# AUTOMATE TO INFORMATE:
## POSITIVE WORK ENVIRONMENTS, TRUST AND THE STRATEGIC MANAGEMENT OF TECHNOLOGY

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**ABSTRACT**.  Organizations implement information technology for a variety of reasons.  Most often organizations look to information technology to automate existing processes in search of efficiency.  We suggest that strategic management of technology allows for efficiency gains, but also holds the potential to create a healthier work environment.  Organizational efficiency and effectiveness need not be mutually exclusive in the strategic management of information technology.  Organizations can create a competitive advantage by using information technology to create a positive work environment while also automating existing processes.  Our analysis begins with a discussion of positive psychology and strategic management. We discuss strategic uses of technology and present a framework for creating a positive work environment through the strategic use of technology.  We conclude by developing areas for future research and present applicable strategies managers can use to increase organizational efficiency as well as empower and enhance the well-being of workers.

## INTRODUCTION

Technology management and e-government often fall short of examining strategies to foster collaboration, empower individuals, increase collaboration, and create a positive work place.  Research needs to do more than document organizational uses of technology

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but also demonstrate how organizations use technology proactively to create positive environments.  This research examines strategies that organizations use to foster optimism, hope, creativity, innovation, and adaptive cultures.

Organizations implement technology for a variety of reasons.  In the past, information technology was implemented solely to automate existing processes in search of efficiency.  We argue that strategic management of technology allows for productivity gains, as well as the creation of a healthy work environment.  Organizational efficiency and effectiveness need not be mutually exclusive in the strategic management of informational technology.  Organizations can create a competitive advantage by using information technology to create a positive workplace, while also automating existing processes.  Our analysis begins with a discussion of positive psychology and how it can create strategic advantages.  We address technology in the workplace before presenting a framework for creating a positive work environment through the strategic use of information technology.  After proposing a framework, we use public and professional trust constructs as a basis for proposing further research and offer specific strategies organizations can use to build trust and increase employee satisfaction.

## POSITIVE PSYCHOLOGY

If asked to pinpoint the origins of the positive psychology movement in management, some may indicate that the movement has been growing in popularity over the last decade. Many in the field look to the year 2000 when Martin Seligman used his presidency of the American Psychology Association to bring attention to positive psychology and called all psychologists to embrace this new focus (Seligman & Csikszentmihalyi, 2000).

However, in reality, the concept of positive psychology is not a new one at all. Over 50 years ago, Abraham Maslow in his book Motivation and Personality (1954, as cited in Wright, 2003 p.1) called for research focused on a more positive bent. In this work, Maslow suggests a research agenda into concepts such as growth, optimism and actualization of potential. Luthans (2002) moved this agenda further into the present by wrapping this theoretical agenda into the more applied concepts of organizational behavior. Positive organizational behavior, as defined by Luthans, is the study of

positive human strengths and psychological capabilities that can be developed, measured and managed for performance improvements.

Among the topics suggested as relevant in the study of positive organizational behavior is well-being/happiness (Luthans, 2002). Current research has examined the relationship between well-being and outcomes such as job performance and retention and found promising results (Wright, 2006). Further, organizational researchers have recognized that happy employees are better employees (Wright & Crapanzano, 2004). However, the benefits of employee well-being can be extended from the micro level analysis which looks at the benefits of well-being and happiness of the individual to the macro or strategic level of examining how creating happy employees can create a competitive advantage and enhance organization performance.

One mechanism for helping to achieve this competitive advantage and increase the well-being of employees is through the use of technology. For many, technology has been seen as a tool used by management to make employees more efficient in order to free up employee time to tackle additional tasks. This use has been common since the time of Frederick Taylor and the ban on the use of stopwatches by civil servants. While we acknowledge that technology can and has been primarily focused on employee efficiency, we feel the net outcome of this process need not be negative. If used correctly, information technology can yield gains in both efficiency and effectiveness. In particular, the organizational goal of increased effectiveness aligns well with enhancing individual well-being and empowerment.

## STRATEGIC ADVANTAGE THROUGH POSITIVE ORGANIZATIONAL BEHAVIOR

The field of strategic management revolves around a central question: "Why do some organizations consistently outperform others (Hitt, Freeman & Harrison, 2005)?" The answer to this question is the essence of management in the globalized world. In this environment, organizations seek to outperform their peers, and information technology is critical to organizational performance.

Porter (1980), in his seminal work on competitive strategy, states that organizations compete on the basis of two main strategies: either a cost effective strategy or a differentiation strategy. An organization following the cost effective strategy becomes the low

cost provider in its industry. Organizations following the differentiation strategies are innovative, provide high quality services, and are more capable of solving problems and fulfilling their missions. The challenge to either of these strategies is how to achieve them while still providing an environment that is healthy for the people creating the advantage.

One of the primary ways that organizations attempt to create this competitive edge is through the use of technology. There is no question that much of the technology revolution was sold to organizations on the basis of improving efficiency and reducing costs. However, this has typically created fewer employees carrying heavier workloads. For example, policy makers are frequently convinced that the cost of implementing a new technology can be offset by the savings in workforce reduction due to higher productivity. Technology may allow one person to do the work of two or three employees, but the impact to the individual asked to work at a much higher productivity level can be significant (Korunka, Weiss & Karetta, 1993). Working under these types of stressful conditions is hardly the essence of what creates a highly motivated, superior workforce.

