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Connected to the Organization: A Survey of Communication Technologies in the Modern Organizational Landscape

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Abstract:

In today's organizations, traditional and cutting-edge technologies compete for increased usage. This exploratory project provides a snapshot of the communication technology (CT) landscape by examining the use of 25 different CTs and their relations to a variety of common demographic variables. Results suggest that, although newer CTs are in use today, more traditional and established CTs such as e-mail, Internet, telephones, and voicemail still dominate the landscape.

With the growing availability of communication technologies (CTs), such as instant messaging (Quan-Haase, Cothrel, & Wellman, 2005) and the iPhone (King, 2007), the transition of communication practices in the modern organization continues. At the heart of this transition is an increasingly tech-savvy workforce. However, relatively

few studies (e.g., D'Urso & Rains, 2008) have focused on multiple CT use in the organization. The purpose of this exploratory study is to examine the CT landscape in today's organization to determine which CTs are widely used by its members and to develop a profile of the average CT user. We conducted this exploration employing an online survey utilizing a convenience sample of members from a variety of organizations in the Midwest. Participants were asked to respond to a series of questions concerning CTs available to them and their usage of these CTs.

Method

Students in communication courses at a Midwestern university recruited 430 individuals for this research project. Potential participants were contacted by students; invitations to participate were sent to e-mail addresses provided by those who volunteered. Participants were required to be (a) over the age of 18, (b) employed at least part time, and (c) not employed by the university. Each potential recruit was sent a formal invitation via e-mail to explain the purpose of the study and provided a link to the Web-based questionnaire. This procedure for data collection and validation has been previously used (see D'Urso & Rains, 2008; Nicotera, 1994; Scott & Timmerman, 1999). In the end, 322 participants (163 men and 159 women) completed the entire questionnaire, resulting in a 74.88% response rate. The mean age for respondents was 37.70 years ($SD = 13.14$), with 16.7% employed part time and 83.3% full time. Each participant completed a survey about the use of 25 CTs, which we selected after examining both academic and popular press articles regarding the use of CTs in today's organization. There were 15 single-item measures per CT. These covered a variety of topics including experience, comfort, and need for specific CTs, as well as demographic items including gender, educational background, and employment status (full or part time).

One hundred sixty-three men and 159 women completed the questionnaire. Respondents reported working in their current organizations for a mean of 7.77 years ($SD = 8.98$). The most common level of formal education reported by respondents was a bachelor's degree (43.6%), with 63.6% reporting this level of education or higher. Respondents came from a range of organizational

sizes categorized as small (1–99 members; 41.0%), medium (100–999 members; 22.7%), or large (1,000+ members; 36.3%).

Results

Respondents indicated using a variety of technologies in their organizations (see Table 1). E-mail (88.5%) and the Internet (84.7%) were the most commonly used CTs, with traditional technologies such as the telephone (83.2%), voicemail (72.5%), and fax (66.1%) rounding out the top five. Fifteen of the 25 technologies listed in the questionnaire were used by at least 10% of the respondents; each technology had at least some users.

Turning attention to the individual user, respondents indicated employing an average of 7.09 (SD = 3.10) CTs at work (see Table 2). There was a large range in the number of CTs used, with one respondent indicating no use of any of the 25 CTs, whereas another reported using 22 of the 25. Respondents also indicated a relatively high average of experience across the board with the CTs (M = 5.49, SD = 1.27); the highest levels of experience were with e-mail (M ¼ 6.48, SD = 0.74) and voicemail (M = 6.37, SD = 0.70). Average comfort with these CTs was also relatively high (M = 5.64, SD = 1.28), with respondents finding e-mail (M = 6.49, SD = 0.84) and voicemail most comfortable (M = 6.41, SD = 0.75). Of the 25 CTs studied, 17 were reported to be mandatory by at least one half of the respondents or more. Organizational intranets (85.9%) were most often listed as a mandatory CT, followed closely by e-mail (85.20%).

To compare respondents based on the number of CTs they employed, users were divided into three approximately equal groups as follows: (a) low CT users (1–5 CTs; N = 99), (b) moderate CT users (6–8 CTs; N = 128), and (c) heavy CT users (9+ CTs; N = 93). Each demographic variable of interest was analyzed across each group using two-way contingency table analysis. Table 3 provides the data across each variable along with a Pearson's chi-square. Analysis indicates a positive direct relation between age and increased CT usage $\chi2$ (df = 10, N = 321) = 22.21, p = .01. Low CT users were an average age of 35.18 (SD = 13.44) years old, 37.62 (SD = 12.53) years old for moderate CT users, and 40.68 (SD = 13.18) years old for heavy CT users. Similarly, a positive relation was found with the user's gender,

with men using more CTs, $\chi 2$ (df = 2, *N* = 321) = 8.56, *p* = .01. Moderate CT users were 51.2% men, whereas heavy CT users were 61.5% men. An increased level of education, particularly the possession of a college education, also appears to be related to increased CT usage, $\chi 2$ (df = 8, *N* = 321) = 17.27, *p* = .03. Here, 55.5% of low CT users, 61.4% of moderate CT users, and 74.5% of heavy CT users possessed a bachelor's degree or higher. One of the strongest relations found indicates that full-time employee status in an organization predicts an individual's use of a larger number of CTs, with 96.8% of the heavy technology user group reporting to be full-time employees versus only 64.3% of the low technology users, $\chi 2$ (df = 2, *N* = 321) = 41.00, *p* = .00.

