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The Impact of Bureaucratic Control on Organizational Predisposition Towards Distributed Work Arrangements: An Empirical Study

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Abstract

Many organizational businesses today are operating in increasingly complex and turbulent environments. To meet the challenges of such uncertain environments, organizational flexibility and adaptation to change have become important tools for organizational survival. Since the emergence of distributed computing and the Internet, many organizations are evolving to flexible forms where employees work in distributed environments through distributed work arrangements (DWAs). These arrangements could allow firms to operate more effectively in the competitive environment. However, the willingness of firms to adopt such work arrangements may shaped to a significant extent by their pre-existing control systems. This research aims to investigate whether control structures, specifically bureaucracy in organizations, could affect organizational attitudes towards the adoption of DWAs. Using innovation diffusion theory, a path model is proposed wherein bureaucratic control could affect perceptions of organizational decision makers towards, and which ultimately affect their intentions to adopt DWA.

Keywords: Adoption intention, Bureaucratic control, Distributed work arrangement

1. Introduction

Organization businesses have become increasingly international. With the globalization of organizations and the availability of advanced information and communications technologies, working in distributed environments is likely to be a common phenomenon. Distributed work arrangement (DWA) is an alternative form of work arrangement which involve the performance of organizational work in geographical locations outside the traditional boundaries of organizations (Gupta et al., 1995). Forms of distributed work include virtual teamwork (Barua et al., 1995; Gupta et al., 1995), the setting up of satellite and neighborhood work centers, hotelling, the employment of contract professionals (Tomaskovic-Devey and Risman, 1993; O'Reilly, 1992), and/or the implementation of flextime schemes and teleworking from home (Korte, 1988). Organizations that adopt DWA as a new form of work arrangement often requires fundamental and radical changes in organizational design such as its structure, choice of physical work locations, coordination and control mechanisms, and reward system.

Distributed work arrangements (DWAs) have enormous potential for organizations to reduce operating costs such as office rentals (which is very high in major cities of the world such as Hong Kong), to increase competitiveness by promptly responding to the demands of highly sophisticated customers, and to have greater access to a wider pool of professional talents from Hong Kong, Macau and Mainland China, among others. DWAs also have important social and societal implications (e.g., Gupta et al., 1995; Shamir and Salomon, 1985; DeSanctis, 1984). They could help to improve quality of work life, reduce traffic jams, and provide employment opportunities for people who are otherwise unable to work (such as the handicapped, or parents with young children). Hence, possible advantages offered by distributed over traditional work include increased output and productivity, flexibility and agility, and strategic competitiveness. To realize these benefits, organizations today are starting to redesign their governance structures (organizational designs) towards those of virtual firms (Lucas, 1996; Sieber, 1996; Ross and Rockart, 1996), such as by the adoption of distributed work arrangement (Sia et al., 1998; Ruppel and Harrington, 1995).

Despite its numerous potential benefits, DWAs have not yet been as widely adopted as expected (Ruppel and Harrington, 1995). This could be due to the bureaucratic system under which many traditional Asian firms operate. Traditional bureaucratic firms typically emphasize rules, structure and hierarchy, and de-emphasizes creativity and innovation (Starbuck, 1982; Morgan, 1989; Barker 1993). Conversely, DWAs emphasizes trust, collaborative work structure, and self-management (Barker, 1993; Handy, 1995). Thus, to adopt DWA, such firms would require significant changes to their organizational climate and organizational designs, such as organizational structure, coordination and control mechanisms, and reward systems.

To-date, studies on distributed work adoption have largely been confined to organizational factors (Tomaskovic-Devey and Risman, 1993; Ruppel and Harrington, 1995), task and employee characteristics (e.g., Olson, 1983), and technological characteristics (e.g., Gupta et al., 1995; Staples et al., 1999). Little empirical work has focused on examining the relationship between a particular organizational structure like hierarchical bureaucratic control, and innovation adoption. The working environment in a bureaucratic organization is often rigid and structured, which may contrast sharply with the situation when working in a distributed environment. Thus, it would be interesting to investigate whether and how

bureaucracy control could affect the adoption of DWA.

This exploratory study aims to focus on the relationship between bureaucracy and the adoption of DWAs. It proposes a path model in which bureaucratic control could affect organizations' perceptions on distributed work, which in turn affect their adoption intentions. This paper reviews literature on organizational innovation and innovation diffusion to identify the relevant factors for study. Through understanding how bureaucratic control affects organizations' perceptions on DWAs, this paper could provide practical implications for policy-makers to formulate appropriate strategies for effective diffusion of such work arrangements. This study could also provide the basis to understand the reluctance of organizations to adopt DWAs, by taking into account their organization's control system.