A prime example of the negative impact technology can have on the health and well-being of employees comes from the customer relationship management software (CRM) implementation process. Customer relationship management software enables organizations to track and analyze communications with external stakeholders. In the private sector, this often involves tracking telephone calls with customers. Upon calling a company, customer calls are logged, assigned a case number, and the call is assigned a code based on the customers needs. In the public sector, CRM systems are increasingly used to track contact with citizens and measure performance based on the resolution of cases entered into the CRM system. CRM systems are similar to many new information technology initiatives and are often criticized for high failure rates (Theiss, 2006). A study by Caribou Lake Customers found that 55% of customer relationship management software implementations fail (Mello, 2002). In the public sector, "recent studies about the success of information systems in organizations suggest that more than 80 percent fail to achieve their objectives or to be implemented at all" (Dawes, et al., p. 19, 2000).

All too often, organizations are easily convinced of the improved productivity that information technology solutions offer while underestimating costs and organizational barriers to successful implementation. Unfortunately, investments in employee training are often the first items cut from the budgets of costly information technology initiatives.    However, the numerous instances where information technology solutions fail to provide the promised productivity gains have caused the organization's executive management to scrap the program. Then, convinced of the potential upside of a different technology solution, the organization's policymakers start all over with another software package. The turmoil caused for the employees who not only have to learn one new method of doing business, but possibly several, are enormous.

The big question that a manager needs to ask is: How does the use of technology impact the entire organization, including the well-being of its employees? The organizational stakeholders should examine the pluses and minuses to every area of the organization. They need to examine if increasing the productivity of one employee, or group of employees, is causing difficulties for others. For instance, does enabling some staff to process twice as many transactions due to the use of some new technologies put increased pressure on individuals in other parts of the organization?

Another problem linked to a technologically advanced workforce is that services are available on a twenty-four hour/seven day-a-week basis. That is, when individuals have wireless-access computers, web-enabled cellular phones, or a Blackberry, then they expect services to be accessible all the time regardless of the geographic location or time of day.

### Strategic Use of Human Resources

From a human resource perspective, the resource-based view demonstrates why some organizations outperform others (Wernerfelt, 1984). Resources are generally defined as tangible and intangible assets that organizations use to develop and implement their strategies (Hitt, Freeman & Harrison, 2005).  Tangible assets are usually thought of as an organization's financial capital and physical capital. Financial capital includes equity capital, debt capital, and in the private sector, retained earnings. Physical capital includes both machines and buildings. Intangible assets are usually described as

the organization's human capital and organizational capital. Human capital includes training, experience, judgment, intelligence, relationships, and insights of individual managers and workers. Organizational capital includes the attributes of individuals associated with an organization, its culture, its formal reporting structure, and its reputation (Hitt, Freeman & Harrison, 2005). More effort needs to be made in using information technology to manage human capital. This paper presents strategies for improving work environments using strategies grounded in e-government and public trust research.

The acquisition and strategic use of resources leads to the development of the organization's competitive advantage. Competitive advantage is essentially an organizations ability to outperform other similar organizations (Porter, 1985). Essentially, by utilizing its assets better than its peers, organizations with a competitive advantage are both more efficient and effective than other similar organizations. As other organizations continue to acquire and develop their own resources, the competitive advantage can shift. We argue that organizations are not actively using technology to create a positive work environment.

Some researchers have posited that one of the most important resources an organization can acquire and strategically utilize is its human capital (Hitt, Ireland & Hoskisson, 2001). The essence of this point of view is that human capital can be acquired as needed to fulfill certain roles. Additionally, individuals can be developed and trained to perform at higher levels of performance. Most importantly, human capital is responsible for creative solutions to problems and innovation. As the world continues to evolve at an increasingly faster pace, it is an agency's human capital that can effectively meet the constantly changing needs of its customers (Hitt, Ireland & Hoskisson, 2001).

Following this idea of utilizing human capital to create a competitive advantage for the organization, it is not hard to understand how the creation of a superior workforce is an effective strategy for acquiring a superior competitive position. In this day and age, the strategic use of technology can make an average workforce into a highly effective workforce.

The implementation of technology initiatives by itself does not create a superior workforce. There are too many examples of

organizations that have attempted to implement new technology only to have disastrous results. Some of the more notable failures include some of our largest institutions. Certainly the U.S. Federal government is not immune to technology failures. In April 2005, the Federal Bureau of Investigation officially abandoned its "virtual case file" system after investing over $580 million in its development (Goldstein, 2005).  The U.S. Internal Revenue System scrapped a new tax modernization system after spending $4 billion to implement it, and the FAA cancelled a new advanced automation system after spending $2.6 billion.  In addition, the United Way cancelled a new administrative processing system after a failed implementation and spending $12 million. The private sector has seen its share of failed technology implementations, like the FoxMeyer Drug Company, which abandoned a $40 million enterprise resource system that drove the company into bankruptcy (Charette, 2005).