Discussion

With today's complex and dynamic organizational landscape, it is no surprise that CT use is evolving beyond e-mail and the Internet. The organizations of today are dependent on Internet-based CTs, as well as many traditional CTs, such as the telephone and fax. As a result, employees are finding themselves in a position where they need to adapt their knowledge and use of CTs to maximize their communication potential in the organization. Nonetheless, e-mail still appears to be the primary CT of today's organization. In fact, e-mail and the Internet (World Wide Web) appeared as not only the most frequently used CTs, but as the most needed. E-mail was also found to be a mandatory CT in many organizations. Organizations, whether for efficiency, standardization, or other reasons, are transforming some of these CTs into communication cornerstones. However, the overall results suggest that the more traditional and established CTs such as e-mail, the telephone, and voicemail still dominate the landscape.

Respondents revealed that they have high levels of experience, as well as comfort with many of these CTs, especially e-mail. This suggests that people are responding well to the technological transformation of organizational communication. Many organizational stereotypes have older individuals and women as less-than-receptive of technology, in general, and these groups are often perceived as being forced to learn and adopt new CTs (see Morris, Venkatesh, & Ackerman, 2005); yet this study found a significant, positive relation between age and use of CTs. This may indicate that older

organizational members are more technologically receptive than previously thought, although this receptiveness seems to point toward the more established CTs, like e-mail.

The findings from this study must be interpreted in light of several limitations. First, although our sample was diverse in multiple respects, it was still a convenience sample. Thus, it is unclear how well the findings generalize to people or organizations not represented in the sample. Second, the sample was collected online, which did not allow for respondents who typically avoid or choose not to utilize CTs in the workplace. Third, the CTs chosen do not represent the entire spectrum of what is available. Future research is needed to determine how organizations are adapting to the transition from traditional to new CTs and the effects on the average user. Although traditional CTs still hold a place in three out of the top five rankings in usage, respondents are much more comfortable with new CTs, such as e-mail, which currently holds the top position in today's organizational CT landscape. In the end, we hope that this exploratory study will spur additional research into CT use. The use of multiple CTs in organizations appears to be a growing trend (Stephens, 2007) that deserves additional research.

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Appendix

Table 1: Communication Technologies Comprising Today's Organizational Landscape (*N* = 322)

Communication technology	Those who have access (%)
E-mail	88.5
Internet (World Wide Web)	84.7
Landline telephones	83.2
Voicemail	72.5
Fax device	66.1
Standard cell phone	61.2
Intranets	55.1
Audio teleconferencing	37.9
Listserv or group e-mail	31.9
Instant messaging	20.3
Smart cell phones	19.6
Personal digital assistant	15.9
Short Message Service (SMS) or text messaging	15.6
Web-based teleconferencing	13.1
Groupware or group collaboration software	11.6
Pagers	7.1
Video teleconferencing	6.2
Voice over Internet Protocol (VoIP) telephone	5.0
Unified messaging system	3.4
Group decision support system	2.8
Podcasts	2.8
Wiki	2.2
Corporate blog	1.6
Desktop video conferencing	1.2
Personal employee blog	0.6

Table 2: Communication Technology and User Characteristics

Communication technology	Those who have access (%)
E-mail	88.5
Internet (World Wide Web)	84.7
Landline telephones	83.2
Voicemail	72.5
Fax device	66.1
Standard cell phone	61.2
Intranets	55.1
Audio teleconferencing	37.9
Listserv or group e-mail	31.9
Instant messaging	20.3
Smart cell phones	19.6
Personal digital assistant	15.9
Short Message Service (SMS) or text messaging	15.6
Web-based teleconferencing	13.1
Groupware or group collaboration software	11.6
Pagers	7.1
Video teleconferencing	6.2
Voice over Internet Protocol (VoIP) telephone	5.0
Unified messaging system	3.4
Group decision support system	2.8
Podcasts	2.8
Wiki	2.2
Corporate blog	1.6
Desktop video conferencing	1.2
Personal employee blog	0.6

Note. A standard, Likert-type measure was used for the variables of experience, comfort, and need, ranging from 1 (very inexperienced/uncomfortable/unnecessary) to 7 (very experienced/comfortable/necessary).

Table 3: Cross-Section of Demographic Information across Three Levels of Communication Technology Use

Variable	Low tech users (1–5 types)	Moderate tech users (6–8 types)	Heavy tech users (9+)	χ^2	df	Asymp Sig (2 sided)
N	99	128	94			
Age	35.18 (SD = 13.44)	37.62 (SD = 12.53)	40.68 (SD = 13.18)	22.21	10	.014
Gender						
Female	59.8%	48.8%	38.5%	8.56	2	.014
Male	40.2%	51.2%	61.5%			
Education						
High school or general equivalency diploma	33.3%	22.8%	10.6%	17.27	8	.027
Associates	11.1%	15.7%	14.9%			
Bachelors	34.3%	41.7%	55.3%			
Masters	17.2%	15.0%	14.9%			
Doctorate	4.0%	4.7%	4.3%			
Employment						
Part time	35.7%	11.1%	3.2%	41.00	2	.000
Full time	64.3%	88.9%	96.8%			
Virtual or teleworker	11.1%	23.4%	39.8%	21.49	2	.000
Organization size						
Small (1–99)	50.5%	43.8%	26.6%	27.51	14	.017
Medium (100–999)	27.3%	20.3%	21.3%			
Large (1000+)	22.2%	35.9%	52.1%			