African Journal of Business Management Vol. 5(28), pp. 11476-11486, 16 November, 2011
Available online at http://www.academicjournals.org/AJBM
DOI: 10.5897/AJBM11.759
ISSN 1993-8233 ©2011 Academic Journals

Full Length Research Paper

High-tech companies' readiness assessment for alternative workplaces

Jun Ha Kim[1] and Yi-Kai Juan[2]

[1]Department of Housing and Interior Design, Kyung Hee University, Seoul, South Korea.
[2]Department of Architecture, National Taiwan University of Science and Technology (NTUST), 43, Section 4, Keelung Road, Taipei 106, Taiwan.

Accepted 10 August, 2011

The aim of this research is to provide an understanding of the assessment of the initial readiness for alternative workplace arrangements (AWA) to assist the process of decision-making for its adoption from an organizational perspective. A set of readiness level assessment indicators (RLAI) with three main categories of relative advantage, compatibility and complexity was developed to help decision makers assess the extent of an organization's readiness for the adoption of an AWA. Using the RLAI, a total of 64 real adoption cases were collected from 19 large high-tech companies that had already adopted any of the six AWA types: hoteling, group address, shared office, home office, and virtual office. RLAI proposed by this research established a comprehensive and systematic approach and provided decision makers with helpful guidelines for the AWA readiness assessment. The results documented in this paper provided many other organizations facing similar decision problems with insightful strategies and useful implications.

Key words: Alternative workplace arrangements (AWA), innovation attributes, readiness level assessment indicators (RLAI), rank correlation analysis.

INTRODUCTION

A growing body of evidence shows that globalization and advances in information and communication technology (ICT) have prompted a revolution in the way work is produced. One of the most notable changes is the establishment of the alternative workplace arrangement (AWA), in which workers have more freedom in their work hours and workplaces. As more and more businesses have begun to adopt AWAs, the number of employees who are working away from a permanently assigned office space and those who are geographically and virtually distributed has been increasing throughout the world (Venezia et al., 2007; AT&T, 2003). At the same time, real estate costs, air pollution, and traffic congestion resulting from mass commuting have worsened while companies seek to retain talented, knowledgeable workers in order to remain competitive (Roper and Kim, 2007).

Nemertes's benchmark study 2007 discloses that 83% of the participating organizations consider their workplace structure as virtual where 91% of participating organizations' employees work outside of headquarters and about 96% of them utilize some forms of real-time collaboration tools such as Web conferencing, instant messaging and video conferencing. Thus, the trend of AWA is likely to continue in the future, leading to greater reductions in the traditional ratio of workers to workspace, particularly in large companies. To successfully respond to the various demands of the competitive business environment (Martinez-Sanchez et al., 2008) and to adapt to the growth of AWAs, such organizations are moving away from their physical headquarters and entering larger networks across cities and countries. All of these changes have forced them to reevaluate their goals and find solutions to the challenges they face by adopting AWA, ICTs, and other workplace practices (Roper and Kim, 2007).

*Corresponding author E-mail: yikaija@gmail.com.

Abbreviations: AWA, Alternative workplace arrangements; **IRLA,** readiness level assessment indicators; **ICT,** information and communication technology; **TBL,** triple bottom line; **CVR,** content validity ratio.

The purpose of this research is to provide an understanding of the assessment of the initial readiness for AWA to assist the process of decision-making for AWA adoption from an organizational perspective. The specific objective is to develop Readiness Level Assessment Indicators (RLAI) for assessing the extent of an organization's readiness for the adoption of an AWA. RLAIs can be used as to predict the potential successfulness of AWA adoption. To achieve this, at the outset, with particular emphasis on Roger's innovation attributes (Roger, 1995) and the Leavitt's model of organizational subsystems (Leavitt, 1965), surrounding factors and relevant attributes that can be used to assess the organizational readiness for AWA adoption were identified and selected, and based on these parameters, RLAI was developed. Using RLAI, a total of 64 AWA adoption cases were collected from high-tech companies for this research.

In exploring various types of AWA, this research was limited to only primary places for work. If employees work in an alternative workplace only part of the time and still retain the permanently assigned workspace at the central office, organizations cannot expect to reduce their business cost because they have not actually implemented an AWA. Therefore, only primary place for work and full-time AWAs were considered in this research. Other types of AWA, such as mixed (for example, hoteling and home office), part-time, and supplemental work-at-home AWAs were not examined in this research. In a literature review focusing on a primary place of work, AWAs were limited to six recurring types: on-site workplaces, such as hoteling; group addresses; shared offices; off-site workplaces, such as satellite offices; home offices, and virtual offices. Off-site types were selected based on the place of work. On-site types could be differently classified by their space configuration (for example, group office) and usage (for example, hoteling and shared office).