It is not hard to imagine that in these agencies, the result of failed technology implementations has been a confused, ineffective, and frustrated workforce. However, the parameters we suggest are the utilization of technology for creating informed employees with access to superior information and who are able to perform their jobs more effectively in a positive work environment.

## TECHNOLOGY AND THE WORKPLACE

Technology management, as a field, falls short of examining strategies to foster and increase collaboration, empower individuals, and create a positive work environment.  The history of technology demonstrates that it is viewed as a tool for automating tasks. Advocates of information technology argue that it differs from other technological innovations in its ability to automate operations and empower employees.  For example, Zuboff (1988) argues that information technology is distinctly different from other industrial-age technological innovations designed to plow fields, spray paint automobiles, process data, or perform routine organizational tasks.

The distinction is due to information technology's ability to informate or, "simultaneously generate information about the underlying productive and administrative processes through which an organization accomplishes its work" (Zuboff, 1988).  In other words, information technology creates value by simultaneously automating tasks and creating information, which is leveraged by empowered

knowledge workers. The choice to move beyond automation is a strategic management decision. Organizations must decide to empower their employees, decentralize decision-making, and break down the organizational silos. Only then, can information-age knowledge workers become empowered to gather data, analyze information, create knowledge and add value to their organizations.

Organizations that use information technology solely to automate existing operations often yield predictable results. Workers feel disoriented and experience a loss of meaning in their work. Industrial age technological innovations reinforce organizational hierarchies and simultaneously alienate workers at lower levels of the organization. In contrast, organizations that informate encourage managers to engage employees and facilitate the development of critical skills (Zuboff, 1988).

When organizations informate, they enhance their employees' sense of well-being. Employees who are informed and empowered by their organizations feel a greater sense of satisfaction and positive mood at the individual level, more commitment and better performance at the organizational level (Rhoades & Eisenberger, 2002). Morrison, Cordory, Girardi, and Payne (2005) also found that employees who had high levels of job control consistently felt high levels of work related well-being.

Descriptive research on the application of information technology in organizational settings demonstrates that organizations automate before they informate (Moon, 2002). For example, in recent years, studies chronicling government use of the Internet show that organizations follow a consistent path that begins with automation and moves toward engaging internal and external stakeholders online. Yet, most observers acknowledge that organizations have failed to move beyond automation (Layne & Lee, 1998; Moon, 2002; UN-ASPA, 2002).

To examine why organizations are reluctant to use information technology for all but the most routine tasks, several authors have begun examining technology decisions from a strategic value center perspective. According to Venkatraman, "an effective strategy framework recognizes four interdependent sources of value from IT resources and the approaches for managing each source" (1997, p. 51). Venkatraman's research identifies multiple competing strategic IT value centers (services centers, investment centers, cost centers,

and profit centers) that compete with one another in organizations for organizational resources.

Yang and Melitski (2007) use a framework that examines internal and external value centers that account for both efficiency and effectiveness.   The normative assumption made in much of the competing value center research favors a balanced mix of competing technology values that is consistent with organizational missions. Consistent with information technology adoption theories, strategic value center research also indicates that organizations' strategic priorities tend to focus on automation and efficiency often at the expense of effectiveness (Yang and Melitski, 2007).  In other words, it appears that strategic information technology values in organizations may not be consistent with the organization's goals and objectives. Why?

There may be several reasons for the inconsistencies between information technology value centers and organizational strategy, but certainly, the evolution of technology has something to do with it. Technology was first used to automate and is still primarily used for that purpose.  Further, technology diffusion and innovation theories indicate that mimetic isomorphism may also have an impact on organizations failing to utilize information technology to empower employees.  Mimetic isomorphism argues that organizations invest in technology to keep-up with demand and compete with similar organizations.  Mimetic organizational behavior leads to increases in efficiency and enables organizations to meet demand for services.  In other words, organizations can become more effective and efficient by adopting programs that have been successful for similar organizations (Henrich, 1996).

Institutional theorists add that when organizations are uncertain about the consequences of adopting new technologies, they tend to model themselves after other organizations (DiMaggio & Powell, 1983).  Managers are more willing to mimic initiatives that have been successful in the past because previous success increases the legitimacy of new initiatives making them easier to support (Hannan & Freeman, 1987; Reger & Huff, 1993).   Economists argue that mimetic behavior is rational.   As organizations implement new uncertain technologies, they reveal information about the decisions that lead to implementation.  According to Henrich (1996), decision-makers are influenced by their own information and the actions of
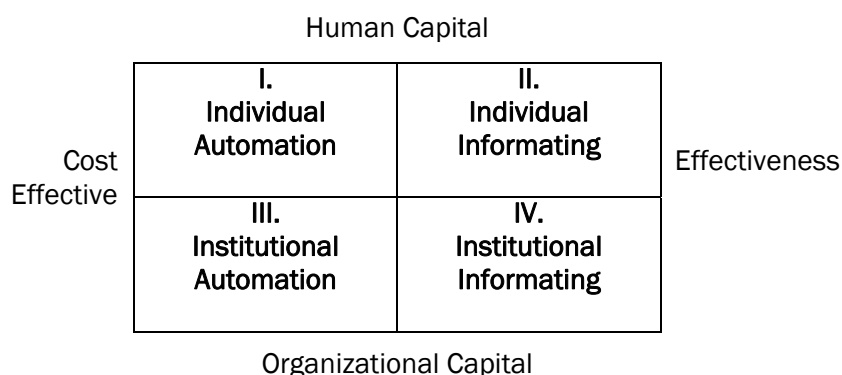
others.  If the actions of organizational competitors indicate that other organizations are acting on information not previously available, then informed competitors will use new information in making future decisions.