2. Theoretical Perspectives and Hypotheses

An *innovation* is an idea, product, or process that is new to an adopter (Hage and Aiken, 1967; Rogers, 1995; Zaltman et al., 1973). The adoption of distributed work by firms requires significant changes in organizational structure, rewards systems and, coordination and control mechanisms. Thus, DWAs could be considered to be an innovation. The notion of DWAs (e.g. telecommuting or hotelling), despite being around for a long time in US (Ruppel and Harrington, 1995), is not very popular among organizations in Asia. This study therefore focuses on potential adopting organizations. It seeks to examine how the bureaucratic climate in organizations affects organizational predisposition toward DWAs through shaping the organizational perceptions. The concept of bureaucracy is taken mainly from management literature (e.g. Barker, 1993), while organizational perceptions of DWAs are taken primarily from innovation diffusion theory (Rogers, 1995). Figure 1 depicts the research model.

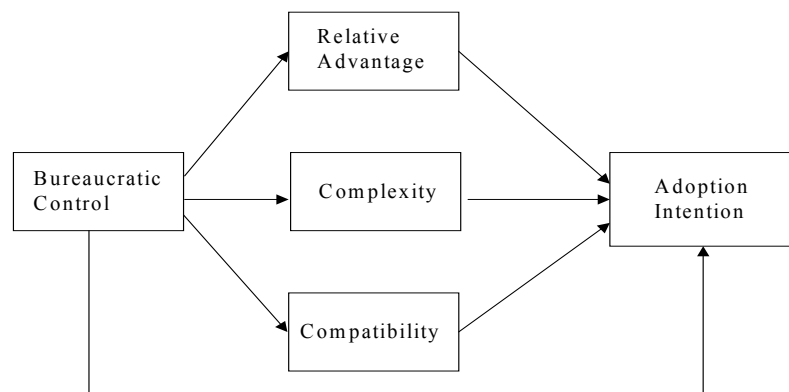


Figure 1 The Research Model

2.1 Perceived Innovation Characteristics and Adoption Intention

Innovation diffusion theory (Rogers, 1995) posits that five perceived innovation attributes influence adoption: relative advantage, complexity, compatibility, observability, and trialability. Among them, the first three have been consistently found to be important in influencing adoption behavior (e.g., Grover, 1993; Tornatzky and Klein, 1982). This study assesses the extent to which these three perceived characteristics could predict organizational predisposition toward DWAs.

2.1.1 *Relative Advantage*

Relative advantage is the degree to which using an innovation is perceived as being more advantageous than using its precursor. It is manifested as increased efficiency and effectiveness, economic gains, and enhanced status (Rogers, 1995; Moore and Benbasat, 1991). Adopters of distributed works have reported clear organizational benefits such as reduced operating costs (e.g., space savings), improved retention of skilled workers, heightened employee performance and productivity, and faster processing time (Duxbury and Haines, 1991; Gordon, 1988; Tomaskovic-Devey and Risman, 1993). Olson (1988) also found that the adopters may receive favorable publicity for their “enlightened” work style, especially if they provide employment opportunities for the physically handicapped. Hence:

H1: Perceived relative advantage is positively related to adoption intention for DWAs.

2.1.2 *Complexity*

Complexity is the degree to which an innovation is perceived as being difficult to understand and implement. Being a hybrid innovation with technological (e.g., security and connectivity of computer network) and administrative (e.g., changes to work styles and structures) implications, DWAs have been perceived as a complex innovation (Gordon, 1988). Researchers have suggested that a complex innovation requires greater skills and implementation efforts to adopt, thus reducing likelihood of adoption (e.g., Cooper and Zmud, 1990; Utterback, 1974). Complexity has been widely recognized as an inhibitor to adoption (e.g., LaBay and Kinnear, 1981; Rogers, 1995). Hence:

H2: Perceived complexity is negatively related to adoption intention for DWAs.

2.1.3 *Compatibility*

Compatibility is the degree to which an innovation is considered consistent with existing organizational goals, values, needs, systems, and experience. Positive empirical association between compatibility and adoption behavior has been found (e.g., Ettlie et al., 1984; Holak and Lehmann, 1990; Tornatzky and Klein, 1982). Organizations with poor telecommunications infrastructure, highly bureaucratic structures (need to “see” their employees working), and incompetent managers in organizing and managing remote work would be less likely to adopt distributed work arrangements (Olson, 1988). Hence:

H3: Perceived compatibility is positively related to adoption intention for DWAs.