LITERATURE REVIEW

Much scholarly work has been done on the topics of AWA, especially on significant factors and characteristics to be considered for the AWA adoption. Venkatesh and Vitalari (1992) have provided three factors in a conceptual model for AWA study: organization/work, ICT, and household including worker's characteristics. All three independent variables are related to a fourth factor: supplemental work at home which is the dependent variable in their study. Characteristics surrounding AWA are organizational, individual, work, household and technology characteristics (Belanger and Collins, 1998) and the AWA environments are separated into four components: social environment, technical environment, resource environment, and organizational structure environment (Venezia et al., 2007).

Numerous studies of AWA adoption have focused on organizational factors (Ruppel and Harrington, 1995), worker and task attributes (Kayworth and Leidner, 2002), and technological supports (Gupta and Somers, 1995). Kowalski and Swanson (2005) provide a framework of critical success factors including support, communication and trust that are instrumental for organizations looking to develop an AWA program.

Much research has attempted to find solutions for AWA adoption issues. Fritz et al., (1994) proposed a method for determining the suitability of an AWA implementation framework. (Bui et al., 1996) have described various types of AWAs and discussed the suitability of each AWA type from the organizational perspective. Shin et al. (2000) have depicted a conceptual model of intra-organizational adoption of telework at four stages: initiation, adoption, implementation and institutionalization. Higa and Wijayanayake (1998) have delineated the adoption patterns of different AWA types by different areas and the size of organizations in Japan. Higa and Shin, (2003) have examined and compared five successful AWA adoption cases and four not-so-successful adoption cases in terms of four AWA adoption phases: inception, testing, implementation and future planning. However, none of the decision models has shown clear evidence regarding its applicability to the AWA adoption decision process (Clark, 1998). A literature review reveals that there is little guidance about which organization, work types, workers and workspaces are compatible for AWA programs (Belanger and Collins, 1998), and no research about how the decision should be made to adopt a particular type of alternative workplace arrangement (Fritz et al., 1996). Today's enterprises need assistance in assessing their readiness for AWA and developing a distributed workplace strategy (Harrison, 2002). The problem is that decision makers have no established tools to assess their readiness for AWA or to select among the most appropriate AWA type considering their organizations' business reasons of adoption and the current readiness conditions.

ASSESSMENT METRICS

Organizational readiness assessment needs to be performed to provide decision makers with a reliable, quantifiable assessment of the organization's potential readiness to successfully making the transition to alternative workplaces (Grantham et al., 2007). Major business reasons, surrounding factors and relevant attributes were identified based on Roger's innovation attributes and Leavitt's model of organizational subsystems as shown in Figure1.

Assessment indicators were finally determined by two different stages. First, significant factors, relevant attributes and assessment indicators were initially selected based on the literature review. Next, the validity of the selected assessment indicators was additionally evaluated by the panel of experts formed for this research

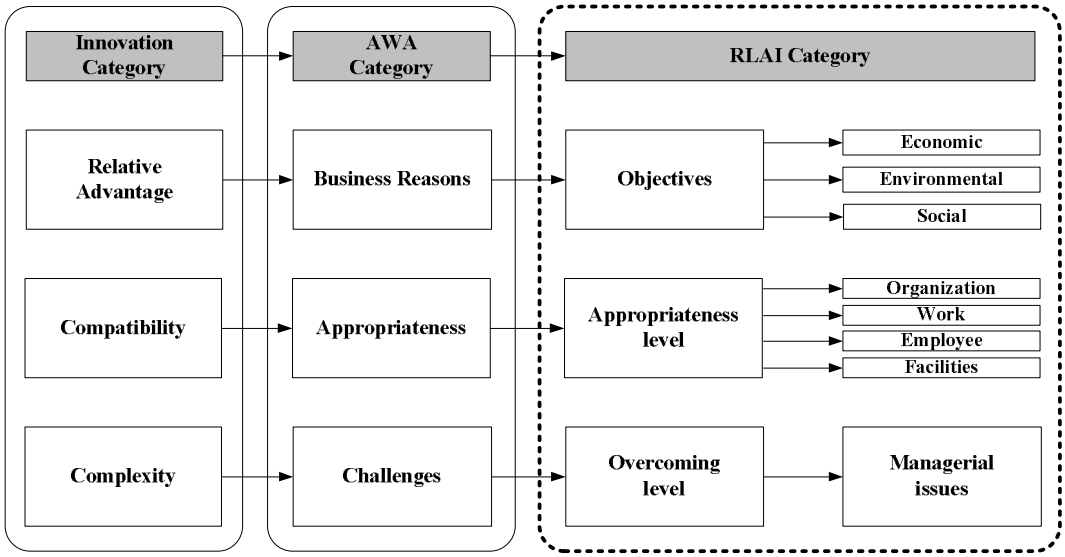

Figure 1. Development process for the assessment indicators.

research in order to build up the RLAI, which measure the initial readiness of high-tech companies for adopting an AWA.