While mimetic behaviors may be rational, they do not always produce the anticipated results. The efficiency obtained by mimicking other organizations' successful use of technology does not guarantee the envisioned individual or organizational outcomes. Enhanced efficiency developed out of a desire to free up time for additional work will not create positive outcomes. We believe that it is only in using the increased efficiency to empower individuals to be more effective that the true benefits of technology can be realized. To this end, we offer the following framework.

## POSITIVE WORK ENVIRONMENT AND STRATEGIC MANAGEMENT OF TECHNOLOGY

Figure 1 describes a strategic framework for leveraging technology to create positive work environments.  The framework combines Zuboff's (1988) notions of automating and informating with Porter's (1980) cost effective and differentiation strategies.  In addition, the framework analyzes organizations' use of human capital and organizational capital framework (Hitt, Freeman & Harrison, 2005).  The individual capital analysis includes experience, judgment,

**FIGURE 1**
**Information Technology Framework for Strategically Creating a Positive Work Environment**

Human Capital

|  | | |
|---|---|---|
| Cost Effective | **I.**<br>**Individual**<br>**Automation** | **II.**<br>**Individual**<br>**Informating** |
| | **III.**<br>**Institutional**<br>**Automation** | **IV.**<br>**Institutional**<br>**Informating** |

Effectiveness

Organizational Capital

communications, decision-making and personalization. The organizational perspective examines culture and reputation, as well as productivity and propensity to innovate. Moreover, the history of technology and its focus on efficiency and automation suggests that organizations may well achieve a competitive advantage through strategic adoption and implementation of technology.

We argue that a balanced approach to technology that incorporates both efficiency and effectiveness is critical to improving work environments. While we advocate a balanced approach, that is a strategic emphasis on both efficiency and effectiveness, we acknowledge that a balanced approach needs to take into account an organization's priorities and mission. Efficiency and effectiveness while often complementary also represent competing values.

Consistent with our approach, competing values frameworks suggest that organizations should seek a balance consistent with their organizational mission (Quinn, 1988; Quinn & Rirbaugh, 1983; Venkatraman, 1997). Research on competing values frameworks acknowledges that organizations cannot invest equally in multiple competing values, yet the research suggests that organizations should diversify their approaches so as not to become overly dependent on a single approach (Yang & Melitski, 2007). After discussing the framework for strategically using technology to create positive work environments, specific strategies and prospects for future research are discussed.

To create positive work environments, individuals and organizations must make the strategic choice to move beyond cost effectiveness and engage in a process to informate organizations. When individuals make the decision to move from Quadrant I to Quadrant II in Figure 1, they move beyond technology as an instrument of automation. Individuals in Quadrant I use technology to increase the reach, speed, and number of their communications, insights and relationships. Cost effective information technology strategies enhance human capital by increasing the number of relationships, as well as the sheer number of interactions between individuals. Such strategies also impact the sheer number of communications and the speed in which the communications occur. Further, as the number of communication mechanisms and channels increase, expected response time diminishes. As individuals informate, they move into Quadrant II and their focus turns to

increasing quality and differentiating their organizations from their peers using technology. Differentiation strategies increase human capital by enhancing existing judgment, training, and insights.

Differentiating strategies using information technology also enhance decision-making. Automated decision-support systems designed to achieve cost efficiencies enable individuals to make quicker decisions by integrating knowledge. Decision support systems increase individual spans of control and enable managers to have more control over their operations. Over-reliance on cost effective strategies can also have unintended consequences. When information is consistently channeled upward through the organizational hierarchy, it can have a disenfranchising impact on individuals at lower levels of the hierarchy.

As individuals move from automation Quadrant I to Quadrant II, they focus on effective decision-making. The transition from cost effective strategies to differentiation strategies creates positive work environments as informated individuals use technology to make better, informed decisions and engage organizational stakeholders in a meaningful discourse. Ongoing interactive discussions enhance work environments by creating stakeholder buy-in, informing decision-makers, and empowering employees.

The shift from human capital to organizational capital involves examining Quadrants III and IV of Figure 1. The move emphasizes enterprise strategies over individualistic strategies. At the enterprise level, an organization's most common use of technology is to create a competitive advantage through cost effectiveness. In search of greater efficiencies, organizations expect to maximize information technology resources and do more with less, potentially stressing institutional resources to the point of exhaustion.

## STRATEGIES FOR MOVING FROM AUTOMATE TO INFORMATE

Using technology to move beyond automation and engage in the process of informating organizations requires a conscious choice. We contend that the process of informating requires managers to understand the cultures of their organizations and the different personalities of its stakeholders. Once both dispositional and institutional factors regarding organizations and the stakeholders are addressed, organizations can undertake strategies to engage

employees and encourage their participation in organizational decisions. Specifically, we adopt trust building strategies organizations can adopt to move beyond automation toward empowering informated employees.