2.2 ***Bureaucracy and Adoption Intention***

Strategies of control can have a significant impact on the adoption of innovations (Cameron et al., 1998). Employees working under a bureaucratic control system have to abide strictly to rules and be subjected to hierarchical monitoring, which can lead to reduced flexibility, creativity, and adaptability to changes (Barker, 1993). This is likely to lead to a negative impact on the adoption of innovations, because it could disrupt the stability so often valued in a bureaucratic organization. Indeed, research has established a direct negative relationship between bureaucracy and organizational innovations such as changes in organizational form, strategy, and culture (Huber et al., 1993; Ward et al., 1996; Damanpour, 1996). Hence:

H4: Bureaucracy is negatively related to adoption intention for DWAs.

2.3 Bureaucracy and Perceived Innovation Characteristics

2.3.1 Relative Advantage

Bureaucratic organizations are those that value predictability and security within situations of certainty and long response times (Quinn, 1988). They tend to emphasize centralization of control, standards and the status quo, and implement check-and-balance systems designed to prevent errors. Employees who do well in this type of organization are usually those who follow rules and procedures without question (Pearse and Bear, 1998). Very often, stability and centrality of control takes precedence over competition and responsiveness (short response times) in bureaucratic organizations (Quinn, 1988). Consequently, the benefits offered by DWAs, that includes agility and increased competitiveness, would not be attractive to decision makers in bureaucratic organizations. Conversely, non-bureaucratic organizations that value competitiveness and responsiveness over stability and centrality of control would tend to view the adaptability and competitiveness benefits of DWA much more favorably. Hence:

H5: Bureaucracy is negatively related to perceived relative advantage of DWAs.

2.3.2 Complexity

By adopting DWAs, bureaucratic organizations would have to transform their organization designs (structures, coordination and communication mechanisms, and reward systems) from a rule-based hierarchical system that emphasizes strict control to a flexible system that incorporates trust, collaborative work structures, and results-based rather than process-based management. Besides, new technologies supportive of decentralized work would have to be introduced. Such transformations would require a significant amount of implementation effort on the part of organizations operating under bureaucratic control. Hence:

H6: Bureaucracy is positively related to perceived complexity of DWAs.

2.3.3 Compatibility

Bureaucratic control is likely to require strict procedures and rules in order to ensure organizational effectiveness and viability. In organizational structures that are highly bureaucratic, decision-makers tend to prefer centralized, direct and process-oriented control, instead of flexible arrangements such as decentralized work (Pfeffer, p.161) where performance evaluation is less centralized, more self-managed, and more result-oriented. Handy (1995) suggested that decentralized task performance must be based more on trust rather than on direct control mechanisms so as to gain efficiencies, increase flexibility and reap other benefits of virtual work. This change from supervisory to participatory structures means that employee in distributed work environments will experience a different locus of authority. As a result of a possible redistribution of power, distributed virtual work may pose a threat to managers who are more accustomed to the traditional way of direct supervision. Thus, DWAs may not be compatible with traditional bureaucratic organizations, and decision-makers may tend to resist its adoption. Hence:

H7: *Bureaucracy is negatively related to perceived compatibility of DWAs.*

3. Research Methodology

This study used a questionnaire survey method to gather data on the perceptions and intentions of top-level executives toward DWAs. A literature review was performed on the areas of bureaucratic control system, innovation diffusion theory, and distributed work to generate the survey instrument. The survey questionnaire was administered to the chief executive officers (CEO) of 720 organizations listed in Dun and Bradstreet (1994).

3.1 Survey Instrument

In this study, bureaucracy (BUREAU) is measured by whether organizational rewards are distributed by appointment held and whether the organization has impersonal relations (Barker, 1993).

Innovation diffusion theory posits five factors that could potentially affect the adoption intention toward an innovation. Perceived relative advantage (RELADV), perceived complexity (COMPLX), and perceived compatibility (COMPAT) were consistent significant predictors of adoption behavior (Tornatzky and Klein, 1982). *Perceived relative advantage* is measured by whether DWAs could increase productivity, responsiveness to customers' needs and performance (Duxbury and Haines, 1991; DeSanctis, 1984; Tomaskovic-Devey and Risman, 1993; Nadler and Tushman, 1988). Perceived complexity is measured by whether it would be difficult for the organization to coordinate work, build employee's commitment to the organization, control the quality of work, and achieve organizational learning, when the organization adopts DWA (Tomaskovic-Devey and Risman, 1993; Duxbury and Haines, 1991; Nadler and Tushman, 1988; DeSanctis, 1984). Perceived compatibility is measured by whether DWAs are acceptable to organizations' management, supported by organizations' IT infrastructure and management practices, and consistent with organizations' human resources policies (Nadler and Tushman, 1988; Gupta et al., 1995). Adoption intention for distributed work arrangements (INTDWA) is measured by whether the organization will adopt it within the next two years. All questions were anchored on a seven-point scale from *strongly disagree* (1) to *strongly agree* (7).