Innovation attributes

Many researchers describe innovation as a new idea, policy, process, product or program. An adoption of AWA as an alternative form of workplace arrangement would create some type of innovation in the organization. There are five perceived innovation attributes influencing adoption intention: relative advantage, compatibility, complexity, observability and trialability in innovation diffusion theory (Rogers, 1995).The innovation theory can be served as a foundation for decision makers to start considering the adoption of AWA as an organizational innovation. Among these attributes speeding the adoption of organizational innovation, which is AWA in this study, relative advantage, compatibility and complexity are found more important in influencing adoption decision (Karnowski and White, 2002; Sia et al., 2004). Therefore, relative advantage, compatibility and complexity were used to investigate factors in each of the three AWA categories: business reasons, appropriateness and challenges.

From a readiness assessment standpoint, business reasons were represented as objectives and how clearly objectives of AWA adoption are identified and selected were assessed. Next, appropriateness was measured as appropriateness level and how appropriate in general the AWA adoption is with existing conditions was evaluated. Finally, challenges were measured as overcoming level. It measured whether or not managerial control practices exist, and if they do exist, evaluated how actively they are practiced. All the factors and attributes were extracted from each AWA category and readiness assessment areas to build up the RLAI as shown in Figure1.

AWA category

Business reasons

Relative advantage can be described as the degree to which an organizational innovation is considered as being beneficial over the existing practice (Roger, 1995). The business reasons, objectives or expected benefits of adopting AWA can be substituted for relative advantage in adopting AWA. Organizational objectives, for instance, could be focused on office space cost savings and improved productivity. Its objectives should match for the expected benefits of establishing AWA (Roper and Kim, 2007). Adopters of AWAs have reported clear benefits such as reduced operating costs by office space savings and requirement parking spaces, improved productivity, ease in staff recruitment and retention of skilled knowledge workers, reduced turnover and absenteeism, improved customer satisfaction, reduced traffic congestion and environmental impacts, improved employees' work-life balance, provision of working opportunities for the elderly and handicapped (Belanger and Collins, 1998; Kurland and Bailey, 1999; Cascio, 2000; Higa and Shin, 2003; Peters et al., 2004). David Elkington (1998) coined the concept of the Triple Bottom Line (TBL), which he introduces to emphasize that a single dimension of economic value alone cannot fully explain various benefits. Thus, reporting on social and environmental performance is also necessary to explore its various benefits. The TBL concept provides with convincing approach to appreciate

Table 1. Reasons for AWA adoption in the TBL concept.

Aspect	Adoption reason	Variable
Economic	Retention/attraction of skilled workers	A1
	Reduced office space costs	A2
	Improved productivity	A3
	Reduced turnover and absenteeism	A4
	Improved customer satisfaction	A5
Environmental	Reduced traffic congestion, better air quality	A6
Social	Employment opportunities for aging and handicapped people, better employee work-life balance	A7

business reasons of AWA adoption from three aspects. Various business reasons for AWA adoption can fall into three categories as classified in the triple bottom line (TBL) as depicted in Table 1.

Appropriateness

When the adoption of an AWA is seen as suitable given an organization's existing conditions, it can be concluded that the organization is ready to adopt the AWA. The existing conditions can be represented as significant factors surrounding the AWA. Leavitt selected four elements for describing an organization: technology, structure, task and people (Leavitt, 1965), and management scholars added organizational culture to the four elements selected by Leavitt (Gordon and Olson, 1985). These elements gave an outline at the beginning to identify the important factors for AWA adoption when measuring appropriateness for a given organization. As work patterns and structures evolve faster than workplaces are able to adapt, business patterns are also dramatically changing. AWAs can be attractive to large organizations due to their potential benefits, but organizations need to consider whether or not their goals, objectives, and surrounding conditions, as well as characteristics of their work, employees, and facilities, are appropriately suited for readiness assessment.

Challenges

At the organizational level, control, coordination and supervision of distributed workers are much harder than they are for workers on-site. Most challenges in adopting AWA are found in the area of managerial issues, including performance evaluation and coordination from the organizational perspective. It can be assumed that well-prepared managerial actions including a wide range of activities dealing with challenges in AWA settings can positively influence the success of AWA adoption. Areas in which AWA can lead to difficulties are performance evaluation, supervision, coordination, policy and guideline provision and learning opportunities for distributed workers (Fritz et al., 1996; Fritz et al., 1998; Apgar, 1998; Kurland and Bailey, 1999; Cascio, 2000; Felstead et al., 2003; Roitz and Jackson, 2006).

Readiness level assessment indicators (RLAI)

In addition to the final selections of significant factors and attributes, assessment items for each attribute were added to complete the RLAI. RLAI was developed to provide decision makers with an understanding of how to assess the initial organizational readiness AWA adoption. The survey questions were designed to get RLAI validated by experts. According to a three-point likert scale ("1"= not necessary, "2"=important but not essential, "3"=essential) each assessment item was carefully rated by the 15 experts and finally selected for this research using the content validity ratio (CVR) method to ensure the adequacy of indicators items. The CVR, which is an item statistic, is helpful in the retention or rejection of specific items (Lewis et al., 1995). According to the CVR table published by Lawshe, a CVR of 0.49 is minimally required for each item to prove its validity for AWA readiness assessment metrics when there are 15 people on the content evaluation panel. Among all items identified from the literature review and finalized through the analysis of the results on the first survey, items with CVR values higher than 0.49 were retained, and a list of 18 assessment items was finalized for RLAI as shown in Table 2.

