

Association for Information Systems AIS Electronic Library (AISeL)

AMCIS 1995 Proceedings

Americas Conference on Information Systems
(AMCIS)

8-25-1995

Facilitating Telework's Adoption and Implementation

Cynthia Ruppel
The University of Toledo

Geoffry Howard
Kent State University

Follow this and additional works at: <http://aisel.aisnet.org/amcis1995>

Recommended Citation

Ruppel, Cynthia and Howard, Geoffry, "Facilitating Telework's Adoption and Implementation" (1995). *AMCIS 1995 Proceedings*. 86.
<http://aisel.aisnet.org/amcis1995/86>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 1995 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Facilitating Telework's Adoption and Implementation

Cynthia Ruppel
The University of Toledo
3046 Saybrooke Blvd.
Stow, OH 44224
(216) 678-0294

Geoffry Howard
Kent State University
Kent, OH 44242
(216) 672-2750 ext. 342

Many innovation studies have focused on the organizational variables that impact the general innovativeness of an organization as measured by the number of innovations adopted and implemented. These organizational variables have been meta-analyzed by Damanpour (1991) and related to Information Technology (IT) by Kwon and Zmud's (1987) model of Information Systems Implementation. They include such variables as organizational size, formalization, centralization, specialization, functional differentiation and managerial attitude towards change (Damanpour, 1991).

Also, these variables have been studied in relation to many specific innovations such as Computer Aided Software Engineering (Rai, 1990), Electronic Data Interchange (McGowan, 1994), and telemarketing (Marshall & Vredenburg, 1992), as well as specific groups of innovations such as telecommunications technologies (Grover & Goslar, 1993), modern software practices (Zmud, 1982) and human resources practices (Tannenbaum & Dupuree-Bruno, 1994). The mixed results concerning the importance of these general organizational variables in relation to specific innovations and groups of related innovations suggests that the nature of the innovation itself may play a significant role in an innovation's adoption and implementation, beyond that explained by these organizational variables.

When studying specific innovations, a fuller understanding of adoption and implementation behaviors may be explained additionally by factors which facilitate the adoption and/or implementation of these specific innovations. The importance of these variables is suggested by Rogers (1983) who, in the adoption process in organizations, identifies a matching stage which involves knowing and understanding the specific characteristics of the innovation under consideration. In the implementation process, he identifies a redefining/restructuring stage. This stage also requires understanding and/or modifying the specific characteristics of the innovation that has been adopted, or modifying the organizational structure of the adopting organization to facilitate the implementation of the innovation. These specific characteristics of an innovation will be referred to as facilitator variables. While some facilitator variables may be found to be common across several innovations, such as the importance of top management support for the innovation's adoption and implementation and the existence of a champion for the

innovation, other facilitator variables maybe suggested by the specific characteristics of the innovation being studied.

The innovation investigated in this study, together with the factors which may facilitate its adoption and implementation, is telework or telecommuting. The popular telework literature was examined to determine what factors are believed to facilitate telework's use. The specific factors suggested by the telework literature as important to telework's adoption and/or implementation are the existence of a career ladder for teleworkers (Niles, 1992; Knight 1994; Verespej, 1994), the availability of rich communications media for teleworkers and his/her manager (Hotch, 1993), the planning of telework arrangements (Jones, 1992), the training of managers about the benefits of telework (Huws, Korte & Robinson, 1990; Blake, 1994), the training of managers to remotely manage teleworkers (Jones, 1992; Misutka, 1992; Niles, 1992), the training of teleworkers (Lavelle, 1993; Szappanos, 1993) and the existence of perceived adequate security measures (Misutka, 1992, Niles, 1992).

To gather data concerning the importance of these facilitator variables to the adoption and/or implementation of telework, a national (U.S.) survey was distributed to the top information systems (IS) executives at IS firms and IS departments. A total of 252 usable responses were obtained with 120 respondents reporting some degree of telework while 132 respondents indicated that no telework was taking place.

Non-parametric statistics were used to analyze the adoption and implementation behaviors. A Mann-Whitney U test was used to compare adopters to nonadopters. Kendall's Tau correlation coefficients were calculated for the 120 adopters to determine which variables were related to the implementation of telework. The implementation of telework was measured as a weighted average of a level indicating the amount of weekly work-time spent teleworking and the number of employees participating at each level.

Richness of communications media, training managers about the benefits of telework, the existence of adequate security measures, the existence of a champion and top management support were all found to be highly significantly ($p \leq 0.002$) related to the adoption of telework. (See Table 1) In all cases, significantly greater median values for these variables were found among adopters of telework than were found among nonadopters.

The existence of a career ladder, planning telework arrangements, and the training of the managers and teleworkers were only considered appropriate for study among adopters since they are relevant to the implementation of telework. Those variables found to be significantly related to telework implementation are the existence of a career ladder for teleworkers, planning, training managers about the benefits of telework, the existence of perceived adequate security measures, the existence of a champion for telework and top management support of telework. (See Table 2)

Therefore, the general facilitator variables, the existence of a champion and the importance of top management support were related to both the adoption and the

implementation of telework. A telework-specific facilitator variable, richness of communications media was significant to telework adoption, but not to implementation. The telework-specific facilitator variables, training managers about telework and the existence of adequate security measures were significantly related to both the adoption and implementation of telework.

These findings suggest that, with respect to a specific innovation, the study of facilitator variables is important to obtaining a more complete understanding of both the adoption and implementation of a specific innovation and the application of general innovation theory to a specific innovation. These results for innovation-specific facilitator variables may suggest a possible explanation for the mixed results for the relationship of organizational variables and a specific innovation. An interaction between the facilitator variables and the organizational variables may also exist.