4. Data Analyses

4.1 PLS Analyses

PLS, a second-generation causal modeling statistical technique (Wold, 1982), was used in this study. It allows the assessment of the measurement model within the context of a theoretical structural model (Fornell, 1982). It attempts to maximize variance explanation and theoretical model prediction without the need to have multivariate normal distributions, interval scales, or a large sample size (Fornell and Bookstein, 1982). PLS has been extensively employed in information systems (Amoroso and Cheney, 1991; Rivard and Huff, 1988; Thompson et al., 1991).

4.2 Evaluating the Measurement Model

Convergent and discriminant validity of the research instruments were examined to establish the strength of the constructs used in the research model. Convergent validity of a construct

refers to the extent to which two or more attempts to measure the construct are consistent with one another (Cook and Campbell, 1979). Convergent validity could be determined using three tests in PLS (Fornell and Larcker, 1981): reliability of each item in a scale (the squared loading), the composite reliability or internal consistency of each scale, and the average variance extracted by each scale. In addition, Cronbach's alphas were also used to establish reliabilities of the constructs. The results of these tests on the measurement model are shown in Appendix A. The individual item reliabilities for all measures in constructs were higher than the threshold value of 0.5 (Fornell, 1982; Hair et al., 1992), indicating that each measure had more explanatory power than error. The composite reliabilities of each construct with multiple measures were greater than 0.9, except for that of the bureaucratic control (BUREAU) construct (0.86), which is still over the recommended value of 0.8 (Nunnally, 1978). All constructs also had average variances extracted (see Appendix B) exceeding 85%. Most constructs had Cronbach alphas higher than 0.8, except the alpha of construct for bureaucratic control which is around 0.68. These results indicate that constructs used in the research model generally had adequate convergent validity and reliability.

Discriminant validity refers to the extent to which measures of each construct are distinct from one another (Campbell and Fiske, 1959). This is determined by ensuring that the average variance extracted for each construct is greater than the squared correlations between constructs (Fornell and Larcker, 1981; Grant, 1989). These statistics are shown in Appendix B. Results showed that correlation between two constructs was less than the square root of the average variance extracted by the measures of a construct for all cases. This indicates that there is satisfactory discriminant validity among the construct measures of the research model. Besides, multicollinearity between constructs did not appear to pose a problem because the squared correlations in the correlation matrix did not exceed 0.8, and the variance inflation factors in the collinearity diagnostics did not greater than 10 (Amoroso and Cheney, 1991; Hair et al., 1992).

4.3 *Evaluating the Structural Model*

The structural model was assessed for its explanatory power and path significance using the Bootstrapping technique. The hypotheses were examined for the sign, size, and significance of the path coefficients. Support for each hypothesis could be determined by examining the sign (positive or negative) and statistical significance of the T-value for its corresponding path. Since this is an exploratory study, a ten-percent significance level was employed. The acceptable t-values for the significance levels of 0.10, 0.05, and 0.01 are 1.282, 1.645, and 2.326 respectively. The results of PLS analyses are shown in Figure 2.