Strategies for increasing public trust share commonalities with improving work environments and both apply to information technology in public organizations. Dawes (2003) suggests trust relationships in the public sector exist at both the public and professional level. Public trust involves the relationship between citizens and governments or nonprofit organizations performing public services. Professional trust exists between individuals within organizations or networks. We suggest that increasing professional trust impacts workplace environments. Table 1 adapts public trust theories and applied strategies for increasing professional trust. Additionally, Table 1 suggests relationships between trust building theories and strategies with employee satisfaction and ultimately technology adoption in the public sector.

Columns A and B in Table 1 show public trust theories and acknowledge both affective and cognitive constructs. Indeed managers can and should recognize that proactive strategies for building trust also positively help shape work environments. Column A suggests that dispositional strategies, grounded in social psychology, advocate that individual workplace satisfaction and trust are influenced by personality characteristics. Individual disposition to trust is a necessary foundation in an individual's willingness to trust and has a positive impact on their work environment. Several studies have linked different personality factors with an individual's willingness to trust. Research suggests four of the "Big Five" personality, which have been in development since the 1950s (Digman, 1990) impact trust. We suggest that the four personality types (below) also impact employee satisfaction and technology adoption.

- Extraversion: An individual's level of focus on the world around them and outgoingness, leads to a higher disposition to trust.

- Neuroticism: An individual's emotional instability, pessimism, low self esteem, anxiousness, and vulnerability, leads to a lower disposition toward trust.

TABLE 1
Strategies for Building Trust and Propositions for Further Research

| Theory | | Applied | |
|---|---|---|---|
| A. Dispositional | B. Institutional | C. Interpersonal | D. Participatory |
| Personality factors impact employee satisfaction and adoption of technology<br> - Extraversion<br> - Agreeableness<br> - Neuroticism<br> - Conscientious-ness<br> - Openness<br>(Olson & Suls, 2000; Costa, McCrae, & Dye, 1991; Tan & Sutherland, 2005)<br><br>Learning styles impacts employee satisfaction and adoption of technology<br> - Concrete experience<br>- Reflective observation<br> - Abstract conceptualization<br> - Active experi-mentation<br>(Kolb, 1984). | Legal, regulatory and technical environment impacts satisfaction and adoption of technology (McKnight, Cummings & Chervanye, 2002)<br><br>Organization culture impacts satisfaction and adoption of technology:<br> - Communication flow<br> - Coordination<br> - Decision making practices<br> - Emphasis on human resources<br> - Goal integration<br> - Organization of work<br> - Peer work facilitation<br> - Supervisor work facilitation<br> - Supervisory goal emphasis<br> (Denison, 1990) | User friendliness, convenience, security, accessibility of technology impacts satisfaction and adoption of technology (Melitski and Holzer, 2006).<br><br>Establishing clear expectations impacts satisfaction and adoption of technology (Provan & Milward, 2001; Dawes, 2003; Dawes & Eglene, 2004)<br><br>Past experience with technology impacts satisfaction and adoption of technology (Tan and Sutherland, 2005). | Participatory management factors impacting technology adoption and satisfaction.<br> - Realistic timeframes<br>- Framing key issues in advance<br> - Support users<br> - Promote participation opportunities<br>- Train leaders to facilitate digital discussions<br>- Evaluate participation opportunities<br>(Holzer, et al., 2004). |

- Conscientiousness:  An individual's sense of responsibility, duty and thoughtful deliberation, also leads to a lower disposition toward trust.

- Openness:  Individual willingness to accept new concepts, points of view and experiences, increases an individual's willingness to trust (Costa, McCrae & Dye, 1991; Olson & Suls, 2000; Tan & Sutherland, 2005).

### Learning Styles

Research also indicates a possible relationship between individual learning styles, employee satisfaction and the adoption of technology in the workplace.  Kolb's (1984) four learning styles (concrete experience, reflective observation, abstract conceptualization, and active experimentation) represent dispositional factors that may have a positive impact on work environments.  Further research is needed to determine the extent and nature of the relationship between work place satisfaction, technology adoption and personality traits and learning styles.

### Institutional Factors

Column B of Table 1 indicates that institutional factors also influence work environments.  In the context of organizational trust research, the Internet and information technology are viewed as institutions in-and-of themselves.  That is, in order to build trust and create positive work environments, organizations must develop strategies that facilitate employee trust in technology.  Several factors influence individual willingness to trust information technology and these factors are built upon adequate legal regulatory and technical environments (McKnight & Chervaney, 2002).  We propose that organization culture also impacts satisfaction and adoption of technology.

### Application of Trust Building Strategies

Columns C and D of Table 1 suggest applied strategies that managers and organizations can enact to increase trust.  Trust building strategies include both interpersonal and participatory management approaches that are also relevant to employee satisfaction.  For example, Berman (1997) contends that trust building strategies need to increase access to information; work to

build positive relationships, and encourage participation. Similarly, the e-government research suggests cataloguing information and making it available electronically in a user friendly format, allowing more transactions to take place online, and facilitating dialogue and collaboration are effective strategies that need to be adopted internally to create a positive work environment. Below, we adapt more specific strategies, based on e-government and public trust, to create positive work environments.

