guidelines help make users aware of company rules and the penalties for their violation, as would be required in an organization with a monitoring program (Sullivan 1996).

Once the work and non-work related instances of using the WWW are calculated, we can then calculate WRU. A higher per capita instance of non-work related use does not necessarily translate to lower productivity. Junk computing, because it can be a form of experimentation or investigation of a resource, can lead to productivity increases later in other tasks (Guthrie and Gray 1996). They provide lists of gains and losses associated with junk computing. The potential benefits of junk computing can be compared to the accidental discovery of penicillin, a drug which was not directly sought but was found through creativity and curiosity. Organizations which place strong restrictions on use of the Internet can expect the creativity mentioned above in their employees to be somewhat stifled (Guthrie and Gray 1996). Moreover, they then might not want to use tool at all, fearing repercussions should they happen to "misuse" it, giving us **H2**. A feeling of resentment may also occur in the workers, feeling as if their employer is acting like "Big Brother," not trusting them and treating them like children in a day-care center, leading to **H3**.

Proposed Research Method

A field study will be completed to determine the effects of AUP and monitoring on computing productivity using companies with various levels of Internet restriction. Companies will be contacted and asked to participate in the research study. Data will then be gathered measuring World Wide Web usage, both in pages loaded and access time, for each of the companies through an unobtrusive logging feature, currently permitted under federal law. Employees will not know they are being monitored unless it is already done at the particular firm, thereby eliminating any biases which may result from knowingly being monitored. Self-report data about perceived usage and experience with the WWW, as well as demographic data, will also be

collected. The researcher will provide summary data, *without individual statistics*, to each of the companies as a service.

Data will then be analyzed by the researchers to determine what Internet usage is work-related and what usage is not related. Pre-written scripts exist to classify sites into groups like pornography, gambling, and game-playing. Additional guidelines will be obtained by the MIS manager to determine the job characteristics of each surveyed worker, in order that a more accurate classification of usage may be obtained. Two coders will be employed in the data classification, and any disputes about the proper classification of sites will be resolved between the coders.

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