DATA COLLECTION AND ANALYSES

Through telephone interviews, conference calls and email questionnaires, the RLAIs are used to collect a total of 64 real adoption cases from 19 large high-tech companies such as computer, consumer electronics, engineering, IT, networking and telecom companies that had already adopted any of the six AWA types: hoteling, group address, shared office, satellite office, home office, and virtual office. Most of the companies provided more

Table 2. Readiness level assessment indicators (RLAI).

Innovation Attribute	RLAI Category	Factor	Attribute	Variable	Assessment indicator	Readiness assessment
Please mark top three important objectives of AWA adoption for your company with an X						**Check your objectives**
Relative Advantage	Objectives	Triple Bottom Line(TBL)	Economic	A1	Retention/attraction of skilled employees	
				A2	Reduced office space costs	
				A3	Improved productivity	
				A4	Reduced turnover and absenteeism	
				A5	Improved customer satisfaction	
			Environmental	A6	Reduced traffic congestion and environmental impacts	
			Social	A7	Employment opportunities for aging and handicapped people and employees' work-life balance	
What is the appropriateness level of your company for each assessment indicator? Please rate each item for your case ("1"= Relatively low, "2" = medium, "3" = relatively high)						
Compatibility	Appropriateness level	Organizational culture	Support	X1	AWA is supported at all levels of organization	
			Fairness	X2	The degree of equal promotional opportunity for distributed workers	
			Trust	X3	The level of trust between managers and their employees	
		Work	Type	X4	The level of interaction/communication needed to perform the work	
			Process	X5	The degree of sequential work process vs. reciprocal work process (The degree of transactional vs. open ended work process) Close to reciprocal process:1, close to sequential process:3, middle or both: 2	
			Autonomy	X6	The degree of autonomy for work (work scheduling, decision prerogatives, etc.)	
			Deliverables	X7	The level of clarity of defined deliverables	
			Physical presence	X8	Required physical presence at the office for work to be able to access specific technology, equipment or live interpersonal response(location dependency)	
		Employee	Preference	X9	Employees' level of preference for AWA	
			Sufficiency	X10	Employees' level of self-sufficiency to work	
			Familiarity	X11	Employees' level of familiarity with ICT	
			Experience	X12	Employees' work experiences with flexible work style	
		Facilities	ICT	X13	The provision of ICT support	
			Premises services	X14	Building maintenance, cleaning, alternative workplace services, etc.	
			Business support services	X15	Utilities, furniture, business equipment, office set-up, etc.	
What is the overcoming level (establishment capacity) for each assessment indicator? Please rate each item for your case ("1" = if not exist, "2" = if exist but not actively in practice, "3" = if exist and actively in practice)						

Table 2. Contd

Complexity	Overcoming level	Managerial issues	Performance evaluation	X16	Results-based performance evaluation method in practice						
			Coordination (Teamwork)	X17	Virtual teamwork in practice within the organization						
			Policy/Guideline	X18	Clear policy/guideline provision for AWA						
Outputs				Y1	Please select only one type with an X for your case	Hoteling	Group address	Shared office	Satellite office	Home office	Virtual office
				Y2	Please rate your overall satisfaction with the adoption ("1"=less satisfied, "2"=satisfied, "3"=highly satisfied)						

provided more than one adoption cases since most of the cases are documented by different years. The number of cases documented in 2005 was three; in 2006, six; in 2007, eleven; and in 2008, 22. The number of ongoing cases was 22.

Case description on objective of AWA Adoption (A1-A7)

Major objectives of the actual adoption cases from high-tech companies were tabulated as shown in Table 1 and differences between responses from the experts without focusing on technology companies and the ones from the actual adoption cases from technology companies were identified. The most important objectives of AWA adoption from both experts (26.7%) and actual adoption cases from technology companies (25.5%) were "reduced office space costs". The second most important objectives selected by the experts (22.2%) were "retention/attraction of skilled employees," whereas the second most important objectives selected by the actual cases (25.0%) were "improved productivity." Finally, the third most important objectives selected by the experts (17.8%) were "improved productivity," whereas the third most important objectives selected by the actual cases (14.6%) were "retention/attraction of skilled employees". More than half of the technology companies felt that reduced office space costs and improved productivity are important. Therefore, it can be concluded that there is not much difference between selecting general objectives and specific objectives of high-tech companies for AWA adoption. Most technology companies felt that reduced turnover and absenteeism, improved customer satisfaction, reduced traffic congestion and environmental impacts, and employment opportunities for aging and handicapped people and employees' work-life balance (A4-A7) are not important.