The interpersonal strategies in column C of Table 1 draws on organizational network research that suggests establishing and managing stakeholder expectations is critical to establishing professional trust when implementing new information technology initiatives (Dawes, 2003; Provan & Milward, 2001). Both dispositional and institutional factors need to be considered as organizations shift from using technology to automate organizational processes to empowering employees and informating.

Interpersonal strategies for improving trust in workplace environments deal with improving the usability of technological applications. These strategies are relevant to both organizations seeking to automate and informate. Melitski and Holzer (2006) suggest that before individuals are willing to trust information technology, it must be easy to use, convenient, and secure. Other research indicates that past experiences with technology is the single most importance institutional factors in building trust (Tan & Sutherland, 2005), and we propose that it is also a critical factor with technology's role in creating a positive work environment. Today, individuals also expect certain standards of usability. A variety of standards exist for developing applications on the internet, and they need to be adapted for internal administrative system.

Technology usability research focuses on designing Internet sites as opposed to intranet sites. Intranets are different from sites on the Internet in that access is restricted to those inside the organization. Increasingly, intranets are used to catalogue personnel information and access internal applications. Despite the differences between the Internet and organizations' intranets, they rely on much of the same technology and as a result, design standards are similar. Table 2 summarizes usability guidelines for developing online applications

Both the WC3 Usability Guidelines and Yale Web Style Guide are developed for internet applications, rather than intranet applications,

TABLE 2
Usability Guidelines

| W3C Usability Guidelines (Rocheleau, 2005) | Yale Web Style Guide:  Usability criteria (Lynch and Horton, 2004) |
|---|---|
| - Provide text equivalents for each non-text element including images, symbols, animation, applets, and multi-media such as audio and video files and tracks.<br>- Make sure that all information conveyed with color is also accessible without color such as from context or markup.<br>- Organize documents so they can be ready without style sheets.<br>- Make sure that equivalents for dynamic content are updated when the dynamic content changes.<br>- Avoid screen-flickering. Use the clearest and easiest-to-read language appropriate for the site. If data tables are used, identify row and column headers.<br>- If frames are used, title each from to make for easier identification and navigation.<br>- If applets and scripts are used, make sure the page is still usable when these are turned off. Provide an auditory description for important visual track of a multimedia presentation.<br>- For any time-based multimedia presentation, synchronize the equivalent alternatives (e. g., auditory or captions) with the presentation. | - Clear navigation aids:  Most user interactions with Web pages involve navigating hypertext links between documents.<br>- No dead-end pages:  Web pages often appear with no preamble: readers can make or follow links directly to subsection pages buried deep in the hierarchy of Web sites.<br>- Direct access:  Users want to get information in the fewest possible steps.<br>- Bandwidth and interaction:  Users will not tolerate long delays. Research has shown that for most computing tasks the threshold of frustration is about ten seconds.<br>- Simplicity and consistency:  Users are not impressed with complexity that seems gratuitous, especially those users who may be depending on the site for timely and accurate work-related information.<br>- Design integrity and stability: To convince your users that what you have to offer is accurate and reliable, you will need to design your Web site as carefully as you would any other type of corporate communication, using the same high editorial and design standards.<br>- Feedback and dialogue:  Your Web design should offer constant visual and functional confirmation of the user's whereabouts and options, via graphic design, navigation buttons, or uniformly placed hypertext links. |

but the usability guidelines are still appropriate, and the design of internal websites, intranets and other mission critical technological applications is critical to creating a positive work environment. Lynch and Horton (2004) suggest that the design of intranets need to reflect the motivation of users. Employees usually have a very specific purpose for using an intranet, so organization is a key factor. Information should be organized logically so as to minimize frustration and "surfing."

Organizational strategies that use information technology to build trust and create positive work environments often involves engaging and empowering employees in online communities. In practice this has had mixed results. Levine's (2001) study of online communities indicates that they have lost momentum in recent years. Over emphasis on technology as an automator, a lack of trust in technology, and inexperience with technology-mediated collaboration, all represent barriers to technology adoption. Despite the potential barriers, the e-government studies evoke the Internet is a mechanism for public organizations to engage citizens and other organizational stakeholders. In network environments, organizations must utilize technology to manage partnerships facilitate discussions and build consensus.

Participatory strategies like those in column D of Table 1 acknowledge that managers today are charged with leading less hierarchical organizations, requiring different skills of leaders. Mandell (2001) advocates that the public managers today need the ability to blend cultures, to facilitate interactions, build consensus and allow employees to contribute on their own terms. As managers continue to grapple with issues of power influence and control, they can look to information technology as a tool for developing leadership, building trust and creating positive work environments. As such, information technology represents a yet untapped resource for sharing knowledge within organizations and among networks. Technology mediated collaboration can take place using a variety of applications both synchronously and asynchronously. However, once the issues of usability and trust among participants are addressed, the e-government research suggests strategies for organizing collaborative exchanges using information technology. Such strategies include:

  - Develop a realistic timeframe,

- Be clear and concise when framing issues,

- Develop a help guide for users,

- Actively promote and encourage use of technology mediated collaborations,

- Train leaders to facilitate digital discussions, and

- Evaluate digital deliberation efforts and provide examples of successful digital democracy (Holzer et al., 2004).

