Digital Commons @ George Fox University

2008

The Role of ICT in Support of Adaptable Work Arrangements

Pamela Dixon-Krausse
Wayne State College

Paul Shelton
George Fox University, pshelton@georgefox.edu

The Role of ICT in Support of Adaptable Work Arrangements

Pamela Marie Dixon
Wayne State College, USA

Paul M. Shelton
University of Central Oklahoma, USA

INTRODUCTION

There has been a proliferation of adaptable work arrangements in United States (U.S.) organizations, which is driven by a convergence of information and communications technology (ICT) and workforce trends. Specifically, workforce trends indicate an increase in demographic diversity and a projected reduction in skilled workers. These trends have led many U.S. organizations to focus on retention strategies and subsequently to place emphasis on adaptable work arrangements as a workforce imperative. In this article, we describe the forces driving the utilization of adaptable work arrangements. Moreover, we will illuminate the ICT currently available to successfully design and execute adaptable work arrangements in support of increased productivity, and the realization of organizational sustainability and competitiveness.

BACKGROUND

Increasingly, human resources researchers and practitioners in the U.S. maintain that changing demographics, a projected reduction in the availability of skilled workers, and the increasing capacity of ICT are all converging to create a dramatic shift in the U.S. workforce. Together, these forces are changing the conventional way organizations approach work design, and they are creating a subsequent paradigm shift in the way U.S. organizations view the traditional workweek. In the context of the post-industrial workforce, the traditional paradigm has viewed workers as committed only when they are physically present in the office, and when they maintain, at the very least, a 40-hour work week (Huff, 2005). The conventions applied to the current and future U.S. workforce are

evolving in order to ensure sustainable organizations that can compete in the global marketplace.

Rather than products or services, people are considered to be the differentiator in today's global economy. The implications for an organization's human resources strategies include the creation and sustainability of a responsive and adaptable workforce. This implication, in turn, re-frames the traditional paradigm or mindset, and places greater emphasis on human resource practices that are flexible, and provide employees with more choices.

Gratton (2003) outlines dimensions of choice that are most important to workers; two of which include choice of location and choice of time. Working from home and/or having more control over when and how long they will work has enabled many workers to create a work/life balance. When provided with choices regarding location and time, studies have found that motivation, commitment, and productivity are positively impacted (Reeves & Doyle, 2002). The demand for increased choice is largely driven by the demographic changes in the U.S. workforce. U.S. organizations striving to remain competitive, are changing their workforce policies and practices in order to be more in line with what is most attractive to workers; the availability of adaptable work arrangements (Greenbaum, 2004).

Changing demographics in the U.S. workforce will increasingly have an impact on U.S. organizations' ability to remain viable in the global economy. Specifically, the workforce trends indicate an increase in generational differences (e.g., retirees or baby-boomers, generation X and generation Y) and a greater gender balance. Consequently, lifestyle choices and needs of the workforce will have to be considered as companies compete for talent (Lobel, Googins, & Bankert, 1999).

According to Hankin (2005), a highly blended generational diversity in the workforce is accompanied by a desire for balance between family, lifestyle,

and career choices. As the baby-boomer generation teeters on the cusp of eligibility for retirement, many are choosing not to retire. This generation is staying in the workforce longer; however, they are choosing to remain or return to the workforce within organizations that provide adaptable work arrangements (Mullich, 2003). Generation X and Y employees tend to place a higher priority on a balance of work and life, and seek out a flexible way to achieve career goals (Hankin, 2005). Generation Y employees, also dubbed "N-Gen," in particular, will seek work on their own terms. They are self-reliant, are better able (compared to their older peers) to adapt to new technologies (Weinberg, 2004). More and more, individuals of all ages will have an influence on how organizations attempt to attract and retain workers.

Gender has also had an impact on the U.S. workforce. As of 2004, 59% of the U.S. workforce was made up of women. Further, women held 50% of management and professional positions and 33% of women in the workforce held college degrees (BLS, 2005). While men are placing more value on personal time and are taking on a larger role in the family unit, women are still the primary care giver (Zimmerman, 2004). Based on these trends, an organizational focus on work/life balance is taking a prominent role in human resources practices. A study done by the Alliance for Work-Life Progress (AWLP) found that, under the umbrella of work/life balance programs, greater emphasis continues to be placed on workplace flexibility, including alternative work schedules and tele-work arrangements (Miller, 2006).