Case description on type selection (Y1) and satisfaction level (Y2)

As shown in Table 3, among on-site types, hoteling was selected by eleven cases representing 17.2% followed by shared office (14.1%) and group address (12.5%). Among off-site types, satellite office was selected by thirteen cases representing 20.3%, followed by virtual (18.8%) and home office (17.2%). Over 55% of the technology companies allowed off-site working situations. As suggested by respondents in the pre-testing stage, only 20.3% of the cases were categorized as "less satisfied," and 28.1% of the cases were marked as "satisfied". More than half of all the cases were categorized as "highly satisfied". About 80% of all the cases were marked as "satisfied" or above with their satisfaction level, which means that adoption cases collected by RLAI, which was expected to effectively capture the readiness level of the organizations, could represent best practices for AWA adoption.

Case description on readiness level (X1-X18)

Most of the high-tech companies seemed to have rated the readiness levels, named as X_1-X_{15}, "medium." However, a substantial number of companies rated X_2, X_6, X_9, and X_{13} "relatively high," as shown in Table 4. Among managerial issues measuring the establishment capacity of managerial practices, results-based performance evaluation methods and virtual teamwork in practice within the organization existed in most technology companies, but they were not actively in practice. However, most technology companies not only had a clear policy/guideline provision for AWA, but actively followed it. Among the 18 variables measuring the readiness level of each case, 16 variables were positively correlated with

Table 3. Outputs of AWA adoption.

High-tech company				
Type selection (Y1)			**N**	**%**
	Hoteling	1	11	17.2
On-site	Group address	2	8	12.5
	Shared office	3	9	14.1
	Satellite office	4	13	20.3
Off-site	Home office	5	11	17.2
	Virtual office	6	12	18.8
Satisfaction level (Y2)			64	
	Less satisfied	1	13	20.3
Satisfaction level	Satisfied	2	18	28.1
	Highly satisfied	3	33	51.6

Table 4. Readiness levels of collected cases.

High-tech Company								
X1-X15			**Relatively low(1)**		**Medium(2)**		**Relatively high (3)**	
			N	**%**	**N**	**%**	**N**	**%**
Organization	Support	X1	7	10.9	39	60.9	18	28.1
	Fairness	X2	7	10.9	34	53.1	23	35.9
	Trust	X3	11	17.2	42	65.6	11	17.2
Work	Type	X4	12	18.8	42	65.6	10	15.6
	Process	X5	11	17.2	35	54.7	18	28.1
	Autonomy	X6	10	15.6	34	53.1	20	31.3
	Deliverables	X7	15	23.4	31	48.4	18	28.1
	Physical presence	X8	25	39.1	30	46.9	9	14.1
Employee	Preference	X9	16	25.0	23	35.9	25	39.1
	Sufficiency	X10	9	14.1	39	60.9	16	25.0
	Familiarity	X11	14	21.9	32	50.0	18	28.1
	Experience	X12	24	37.5	28	43.8	12	18.8
Facilities	ICT	X13	5	7.8	32	50.0	27	42.2
	Premise	X14	17	26.6	35	54.7	12	18.8
	Business	X15	10	15.6	37	57.8	17	26.6
X_{16}-X_{18}			**Does not exist (1)**		**Exist but not active (2)**		**Exist and active (3)**	
			N	**%**	**N**	**%**	**N**	**%**
Managerial issues	Performance evaluation	X16	12	18.8	26	40.6	26	40.6
	Coordination(Teamwork)	X17	18	28.1	32	50.0	14	21.9
	Policy/guideline	X18	29	45.3	17	26.6	18	28.1

the satisfaction level of AWA adoption, and among the 16 readiness variables showing a positive rank correlation with Y2, 13 variables were significant at the .01 level (99% level) for a two-tailed prediction.

DISCUSSION

While describing AWA adoption cases collected from high-tech companies, some important features of

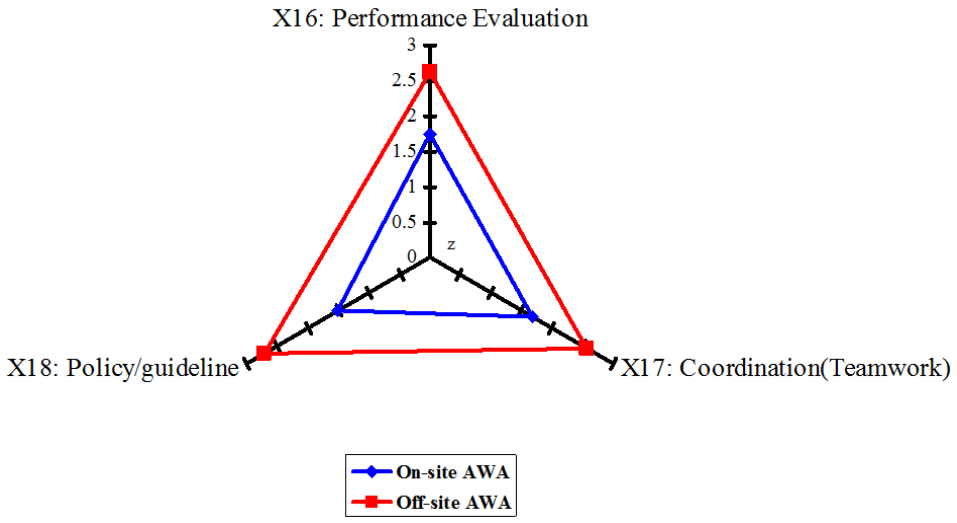

Figure 2. Overcoming level comparison between different AWA types.