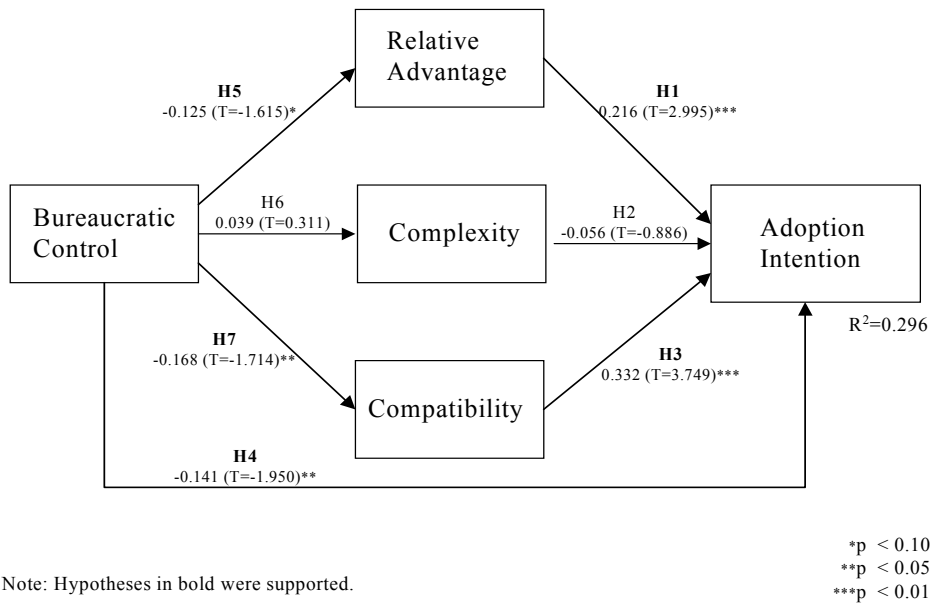


Figure 2 Path Estimate of PLS Analyses

The research variables account for 29.6% of the variance in the intention to adopt DWAs. The explained variance exceeded the recommended threshold of 10% (Falk and Miller, 1992). This indicates that the research variables could substantially predict the organization predisposition toward the adoption of DWAs. The data analyses revealed that the standardized coefficients of paths between bureaucratic control (BUREAU) and perceived relative advantage (RELADV), and between bureaucratic control (BUREAU) and perceived compatibility (COMPAT) were significant (in the negative direction) at the ten percent level and five percent level of significance respectively. H5 and H7 were supported. Additionally, the standardized coefficients of paths between perceived relative advantage (RELADV) and adoption intention (INTDWA), between perceived compatibility (COMPAT) and adoption intention (INTDWA), and between bureaucratic control (BUREAU) and adoption intention (INTDWA) were significant. H1 and H3 (in the positive direction), and H4 (in the negative direction) were supported as propositions at the one percent level and five percent level of significance respectively.

5. Discussion

The results of the PLS analyses on the structural model revealed that an organization's bureaucratic control system could affect its perceptions on relative advantages and compatibility of DWAs as that hypothesized. The perceptions of the two innovation factors (relative advantage and compatibility) also had a positive influence on the adoption intention of DWAs, while bureaucracy revealed a negative influence on the intention to adopt DWAs. The innovation factor, perceived complexity, was not related either to bureaucracy or adoption intention.

5.1 Bureaucracy and Perceived Innovation Characteristics

In this study, bureaucratic structure was partially found to have an impact on the innovation diffusion factors. Barker (1993) suggested that by cutting out bureaucratic control and rules, organizations could flatten hierarchies, cut costs, boost productivity, and increase the speed

of response to the changing business world. However, bureaucratic control was found to negatively influence the perceived relative advantage in this study, as expected. There could be several justifications for this result. First, respondents in bureaucratic organizations may not perceive a strong motivation to adopt DWA, mainly due to the vast differences in the management philosophies of the two work styles. Moore and Benbasat (1991) revealed that it is unlikely for individuals to view an innovation as useful, and gain the relative advantages, if that is not compatible with their work style. The negative relation between bureaucratic control and perceived compatibility in the study supports this idea. Second, decision-makers may perceive a considerable threat to go through a structural change that may reduce their power. Thus, they may not see the advantages of adopting DWAs.

Bureaucracy was found to have a negative influence on perceived compatibility. As expected, an organization's bureaucratic control system, with its emphasis on structured and centralized supervision, would lead to lower perceptions of compatibility of distributed work. This supported past literature that indicates a negative correlation between bureaucracy and organizational change and innovation (Barker, 1993; Cameron and Quinn, 1998).

This study found no significant impact of bureaucracy on the perceived complexity of DWA. One possible reason could be that organizations surveyed do not consider distributed work to be a complex concept to understand and implement. Another reason is that given the time, organizations could easily acquire the needed expertise and resources to overcome the complexity of DWAs. Thus, complexity is not a major concern for organizations.

5.2 *Bureaucracy, Perceived Innovation Characteristics and Adoption Intention*

Bureaucratic control was found negatively related to intention to adopt DWAs. This supports past research on organizational change that established a negative relationship between bureaucratic structural control with its rule-based hierarchy and organizational innovations (Barker, 1993; Huber et al., 1993; Pfeffer, 1997). The finding suggests that bureaucracy in organizations is a vital obstruction to the intention of decision-makers to adopt DWAs.

Perceived relative advantage and perceived compatibility were found to be positively related to adoption intention for DWAs. This agrees with past innovation diffusion research that found relative advantage and compatibility to be important factors influencing adoption behavior (Tornatzky and Klein, 1982; Ettlie et al., 1984; Holak and Lehmann, 1990; Grover, 1993). The findings of this study suggest that relative advantage and compatibility of distributed work are important predictors of organizational decision-makers' adoption intention.

Perceived complexity was not found to have a significant impact on the adoption intention of the respondents, despite numerous innovation studies indicating a negative association between complexity and adoption (Grover, 1993; Tornatzky and Klein, 1982). A plausible explanation could be that respondents did not perceive complexity of DWAs to be a very important criterion in deciding whether to adopt distributed work. Another possible reason could be that DWA was not considered a complex concept among respondents in the first place. These contentions could be investigated in future research.

5.3 *Implications for Practice*

The findings in this study provide some suggestions on how policy-makers could encourage the adoption of distributed work arrangements to ease societal problems such as traffic jams and skilled labor shortage. Specifically, the advantages of DWAs could be marketed to organizations. Educating organizations on the advantages of distributed work would not be a difficult task, as our results indicate that complexity of the arrangements may not be a particularly important factor. Since relative advantage and compatibility have been found to be important predictors of adoption intention, top management should actively seek information on the benefits and compatibility of distributed work once an organization has made the decision to adopt. The gathered information, together with the success stories from other organizations, would provide the marketing tool to sell DWA to employees of the organization.