The final workforce trend this article addresses, which has become an impetus for the focus on retention in organizations, is that U.S. organizations are faced with an increasingly tight labor market. According to the U.S. Department of Labor (2000), this is primarily due to a lack of population growth. As the baby-boomers move out of the labor force, and generation Y moves in, a more limited pool of highly skilled talent will be available. At the same time, people, not natural resources or manufactured goods, are the predominant features in the U.S. economy (Jorgenson, 2001). Many of the new jobs being created in this era supported by knowledge workers are in fields that require critical thinking and creativity. A company's ability to create a value proposition, thereby attracting and retaining human talent, has become a prominent lever for continued sustainability and growth (Florida, 2005). Given the workforce trends outlined, the need for human resource policies and practices that support adaptable work arrangements is clear.

ICT TOOLS THAT SUPPORT ADAPTABLE WORK ARRANGEMENTS

In addition to human resource policies and practices, ICT will be a key component to drive how, when, and where work gets done in U.S. organizations. How organizations utilize the talent within their workforce has less to do with proximity and location and more to do with accessibility to ICT.

Advances in ICT enable a more decentralized organizational structure and innovative job designs. The workplace has evolved to become "net-centric" (Wallace, 2004) and recent studies show that it is paying off. Increases in productivity and revenue have been demonstrated when company's use ICT to create adaptable workforce arrangements (Pilat & Wyckoff, 2005).

Workers who are not physically located in the office at all, or not every day, need to be able to "transport work back and forth, maintain regular contact with colleagues, and perform as effectively as they would if they were physically present at the office" (Dutton, Kahin, O'Callaghan, & Wyckoff, 2005). The work done in organizations requires cooperation on the part of people, in order to accomplish assigned tasks. It is this requirement, cooperation that can be negatively impacted when individuals work in an adaptable work arrangement. ICT plays a critical role in linking individuals and ensuring cooperation can still exist; even though it is not accomplished face to face (Greenbaum, 2004). ICT tools that support adaptable work arrangements include the Internet, intranet, mobile devices, and programming language created for the human resources sector.

The Internet has been called a "seamless digital workplace" (Weekes & Beagrie, 2002). Internet-based solutions, such as virtual private networks (VPNs) and Web portals help organizations ensure that employees, no matter there physical location, are connected to the organization from a pragmatic, intellectual, and visceral perspective (Wallace, 2004). For example, the isolation traditionally felt by tele-workers is being diminished by the use of video conferencing and webcams, which support digitally- enabled face to face meetings.

An intranet is a private network, made up of local area networks (LANS) within an organization. The intranet enables employees to share information and resources, and it is also used as a gateway to an employee portal that can consist of B2E (business to employee) and self service tools (Weekes & Beagrie, 2002). Employee portals are used to provide everything an employee needs to do their job and to meet their personal needs as well (e.g., shopping online).

Today, a flexible workforce has wireless technology that enables them to access to the organization's network while on the go. Examples of this mobile technology include laptops; the pocket PC or portable digital assistant (PDA), which provide access to the Internet, e-mail, or a cellular phone; and Blackberries which are hand-held devices that allow employees to receive and send e-mail from anywhere. Access to and transmission of work-related information in a mobile format will continue to expand. Further, WIFI (wireless) will be a dominant technology used in an adaptable workforce that is highly mobile (Lehmann, Kuhn, & Lehner, 2004).

HR-XML, human resources extensible mark up language, was specifically created for the HR sector. The usefulness of HR-XML consists of its ability to eliminate barriers to online data exchange, and in doing so, enables communication across different systems. XML is "a language for organizing and storing data" (Weiss, 2001). The use of XML as a way to create data standards for the human resources industry is currently being exploited. For example, HR-XML has been used to establish a standard for posting job openings on Web-based job boards and retrieving resumes from job seekers. HR-XML is also being used to ensure privacy in learning portals (Klobucar, Senicar, & Blazic, 2004), and to enable extraction of social network metadata (Downes, 2005).