successful AWA adoption cases were revealed. One was the relatively more important objectives by different AWA type, and the other feature was that there are different readiness levels expressed in appropriateness and overcoming levels as reported for on and off site types. First, relatively more successful cases were extracted from the case data. Only 33 cases with the satisfaction level "3", highly satisfied with AWA adoption, were selected for more analysis to determine suggested objectives by different AWA types. For each AWA type, the main objectives of each case have been identified based on the higher frequency of selection from the respondents. According to the frequency of selection, the main objectives for adopting each AWA type are the following:

(i) Hoteling: "reduced office space costs" and "improved productivity"
(ii). Group address: "improved productivity" and "reduced turnover and absenteeism"
(iii) Shared office: "reduced office space costs" and "employee's work-life balance"
(iv) Satellite office: "improved productivity" and "improved customer satisfaction"
(v). Home office: "reduced office space costs" and "improved customer satisfaction"
(vi) Virtual office: "reduced office space costs" and "improved customer satisfaction"

Next, the average overcoming levels were calculated from successful cases to compare differences in overcoming levels between on-site and off-site types. Among three overcoming measurement areas, levels of off-site types were higher than the ones of on-site types in all three areas as shown in Figure 2 This confirms the previous research findings (Kurland and Bailey, 1999) that managerial challenges become greater as distributed workers are further from the central office in terms of physical distance so that higher overcoming levels are needed for successful AWA adoption.

Finally, the average appropriateness levels were calculated from successful cases to compare differences in the levels between on-site and off-site types. Among the 15 appropriateness measurement areas, levels of off-site types indicated higher than the ones for on-site types in 11 areas. However, the appropriateness levels for on-site types found to be higher in four areas are as follows (Figure 3):

(i) The level of interaction/communication needed to perform the work
(ii) The degree of sequential work process vs. reciprocal process (The degree of transactional vs. open ended work process) "close to reciprocal process": 1, "close to sequential process": 3, "middle or both": 2
(iii) Required physical presence at the office for worker to be able to access specific technology, equipment or live interpersonal response (location dependency)
(iv) The level of premise supports

The areas in which obvious distinctions between on-site and off-site types revealed were work types, process and physical presence. These attributes are all under "work" factor.

This indicated that the level of interaction needed to perform the work and the level of required physical presence at the office are found to be lower in off-site types. Surprisingly, sequential work processes were found more in on-site types, whereas it was assumed that sequential work processes would be found more in off-site types. This indicated that work process is not a critical attribute in selecting an appropriate AWA type because work process itself doesn't seem to be a significant issue anymore with the development of

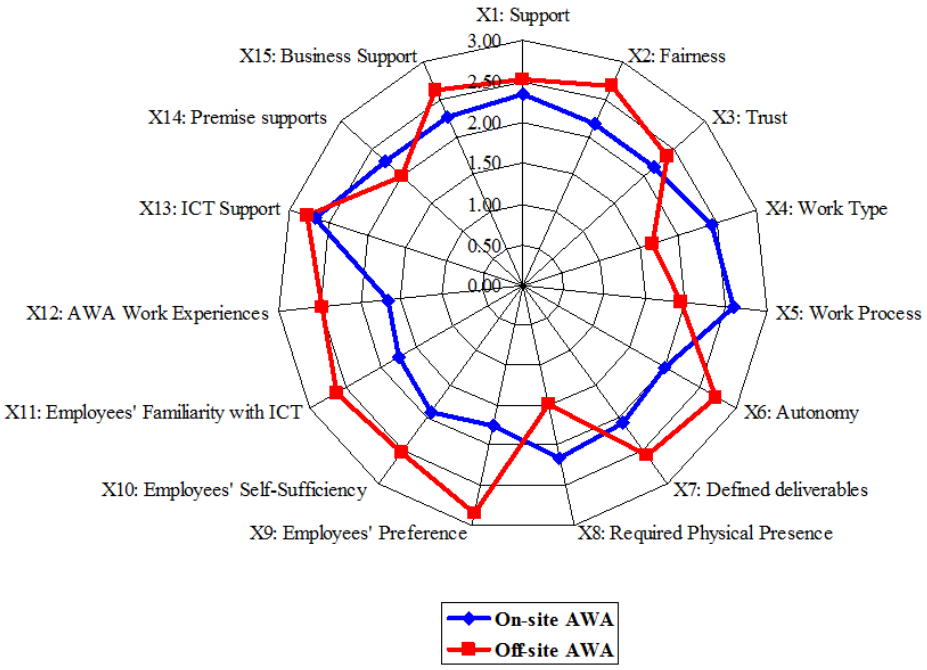

Figure 3. Appropriateness level comparison between different AWA types.

