Facilitating Telework's Adoption and Implementation

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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 ($p < 0.002$) 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

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adopters</th>
<th>Nonadopters</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richness of Media</td>
<td>146.39</td>
<td>108.42</td>
<td>0.0000</td>
</tr>
<tr>
<td>Training Manager Benefits</td>
<td>142.64</td>
<td>109.68</td>
<td>0.0002</td>
</tr>
<tr>
<td>Security</td>
<td>144.60</td>
<td>108.97</td>
<td>0.0001</td>
</tr>
<tr>
<td>Champion</td>
<td>155.67</td>
<td>99.98</td>
<td>0.0000</td>
</tr>
<tr>
<td>Top Management Support</td>
<td>159.92</td>
<td>94.93</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Table 2
Correlation Coefficient and P-Values for Implementation Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career Ladder Planning</td>
<td>0.3329</td>
<td>0.000</td>
</tr>
<tr>
<td>Planning</td>
<td>0.1677</td>
<td>0.024</td>
</tr>
<tr>
<td>Richness of Media</td>
<td>0.0321</td>
<td>0.317</td>
</tr>
<tr>
<td>Training Manager--About Benefits</td>
<td>0.1724</td>
<td>0.006</td>
</tr>
<tr>
<td>Of Teleworker</td>
<td>0.0980</td>
<td>0.138</td>
</tr>
<tr>
<td>Training Teleworker</td>
<td>0.1260</td>
<td>0.073</td>
</tr>
<tr>
<td>Security</td>
<td>0.2790</td>
<td>0.000</td>
</tr>
<tr>
<td>Champion</td>
<td>0.3325</td>
<td>0.000</td>
</tr>
<tr>
<td>Top Management Support</td>
<td>0.3889</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Bibliography