Driven by ICT, e-work, e-lancers, and other adaptable work arrangements such as telecommuting and job-sharing provide a solution to the retention and productivity increases required by U.S. companies. ICT has become the primary facilitator and delivery mechanism for the new workforce model (Weekes & Beagrie, 2002). Human resources strategies that include ICT will continue to be critical support mechanisms for organizational performance sustainability and market competitiveness.

FUTURE TRENDS

The ability to offer adaptable work arrangements has become a U.S. workforce imperative. A new employment contract is emerging which consists of workforce strategies that include the design of adaptable work arrangements. The old contract between employer and employee is no longer viable. Rather, work arrangements allowing for adaptability in job design is indicative of the future workforce (Greenbaum, 2004). At the same time, questions still remain regarding the effects of a workforce that is primarily working from different locations, at different times, and is highly mobile.

According to Herper (2000), Moore's Law states that computer technology tends to double their processor speed every 18 months (in Ausburn, 2002). Further, Ausburn contends that the field of molecular or quantum computing promises computer technology that can interact as intelligently as humans, in terms of problem solving. While advances in technology continue, there is the human side that must be included in the workforce equation. Facilitation of adaptable work arrangements also requires the development of commitment, encouraging engagement, and connecting people in a way that supports cooperation and trusting relationships (Wallace, 2004). Relationships between co-workers and human connections may be altered by distil working arrangements. Future studies will need to determine how relational factors impact the ability to be successful in adaptable work arrangements. When utilizing ICT for adaptable work arrangements, human resource strategies must place equal emphasis on the enabling technology, as well as the human factors for building and maintaining productive work relationships.

CONCLUSION

This article explored the forces driving the utilization of adaptable work arrangements in U.S. organizations. Moreover, the article illuminated the ICT currently available to successfully design and execute adaptable work arrangements in support of increased productivity and realization of strategic organizational goals. There are still challenges that need to be overcome with regard to the utilization of adaptable work arrangements in U.S. organizations. Nevertheless, it is the author's contention that a move toward a more adaptable and

mobile workforce will continue to emerge as a human resource strategy that enables the successful retention and utilization of human capital in U.S. organizations. Further, ICT is the key mechanism that will be a driving force for innovative work design and effective workforce management in the future.

REFERENCES

Ausburn, L. J. (2002, Fall). Fast, flexible, and digital: Forecasts for occupational and workplace education. *Workforce Education Forum, 29*(2), 29-49.

Bureau of Labor Statistics. (2005). *Women in the labor force*. Retrieved on April 19, 2006, from http://www.bls.gov/cps/

Downes, D. (2005, October). Semantic networks and social networks. *The Learning Organization, 12*(5), 411-417.

Dutton, W., Kahin, B., O'Callaghan, R., & Wyckoff, A. (2005). *Transforming enterprise: The economic and social implications of information technology*. Cambridge: MIT Press.

Florida, R. (2005). *The flight of the creative class: The new global competition for talent*. New York: Harper Collins.

Gratton, L. (2003). Free to choose: Fostering the innovative organization. In, M. Effron, R. Gandossy, & M. Goldsmith (Eds.), *Human resources in the 21st century* (pp. 129-134). Hoboken, NJ: John Wiley & Sons.

Greenbaum, J. (2004). *Windows on the workplace: Technology, jobs and the organization of office work* (2nd ed.). New York: Monthly Review Press.

Hankin, H. (2005). *The new workforce: Five sweeping trends that will shape your company's future*. New York: AMACOM.

Huff, C. (2005, May). With flextime, less can be more. *Workforce Management, 84*(5), 65-70.

Jorgenson, D. W. (2001). Information technology and the U.S. economy. *American Economic Review, 91*(1), 1-32.