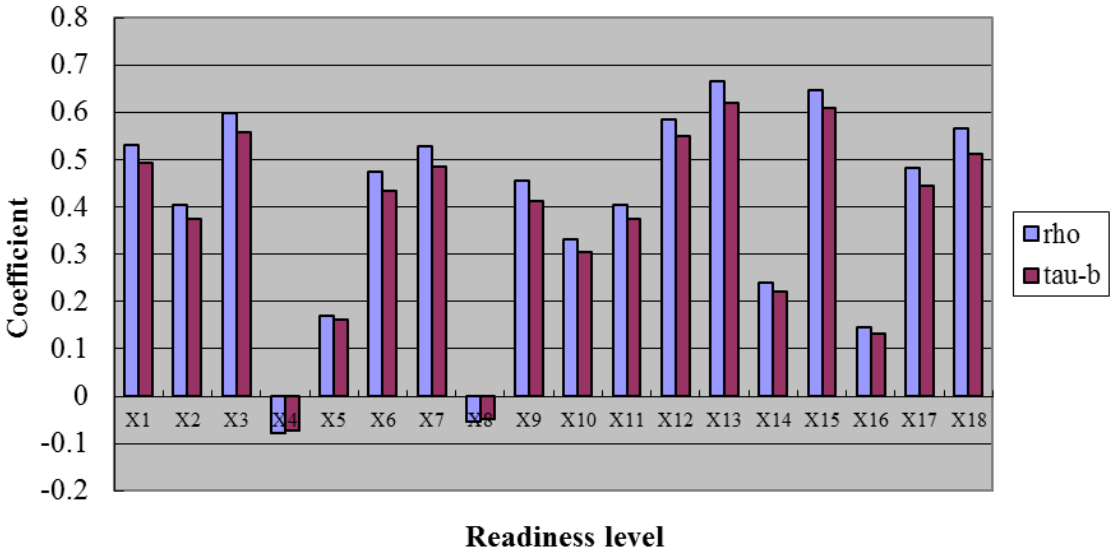

Figure 4. Spearman and Kendall's Correlation between X's and Y2.

sophisticated ICT.

Rank correlation analysis results

Rank correlation analysis was conducted to measure the association between two ordinal variables: the readiness level and the satisfaction level. Two rank correlations, Spearman's and Kendall's, show similar results. Among the 18 variables measuring the readiness level for each case, the 16 variables were positively correlated with the organization's satisfaction level with AWA adoption as depicted in Figure 4. Among the 16 variables showing a positive correlation with Y2, 13 of them were significant at

the 0.01 level (99% level) for a two-tailed prediction. Assuming that X4 and X8 are less significant variables measuring the readiness, it is concluded that a positive correlation exists between organizational readiness level for AWA adoption and organization's satisfaction with AWA.

CONCLUSION AND FUTURE RESEARCH

This research resulted in the development of RLAI that decision makers can use when measuring their organization's readiness for AWA adoption. Secondly, three important features were revealed from analyzing only 33 best practice cases. First, more important objectives were found in each of six AWA type adopted by participating high-tech companies. Another finding was that the average overcoming levels of off-site types are higher than those of on-site types in three measurement areas such as "results-based on performance evaluation method in practice", "virtual team work in practice within the organization" and "clearly written policy, guideline and procedure provision for AWA". The final feature was that among the 15 appropriateness measurements, the average appropriateness levels of off-site types indicated higher incidence than the ones of on-site types in 11 areas.

However, appropriateness levels for on-site types were higher in the four features of "the level of interaction/ communication needed to perform the work", "the degree of sequential work process vs. reciprocal process (The degree of transactional versus open ended work process)", "required physical presence at the office for work to be able to access specific technology, equipment or live interpersonal response" and "the level of premise supports including building operation and maintenance and cleaning.

Finally, of special note, X1, X3, X7, X12, X13, X15 and X18 were highly correlated with the satisfaction level expressed in how much an adoption meets the initial objective of the AWA adoption(correlation is significant at the .01 level). Therefore, it is concluded that a positive rank correlation exists between organizational readiness level for AWA adoption and organization's satisfaction with AWA.

The scope of this research was limited to only the initiation stage and adoption stage. In the future, it will be necessary to extend the scope to the next implementation stage, where a detailed feasibility study including cost estimation and risk analysis for the final adoption decision is conducted. In future research, based upon a larger sample of AWA adoption cases from other industries, more efforts could be researched to develop decision support systems which can provide even more accurate and solid predictions regarding AWA adoption decision issues as well as measure the performance of distributed workers.

REFERENCES

Apgar M (1998). The alternative workplace: changing where and how people work. Harv. Bus. Rev., 76: 121-136.