Network organizations, the flattening of government structures, and increased partnering have all changed the nature of management in the public and private sectors.  In a society increasingly dependent on networked organizations, managers must leverage information technology as a tool for improving public organizations – both for automating existing organizational processes and also for encouraging communication and collaboration. Strategies to increase organizational efficiency are essential tools for managers; however, organizations can achieve a strategic advantage by also using technology internally build trust and encourage participatory management techniques.

## CONCLUSION

As organizations progress from automating their operations to an emphasis on differentiation, they focus on quality and effectiveness. The move from Quadrant III to Quadrant IV, in Figure 1, involves richer communications and increased integration.  While the automation process enhances coordination, differentiation allows managers to conduct value chain analyses and strategically shift resources.  As organizations maximize the value chain, they move from automating strategies designed to increase efficiency toward strategies that informate organizations.  Differentiation strategies also enable organizations to move from data driven organizations to organizations that maximize information and empower knowledge workers.

We contend that organizations that fail in making the choice to move beyond the cost effective strategies of automation are at a competitive disadvantage to those that do.  Certainly automation has given organizations a cost based competitive advantage since the dawn of the industrial age, and organizations need to continue automating their operations in search of efficiency.  At the same time,

organizations need to recognize that workers often resist new technologies because they see technology as a threat to their current positions.  Organizations that fail to use technology to positively impact the work environment risk decreasing trust in the workplace.  Over time, organizations that implement technologies in ways that ignore organizational trust jeopardize employee alienation and negatively impacting work environments.

As organizations seek to strategically maximize their use of information technology, it is equally critical that they find new and creative uses for technology to differentiate themselves from their competitors, empower individuals, inspire creativity, foster innovation and ultimately create a positive work environment.  Strategic balance of information technology requires investment in both human and organizational capital combined with strategies for increasing cost efficiency and differentiation that creates a positive work environment.

Technology is a powerful tool, and the influence it has on organizations is determined by social cultural and economic factors.  At the individual level, dispositional factors influence individual willingness to trust and adopt technology.  Institutionally, organizational cultures shape the way in which organizations choose to use technology.  While technology alone cannot create a sense of psychological well-being, if used to empower and inform employees, it can positively impact work environments.  Strategies for enhancing trust and increasing employee satisfaction include interpersonal approaches as well as tactics for decentralizing decisions and empowering employees.

While working hard to create a positive environment where employees are happier and positive about themselves and their environment has value in and of itself, the larger opportunity for the organization is in the strategic advantage of a workforce who feel optimistic and engaged. Much has been written about the efficiency advantages technology can produce for organizations, and while advocates for technology in the workplace have discussed methods for empowering employees through the use of technology, little has been done in practice.  For technology to fulfill its potential organizations need to better utilize technology internally to build trust among their employees and thereby improve work environments.  Only then will technology begin to empower, inform and educate

employees, while creating organizations that are better equipped to fulfill their missions and collaborate in global networks.

## REFERENCES

Costa, P., McCrae, R., & Dye, D. (1991). "Facet Scales for Agreeableness and Conscientiousness: A Revision of the NEO Personality Inventory." *Personality and Individual Differences. 12*: 887-898.

Dawes, S. (2003). *The Role of Trust in New Models of Collaboration*. Albany, NY: Center for Technology in Government.

Dawes, S., Bloniarz, P, Kelly, K. & Fletcher, P. (2000). "Some Assembly Required: Building a Digital Government for the 21st Century." *ACM International Conference Proceeding Series* (*Vol. 129*): *Proceedings of the 2000 Annual National Conference on Digital Government Research*, May 15-17, Los Angeles, California.

Dawes, D. & Eglene, O.  (2004). "New Models of Collaboration for Delivering Government Services:  A Dynamic Model Drawn from Multi-national Research."  Paper Presented at the National Digital Government Research Conference, May 24 - 26, 2004 Seattle, Washington.

Denison, D. (1990). *Corporate Culture and Organizational Effectiveness.* New York: John Wiley & Sons.

Digman, J.  (1990). "Personality Structure:  Emergence of the Five-Factor Model."  *Annual Review of Psychology, 41*: 417-40.

DiMaggio, P. & Powell, W.  (1983). "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review, 48*: 147-160.

Goldstein, H. (2005, September). "Who Killed the Virtual Case File?" *IEEE Spectrum Magazine*. [Online]. Available at www.spectrum.ieee.org/sep05/1455. [Retrieved on May 23, 2008].

Hannan, M. & Freeman, J (1977) "The Population Ecology of Organizations." *American Journal of Sociology, 82 (*5): 929-964.

Henrich, G. (1996) "Patterns of Competition: The Diffusion of a Market Position in Radio Broadcasting." *Administrative Science Quarterly, 41* (1): 29-53.

Hitt, M., Freeman, R. & Harrison, J. (2005). *Handbook of Strategic Management*. Malden, MA: Blackwell Publishing.

Hitt, M., Ireland, D., & Hoskisson, R. (2001). *Strategic Management: Competitiveness and Globalization*. Cincinnati, OH: South-Western College Publishing.

Holzer, M. et al. (2004). *Restoring Trust in Government: The Potential of Digital Citizen Participation*. Washington, DC: IBM Center for the Business of Government.