Klobucar, T., Senicar, V., & Blazic, B. J. (2004). Privacy and personalization in a smart space for learn-ing. *International Journal of Continuing Engineering Education and Life Long Learning, 14*(4-5), 388-401. Retrieved on July 20, 2006, from http://inderscience.metapress.com

Lehmann, H., Kuhn, J., & Lehner, F. (2004). The future of mobile technology: findings from a European Delphi study. In *Proceedings of the 37th annual Hawaii International Conference on System Sciences*. Retrieved on March 2, 2005, from http://ieeexplore.ieee.org/xpl/RecentCon.jsp?punumber=8934

Lobel, S. A., Googins, B. K., & Bankert, E. (1999, Fall). The future of work and family: Critical trends for policy, practice and research. *Human Resource Management, 38*(3), 243-254.

Miller, S. (2006, May). Work-life initiatives focus more on employee health and well-being. Society of Human Resources Management: Compensation and Benefits.

Mullich, J. (2003, December). They don't retire them they hire them. *Workforce Management.* Retrieved on April 2, 2006, from www.workforce.com

Pilat, D., & Wyckoff, A. W. (2005). The impacts of ICT on economic performance: an international comparison at three levels of analysis. In W. H. Dutton, B. Kahin, R. O'Callaghan, & A. W. Wyckoff (Eds.), *Transforming enterprise: The economic and social implications of information technology*. Cambridge: MIT Press.

Reeves, R., & Doyle, J. (2002, July). *Time out—the case for time sovereignty*. London: The Industrial Society.

United States Department of Labor. (2000, June). Bureau of labor statistics: Issues in labor statistics summary 00-13. U.S. DOL.

Wallace, P. (2004). *The internet in the workplace: How new technology is transforming work*. Cambridge: University Press.

Weekes, S., & Bearie, S. (2002). *E-people*. Oxford: Capstone Publishing.

Weinberg, B. (2004). *Experience and technology adoption*. Institute for the Study of Labor Discussion Paper. Retrieved on July 14, 2006, from http://opus.zbw-kiel.de/voltexte/2004/1716/pdf/dp1051.pdf

Weiss, R. J. (2001). Six things you should know about XML. *The Industrial Organizational Psychologist*.

Retrieved on July 5, 2006, from http://hrm.ncsu.edu/bus590j/docs/sixthingsaboutXML.pdf

Zimmerman, E. (2004, March). The joy of flex. *Workforce Management, 83*(3), 38-40.

KEY TERMS

Adaptable Work Arrangements: Non-traditional job designs that utilize ICT in order to enable individuals to work from different locations, and at any time during the day or night. Individuals are not physically on site at a work location (e-work) or they work on a flexible schedule. These individuals have been called e-lancers and telecommuters. Another arrangement, job shares, also utilizes ICT in order to ensure communication and cooperation between two people who are responsible for accomplishing tasks involved in a single job.

B2E: Refers to "business to employee" services that are provided on an internal network within the organization. Services typically include 401K management, or benefits information.

Baby-Boomers: Boomers represent individuals born between 1946 and 1964, which was a period of time when the U.S. experienced an increase in birthrates. Approximately 79 million babies were born during this time.

Generation Y: Also known as N-Gen (Net Generation) or Millennials; consist of individuals born between 1977 and 2003. This group is considered to be a generation that has grown up with the Internet and digital devices as part of their everyday life.

Generation X: The generation that followed the baby boomers, born between 1965 and 1980. In comparison to the Boomers, only 44.6 million individuals were born during this time. This generation was raised on television and personal computers.

HR-XML: Human resources extensible mark up language is a programming language created for the HR sector. The purpose is to provide standards for accessing and delivering human resources related information online.

ICT: Information and communications technology manages and processes information in organizations. ICT consists of, among others, electronic computers, VPNs, Internet and Web portals, B2E, mobile devices, such as the PDA, and wireless connections.

PDA: Portable digital assistants, such as the pocket-PC, are electronic, wireless hand-held devices function as a cell phone, a computer (can access e-mail and the Internet), a camera, a digital audio recorder, and can play music.

VPN: Virtual private networks are used within organizations to provide access from a remote worker to private company-related information over a publicly accessible network.

Webportal: These Web sites are designed to provide access to information via a desk top or mobile device (PDAs, cell phones) for the purpose of learning and development, or personal services such as shopping online.