AT&T (2003). Remote working in the net-centric organization. Retrieved November 17, 2010, from http://jobfunctions.bnet.com/abstract.aspx?docid=317586.

Belanger F, Collins RW (1998). Distributed work arrangement: a research framework. Inf. Soc., 14: 137-152.

Bui T, Higa K, Sivakumar V, Yen J (1996). Beyond Telecommuting: Organizational Suitability of Different Modes of Telework in System Science. Proceedings of the Twenty-Ninth Hawaii International Conference IEEE 2nd to 6th January 1996, Hawaii, USA.

Cascio WF (2000). Managing a virtual workplace. Acad. Manage. Exec., 14(3): 81-90.

Elkington J (1998). Cannibals with Forks: The Triple Bottom Line of 21st Century Business. New Society Publishers, Jackson, TN.

Fritz MB, Higa K, Narasimhan S (1994). Telework: Exploring the Borderless Office in System Science. Proceedings of the Twenty-Seventh Hawaii International Conference. IEEE 3rd to 7th January 1994, Hawaii, USA.

Fritz MB, Narasimhan S, Rhee H (1996). Adoption of Remote Work Arrangements: An Initial Analysis. Proceedings of the Twenty-Ninth Hawaii International Conference IEEE 2nd to 6th January 1996, Hawaii, USA.

Fritz MB, Narasimhan S, Rhee H (1998). Communication and coordination in the virtual office. J. Manage. Inform. Syst., 14(4): 7-28.

Gilleard JD, Rees D (1998). Alternative workplace strategies in Hong Kong. Faculty, 16(5/6): 133-137.

Gordon BD, Olson MH (1985). Management Information Systems: conceptual foundations, structure and development. 2nd ed. New York, NY: McGraw Hill.

Harrison A (2002). Accommodating the new economy: the SANE space environment model. J. Corp. Real Estate, 4(3): 248-265.

Higa K, Wijayanayake J (1998). Telework in Japan: Perceptions and Implementation in System Science. Proceedings of the Thirty-First Hawaii International Conference IEEE 6th to 9th of January 1998, Hawaii, USA.

Higa K, Shin B (2003). The telework Experience in Japan. Commun. ACM, 46(9): 33-242.

Karnowski A, White BJ (2002). The role of facility managers in the diffusion of organizational telecommuting. Environ. Behav., 34(3): 322-334.

Kayworth TR, Leidner DE (2002). Leadership effectiveness in global virtual teams. J. Manage. Inform. Syst., 18(2): 7-40.

Kowalski KB, Swanson JA (2005). Critical success factors in developing teleworking programs. Bench., 12(2): 236-249.

Kurland NB, Bailey ED (1999). The Advantages and challenges of working here, there, anywhere, and anytime. Organ. Dyn., 28(2): 53-68.

Lawshe CH (1975). A Quantitative Approach to Content Validity. Pers. Psych., 28: 563-575.

Lewis CH, Snyder CA, Rainer KR (1995). An empirical assessment of the information resource management construct. J. Manage. Inform. Syst., 12(1): 199-223.

Martinez-Sanchez A, Perez-Perez M, Vela-Jimenez MJ, de-Luis-Carnicer P (2008). Telework adoption, change management, and firm performance. J. Organ. Chang. Manage., 21(1): 7-31.

Nemertes benchmark. Building a successful virtual workplace 2007. Retrieved March 15, 2010, from http://www.nemertes.com/networkingelecommunications/nemertes benchmark building a successful virtual workplace.

Peters P, Tijdens KG, Wetzels C (2004). Employees opportunities, preferences, and practices in telecommuting adoption. Inform. Manage., 41(4): 469-482.

Rogers EM (1995). Diffusion of Innovations. New York, NY: Free Press.

Roitz J, Jackson E (2006). AT&T adds business continuity to the long list of telework's advantages. J. Organ. Excell., (Spring): 3-12.

Roper K, Kim J (2007). Successful distributed work arrangements: a developmental approach. J. Faculty Manage., 5(2): 103-114.

Ruppel C, Harrington S (1995).Telework: an innovation where nobody is Getting on the bandwagon?. ACM SIGMIS Database Arch., 26(2/3): 87-104.

Shin B, Sheng OR, Higa K (2000). Telework: Existing Research and Future Directions. J. Organ. Comp. Elect. Com., 10(2): 85-101.
Swan B, Belanger F, Watson-Manheim M (2004). Theoretical Foundations for Distributed Work: Multilevel, Incentive Theories to Address Current Dilemmas in System Science. Proceedings of the Thirty-Seventh Hawaii International Conference. IEEE 5th to 8th January 2004, Hawaii, USA.
Venezia C, Allee V, Schwabe O (2007). Designing productive spaces for mobile workers: Role insights from network analysis. Inform. Knowl. Syst. Manage., 5: 1-15.
Venkatesh A, Vitalari NP (1992). An emerging distributed work arrangement. Manage. Sci., 38(12): 1687- 1706.