By considering the specific characteristics of the innovation, it may also help to eliminate the pro-innovation bias problem discussed by Rogers (1983), since it does not assume that the innovation inherently should be adopted and implemented by all organizations, but it should "fit" the organization or, as suggested by Zmud (1984), innovations represent a new means to meet an organization's needs. This is consistent with the telework literature which suggests telework's use should fill a business need (Gordon, 1986). Goodrich (1990) states telework has flexibility in its implementation which allows its use to be shaped around specific needs, suggesting that in telework's adoption and implementation these facilitator variables are particularly important.

These facilitator variables are also of particular interest to those wishing to champion the innovation. A knowledge of these specific characteristics related to the adoption and implementation of the innovation may also provide insights into its potential for use in an organization and allow the matching process suggested by Rogers (1983) to be accomplished more readily. These facilitator variables may suggest an organizations compatibility with the innovation.

Table 1

Mann-Whitney U Test for Adoption Variables

| Variable | Adopters | Nonadopters | p-value |
|---------------------------|----------|-------------|---------|
| Richness of Media | 146.39 | 108.42 | 0.0000 |
| Training Manager Benefits | 142.64 | 109.68 | 0.0002 |
| Security | 144.60 | 108.97 | 0.0001 |
| Champion | 155.67 | 99.98 | 0.0000 |
| Top Management Support | 159.92 | 94.93 | 0.0000 |

Table 2

Correlation Coefficient and P-Values for Implementation Variables

| Variable | Coefficient | p-value |
|------------------------|-------------|---------|
| Career Ladder | 0.3329 | 0.000 |
| Planning | 0.1677 | 0.024 |
| Richness of Media | 0.0321 | 0.317 |
| Training Manager-- | | |
| About Benefits | 0.1724 | 0.006 |
| Of Teleworker | 0.0980 | 0.138 |
| Training Teleworker | 0.1260 | 0.073 |
| Security | 0.2790 | 0.000 |
| Champion | 0.3325 | 0.000 |
| Top Management Support | 0.3889 | 0.000 |

Bibliography

Blake, M. (1994, April). Teleworking in the Nineties: A Look at Current Views. Managing Information, 1(4), pp. 24-26.

Damanpour, F. (1991). Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moderators. Academy of Management Journal, 34(3), 555-590.

Goodrich, J. N. (1990, July-August). Telecommuting in America. Business Horizons, 33(4), pp. 31-37.

Gordon, G. E. (1986, Summer) Telecommuting: Planning for New Work Environment, Journal of Information Systems Management, 3(3), pp. 37-44.

Grover, V. & Goslar, M. D. (1993, Summer). The Initiation, Adoption, and Implementation of Telecommunications Technologies in U.S. Organization. Journal of Management Information Systems, 10(1), 141-163.

Hotch, R. (1993, February). Managing From A Distance. Nation's Business, pp. 24-26.

Huws, U., Korte, W. B. & Robinson, S. (1990). Telework: Towards the Elusive Office. Chichester: John Wiley & Sons.

Kwon, T. E. & Zmud, R. W. (1987). Unifying the Fragmented Models of Information Systems Implementation. In Boland, R. J. & Hirschheim, R.A. (Eds.), Critical Issues in Information Systems Research. Chichester, New York, Brisbane, Toronto, Singapore: John Wiley & Sons.

Jones, D. (1992, June 15). Telecommuting A Good Fit For Ins. National Underwriter, 96(24), p. 35.

- Knight, F. S. (1994, March). Telecommuting's Time--Has It Come? Business Communications Review, 24(3), p. 6.
- Lavallee, W. (1993, December). Telecommuting still limited, but growing. Communications News, 30(12), pp. 30, 35.
- Marshall, J. J. & Vredenburg, H. (1992, Summer). An Empirical Study of Factors Influencing Innovation Implementation in Industrial Sales Organization. Journal of the Academy of Marketing Science, 20(3), 205-215.
- McGowan, M. (1994). The Extent of Electronic Data Interchange Implementation: An Innovation Diffusion Theory Perspective, (Doctoral dissertation, Kent State University, 1994).
- Misutka, F. (1992, May). The Workplace Takes Wing. Canadian Business, 65(5), 7377.
- Niles, J. S. (1992, November). Bringing It All Back Home: A Look at the Bottom Line. Corporate Computing, 1(5), pp. 181-183.
- Rai, A. (1990). Stimulating the Use of Computer-Aided Software Engineering in Information System Departments: An Empirical Investigation of Elements of Innovation Theory, (Doctoral dissertation, Kent State University, 1990).
- Rogers, E. M. (1983). Diffusion of Innovations, New York: Free Press.
- Szappanos, A. (1993, January 18). Technology eases telecommuting: At-home employees on the rise. Crain's Cleveland Business, 14(3), pp. 13-14.
- Tannenbaum, S. & Dupuree-Bruno, L. (1994, June). The Relationship Between Organizational and Environmental Factors and the Use of Innovative Human Resources Practices, Group and Organization Management, 19(2), pp. 171-202.
- Verespej, M. (1994, July 4). The Anytime, Anyplace, Workplace. Industry Week, 243(13), pp. 37-40.
- Zmud, R. W. (1982, December). Diffusion of Modern Software Practices: Influence of Centralization and Formalization. Management Science, 28(12), 1421-1431.
- Zmud, R. W. (1984, June). An Examination of 'Push-Pull' Theory Applied to Process Innovation in Knowledge Work. Management Science, 30(6), pp. 727-738.