In organizational structures that are bureaucratic, decision-makers tend to prefer centralized, direct control, instead of flexible arrangements such as decentralization and less formalization (Pfeffer, p.161). If the bureaucratic organizations want to gain benefits from introducing DWA, decision-makers should restructure their strategies of control. Since managers tend to have a strong need for certainty and stability (DiMaggio and Powell, 1983), they could first build up the firm's capability to respond to changes, with a view to creating a more flexible organizational control system that enables decentralized decision-making (Damanpour, 1996). Such capabilities should then facilitate the adoption of distributed work arrangements, by increasing their confidence and certainty (Isabella and Waddock, 1994; Handy, 1995), and thereby enhancing their attitudes towards DWAs.

6 Future Research

Several avenues of further work could be suggested from the results. First, the adoption of distributed work by bureaucratic organizations could require significant structural changes, and therefore pose significant risk to organizations. This concern about risk may have been reflected in the negative relationship between bureaucracy, compatibility, and adoption intention. The risk involved in introducing DWA to bureaucratic organizations would then be an interesting theme for future studies, which could point the way to how the perception of risk could be better managed to facilitate DWA adoption. Second, further work could investigate the compatibility of different corporate cultures to adopt DWA as compatibility was found to be a significant criteria to predict the adoption intentions in this study. In addition, the study could investigate whether and how different corporate cultures could affect the relative salience of the perceived innovation factors, and ultimately on the intention to adopt DWAs. The findings of such a study could guide organizations as to their suitability for adopting DWAs, based on their individual organization culture and on the factors found to be of most concern to them.

This study seeks to explore the effect of bureaucratic influences on the perceptions of decision-makers toward distributed work arrangements. The results indicate that these decision-makers have negative perceptions of distributed work when the organizational structure is bureaucratic. Policy-makers who seek to promote distributed work arrangements should pay particular attention to the relative advantages and compatibility issues of DWA for these organizations. Distributed work arrangement has the potential to be an effective organizational strategy to meet the challenges in coming future. Systematic research in this area would provide organizational decision-makers with the necessary knowledge to consider their next strategic move.

References

- Amoroso, D. L. and Cheney, P. H., "Testing a Causal Model of End User Application Effectiveness", *Journal of Management Information Systems* (8:1), 1991, pp. 63-89
- Barker J. R., "Tightening the Iron Cage: Concertive Control in Self-Managing Teams", *Administrative Science Quarterly* (38:3), 1993, pp.408-437
- Barua, A., Lee, S. C. H. and Whinston, A. B. "Incentives and Computing Systems for Team-based Organizations," *Organization Science* (6:4), 1995, pp. 487-504
- Cameron K. S. and Quinn R. E., "Diagnosing and Changing Organizational Culture", *Addison Wesley*, 1998.
- Campbell, D. T. and Fiske, D. W., "Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix", *Psychological Bulletin* (56:1), 1959, pp. 81-105
- Cook, T. D. and Campbell, D. T. *Quasi-Experimentation: Design and Analysis Issues for Field Settings*, Houghton Mifflin, Boston, MA, 1979
- Cooper, R. B. and Zmud, R. W., "Information Technology Implementation Research: A Technological Diffusion Approach", *Management Science* (36:2), 1990, pp. 123-139
- Damanpour, F., "Organizational Complexity and Innovation: Developing and Testing Multiple Contingency Models", *Management Science* (42:5), 1996, pp. 693-716
- DeSanctis, G., "Attitudes toward Telecommuting: Implications for Work-at-Home Programs", *Information and Management* (7:3), 1984, pp. 133-139
- DiMaggio, P. J. and Powell, W. W., "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields", *American Sociological Review* (48:2), 1983, pp. 147-160
- Dun and Bradstreet, *Dun's Asia/Pacific Key Business Enterprises*, Dun and Bradstreet International, Murray Hill, NJ, 1994
- Duxbury, L. E. and Haines, G. Jr., "Predicting Alternative Work Arrangements from Salient Attitudes: A Study of Decision Makers in the Public Sector", *Journal of Business Research* (23:1), 1991, pp. 83-97
- Ettlie, J. E., Bridges, W. P., and O'Keefe, R. D., "Organizational Strategy and Structural Differences for Radical versus Incremental Innovation", *Management Science* (30:6), 1984, pp. 682-695
- Fornell, C. *A Second Generation of Multivariate Analysis, Methods: Volume 1*, Praeger Publishers, New York, NY, 1982
- Fornell, C. and Bookstein, F. L., "Two Structural Equation Models: LISREL and PLS Applied to Consumer Exit-Voice Theory", *Journal of Marketing Research* (19:3), 1982, pp. 440-452
- Fornell, C. and Larcker, D. F., "Structural Equation Models with Unobservable Variables and Measurement Errors", *Journal of Marketing Research* (18:1), 1981, pp. 39-50