Kim, S. & Kim, D. (2003). "South Korean Public Officials' Perceptions of Values, Failure, and Consequences of Failure in E-Government Leadership." *Public Performance and Management Review, 26* (4): 360-375.

Kolb, D. (1984). *Experience as the Source of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall.

Korunka, C., Weiss, A. & Karetta, B. (1993). "Effects of New Technologies with Special Regard for the Implementation Process Per Se." *Journal of Organizational Behavior, 14* (4): 331-349.

Layne, K. & Lee, J. (2001). "Developing Fully Functional E-Government: A Four Stage Model." *Government Information Quarterly, 18* (2): 122-136.

Luthans, F. (2002). "The Need for and Meaning of Positive Organizational Behavior." *Journal of Organizational Behavior, 23* (6): 695-706.

Mandell, M. (2001). "Collaboration through Network Structures for Community Building Efforts." *National Civic Review, 90* (3): 279-287.

McKnight, D., Cummings, L. & Chervany, N. (1998). "Initial Trust Formation in New Organizational Relationships." *Academy of Management Review, 23* (3): 473-490.

Mello, A. (2002, December 18). "CRM Failures: Don't Blame the Tools." *Tech Updates*. [Online]. Available at

http://techupdate.zdnet.com/techupdate/stories/main/0,14179 ,2902068,00.html. [Retrieved on May 23, 2008].

Melitski, J., & Holzer, M.  (2005). "Digital Government Worldwide: An e-Government Assessment of Municipal Web Sites throughout the World." *International Journal of E-government Research, 1* (1): 1-19.

Moon, M. J. (2002). "The Evolution of E-Government among Municipalities: Rhetoric or Reality?" *Public Administration Review, 62* (4): 424-433.

Morrison, D., Cordory, J., Girardi, A., & Payne, R. (2005). "Job Design, Opportunities for Skill Utilization, Intrinsic Job Satisfaction." *European Journal of Work and Organizational Psychology, 14* (1): 59-79.

Olson, B., & Suls, J. (2000).  "Self-, Other-, and Ideal-Judgments of Risk and Caution as a Function of the Five-Factor Model of Personality." *Personality and Individual Differences, 28*: 425-436.

Porter, M. (1980). *Competitive Strategy*. New York: Free Press.

Porter, M. (1985). *Competitive Advantage*. New York: Free Press.

Provan, K. G., & Milward, H.  (2001). "Do Networks Really Work?  A Framework for Evaluating Public-Sector Organizational Networks." *Public Administration Review, 61* (4): 414-423.

Quinn, R. E. (1988). *Beyond Rational Management*. San Francisco, CA: Jossey-Bass.

Quinn, R. E. & Rohrbaugh, J. (1981, June). "A Competing Values Approach to Organizational Effectiveness." *Public Productivity Review*, 5 (2): 122-140.

Reger, R. & Huff, A.  (1993)  "Strategic Groups:  A Cognitive Perspective." *Strategic Management Journal, 14*:  103-124.

Rhoades, L. & Eisenberger, R. (2002). "Perceived Organizational Support: A Review of the Literature." *Journal of Applied Psychology, 87* (4): 698-714.

Seligman, M. & Csikszentmihalyi, M. (2000). "Positive Psychology: An Introduction." *American Psychologist, 55* (1): 5-14.

Tan, F. & Sutherland, P. (2005). "Online Consumer Trust: A Multi-Dimensional Model." In Khosrow-Pour, M. (Ed.), *Advanced Topics in Electronic Commerce* (*Volume 1*) (pp. 188-208). Hershey, PA: Idea Group Publishing.

Theiss, S. (2006). "The Importance of Being Diligent: HR Consulting and Software Vendor Selection." *Employee Benefit Plan Review, 60* (12): 26-27.

United Nations-American Society for Public Administration (UN-ASPA). (2002). *Benchmarking E-government: A Global Perspective*. New York: United Nations.

Venkatraman, N. (1997). "Beyond Outsourcing: Managing IT Resources as a Value Center." *Sloan Management Review, 38* (3): 51-64.

Wernerfelt, B. (1984). "A Resource-Based View of the Firm." *Strategic Management Journal, 5*: 171-180.

West, J. P. (2003). "State and Federal e-Government in the United States, (Policy Report). [Online]. Available at www.insidepolitics.org/egovt03us. [Retrieved April 30, 2004].

Wright, T.A. & Crapanzano, R. (2004). "The Role of Psychological Well-Being in Job Performance: A Fresh Look at an Age-Old Quest." *Organizational Dynamics, 33* (4): 338-351.

Wright, T.A. (2003). "Positive Organizational Behavior: An Idea Whose Time Has Truly Come." *Journal of Organizational Behavior, 24 (4):* 437-442.

Wright, T.A. (2006). "To Be or Not to Be [Happy]: The Role of Employee Well-Being." *Academy of Management Perspectives, 20* (3): 118-120.

Yang, K. & Melitski, J. (2007). "Competing and Complementary Values in Information Technology Strategic Planning: Observations from Ten States." *Public Performance and Management Review, 30* (3): 426-462.

Zuboff, S. (1988). *In the Age of the Smart Machine.* New York: Basic Books.