- Gordon, G. E., "The Dilemma of Telework: Technology vs. Tradition," in W. B. Korte, S. Robinson, and W. J. Steinle (Eds.), *Telework: Present Situations and Future Development of A New Form of Work Organization*, Elsevier Science Publishers, Amsterdam, Netherlands, 1988
- Grant, R. A. "Building and Testing a Model of an Information Technology's Impact," *Proceedings of the Tenth International Conference on Information Systems*, Boston, MA, 1989, pp. 173-184
- Grover, V., "An Empirically Derived Model for the Adoption of Customer-based Interorganizational Systems", *Decision Sciences* (24:3), 1993, pp. 603-640
- Gupta, Y. P., Karimi, J., and Somers, T. M., "Telecommuting: Problems Associated with Communications Technologies and Their Capabilities", *IEEE Transactions on Engineering Management* (42:4), 1995, pp. 305-318
- Hage, J. and Aiken, M., "Relationship of Centralization to other Structural Properties", *Administrative Science Quarterly* (24:4), 1967, pp. 603-640
- Hair, J. F., Anderson, R. E., Tatham, R. L., and Black, W. C. *Multivariate Data Analysis with Readings*, Macmillan, New York, NY, 1992
- Handy, C., "Trust and the Virtual Organization." *Harvard Business Review*, 1995, pp.40-50
- Holak, S. L. and Lehmann, D. R., "Purchase Intentions and the Dimensions of Innovation: An Exploratory Model", *Journal of Product Innovation Management* (7:1), 1990, pp. 59-73
- Huber, G. P., Sutcliffe, K. M., Miller, C. C., and Glick, W. H. "Understanding and Predicting Organizational Change," in G.P.Huber and W.H.Glick (Eds.), *Organizational Change and Redesign*, Oxford University Press, NY, 1993
- Isabella, L. A. and Waddock, S. A., "Top Management Team Certainty: Environmental Assessments, Teamwork, and Performance Implications", *Journal of Management* (20:4), 1994, pp. 835-858
- Korte, W. B., "Telework – Potentials, Inceptions, Operations and Likely Future Situations," in W. B. Korte, S. Robinson, and W. J. Steinle (Eds.), *Telework: Present Situations and Future Development of A New Form of Work Organization*, Elsevier Science Publishers, Amsterdam, Netherlands, 1988
- LaBay, D. G. and Kinnear, T. C., "Exploring the Consumer Decision Process in the Adoption of Solar Energy Systems", *Journal of Consumer Research* (8:3), 1981, pp. 271-278
- Lucas, H. "The IT-Based Virtual Organization," *Proceedings of the Seventeenth International Conference on Information Systems*, Cleveland, OH, 1996, pp. 495-496
- Moore, G. C. and Benbasat, I. "Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation," *Information Systems Research* (2:3), 1991, pp. 192-222

- Morgan, Gareth, *Creative Organization Theory*: SAGE Publications, 1989, pp141-144
- Nadler, D. and Tushman, M. *Strategic Organization Design: Concepts, Tools, and Processes*, Scott, Foresman and Company, Glenview, IL, 1988
- Nunnally, J. C. *Psychometric Theory*, McGraw-Hill, New York, NY, 1978
- Olson, M. H., "Remote Office Work: Changing Work Patterns in Space and Time", *Communications of the ACM* (26:3), 1983, pp. 182-187
- Olson, M., "Organizational Barriers to Telework," in W. B. Korte, S. Robinson, and W. J. Steinle (Eds.), *Telework: Present Situations and Future Development of A New Form of Work Organization*, Elsevier Science Publishers, Amsterdam, Netherlands, 1988
- O'Reilly, B., "Your New Global Workforce," *Fortune*, 1992, December 14
- Pearse R. F. and Bear M. M., "Career Success in Different Corporate Cultures", *Compensation & Benefits Management* (14:1), 1998, pp.26-35
- Pfeffer J., "New Directions for Organization Theory", *Oxford University Press*, New York, 1997
- Quinn, R. E. *Beyond Rational Management: Mastering the Paradoxes and Competing Demands of High Performance*, Jossey-Bass Publishers, San Francisco, CA, 1988
- Rivard, S. and Huff, S. L., "Factors of Success for End-User Computing", *Communications of the ACM* (31:5), 1988, pp. 552-561
- Rogers, E. M. *Diffusion of Innovations*, Free Press, New York, 1995
- Ross, J. W. and Rockart, J. F. "Enabling New Organizational Forms: A Changing Perspective on Infrastructure," in J.I.DeGross, S.Jarvenpaa, and A.Srinivasan (Eds.), *Proceedings of the Seventeenth International Conference on Information Systems*, Cleveland, OH, 1996, pp. 455-456
- Ruppel, C. P. and Harrington, S. J., "Telework: An Innovation where Nobody is Getting on the Bandwagon?", *Data Base for Advances in Information Systems* (26:2&3), 1995, pp. 87-104
- Shamir, B. and Salomon, I., "Work-at-Home and the Quality of Working Life", *Academy of Management Review* (10:3), 1985, pp. 455-464
- Sia, C. L., Teo, H. H., Tan, B. C. Y. and Wei, K. K. "Examining Environmental Influences on Organizational Perceptions and Predisposition toward Distributed Work Arrangements: A Path Model," *Proceedings of the Nineteenth International Conference on Information Systems*, Helsinki, Finland, 1998, pp. 88-102
- Sieber, P. "Virtuality as a Strategic Approach for Small and Medium Sized IT Companies to Stay Competitive in a Global Market," in J.I.DeGross, S.Jarvenpaa, and A.Srinivasan (Eds.), *Proceedings of the Seventeenth International Conference on Information Systems*, Cleveland, OH, 1996, pp. 468

- Staples DS, Hulland JS, and Higgins CA, "A Self-efficacy Theory Explanation for the Management of Remote Workers in Virtual Organizations", *Organization Science* (10:6), 1999, pp.758-776
- Starbuck, William, "Organizations as Action Generators", *American Sociological Review* (48), 1982, pp91-102
- Thompson, R. L., Higgins, C. A., and Howell, J. M., "Personal Computing: Toward a Conceptual Model of Utilization", *MIS Quarterly* (15:1), 1991, pp. 125-143
- Tomaskovic-Devey, D. and Risman, B. J., "Telecommuting Innovation and Organization: A Contingency Theory of Labor Process Change", *Social Science Quarterly* (74:2), 1993, pp. 367-385
- Tornatzky, L. G. and Klein, K. J., "Innovation Characteristics and Innovation Adoption-Implementation: A Meta-Analysis of Findings", *IEEE Transactions on Engineering Management* (29:1), 1982, pp. 28-45
- Utterback, J. M., "Innovation in Industry and the Diffusion of Technology", *Science* (183:4125), 1974, pp. 620-626
- Ward, P. T., Bickford, D. J., and Leong, G. K., "Configurations of Manufacturing Strategy, Business Strategy, Environment and Structure", *Journal of Management* (22:4), 1996, pp. 597-626
- Wold, H. "Systems Under Indirect Observation Using PLS,"in C.Fornell (Eds.), *A Second Generation of Multivariate Analysis, Methods: Volume 1*, Praeger Publishers, New York, NY, 1982
- Zaltman, G., Duncan, R., and Holbek, J., *Innovations and Organizations*, Wiley and Sons, New York, NY, 1973

Appendix A - Results of Tests on Convergent Validity

Constructs Measures (1 - Strongly Disagree; 7 - Strong Agree)	Cronbach's Alpha	Composite Reliability	Item Reliability
Perceived Relative Advantage (RELADV) Distributed Work Arrangement will: (a) increase our productivity (b) increase our responsiveness to customers' needs (c) increase our performance	0.8445	0.9054	0.8703 0.6701 0.7449
Perceived Complexity (COMPLX) Distributed Work Arrangement will lead to difficulty in : (a) coordination within the organization (b) building employee's commitment to the organization (c) achieving organizational learning	0.8482	0.9076	0.8057 0.7338 0.7590
Perceived Compatibility (COMPAT) Distributed Work Arrangement : (a) is acceptable to the organizational management (b) does not contradict the organization's human resource policies (c) is supported by my organization's management style	0.9107	0.9447	0.8783 0.8690 0.8044
Bureaucratic Control (BUREAU) In my organization : (a) relations are impersonal (b) rewards are distributed by appointment held	0.6780	0.8596	0.6927 0.8154
Intention to Adopt (INTDWA) My organization intends to adopt Distributed Work Arrangement within the next 2 years	N.A.	N.A.	1.000

N.A. - Not Applicable

Appendix B - Correlation and Square Root of Average Variance Extracted of Constructs

	RELADV	COMPLX	COMPAT	BUREAU	INTDWA
RELADV	0.873				
COMPLX	-0.142	0.875			
COMPAT	0.521	-0.364	0.922		
BUREAU	-0.125	0.039	-0.168	0.868	
INTDWA	0.415	-0.214	0.489	-0.226	1.000