CPA Firms Increasing Utilization Of CIS Technology

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Abstract

Approximately 1,500 Certified Public Accounting (CPA) firms located throughout the United States were surveyed in 1997, 1998, and 1999 to determine the extent of information technology adoption and utilization. Overall, the results of the surveys indicate that over the three year period of time, both sole-practitioner and multiple-owner CPA firms increased significantly their utilization of information technology. Additionally, it appears that over the three year period most CPA firms also increased their expenditures for information technology.

Introduction

Computer information systems (CIS) technology is an important tool that businesses may utilize to operate more efficiently and effectively. Several studies indicate a growing awareness of the importance of CIS technology and corresponding increases in investment in and utilization of such technology. For example, recent research suggests that investment in CIS technology may have been a significant factor behind U.S. economic growth in the 1990s. Examples of such research include Jorgenson and Stiroh (1995), Blinder (2000), and Oliner and Sichel (2000). Oliner and Sichel (2000) also noted that electronic commerce and electronic business could be responsible for a small part of such growth.

Soloman (1998) reported that firms such as Arthur Andersen are increasing their commitment to information technology and constantly assess their use of technology to meet their business needs. Another study found that information technology contributes positively to the (Menon, 2000). Finally, an earlier project similar to the current study found increased information technology utilization and greater amounts of investment for CIS technology among CPA firms studied in 1997 and 1998 in eleven different states and overall (Casey, Ellis, and Flaherty, 2000).

Readers with comments or questions are encouraged to contact the authors via email.

Research Approach

The purpose of the research was to determine the extent of utilization of information technology and corresponding expenditures for such technology among CPA firms over the years 1997 through 1999. Also of interest was how expenditures for and utilization of such technology had changed over the three years studied and whether there was a difference in CIS expenditures and utilization between large CPA firms and small CPA firms. Annual surveys of CPA firms sponsored by the Texas Society of CPAs provided the data that were analyzed. The Texas Society of CPAs surveys asked CPA firms to respond to several questions about their expenditures for information technology and the type(s) of information technology utilized. Specifically, the survey asked respondents to estimate what the firm spends on technology as a percentage of revenue on technology. Respondents were given five categories in which to indicate a response. The categories were "less than 1%," "more than 1% to 2.5%," "more than 2.5% to 4%," "more than 4% to 5%," and "more than 5%." The survey also asked respondents to indicate if they have CD-ROM, online, and(or) internet tax research services and if they file tax returns electronically. Finally, the survey asked respondents if their firm subscribes to Compuserve, a local internet service provider, America Online, Prodigy, and (or) Microsoft Network online services and whether the firm has a home page. Since utilization in this setting has been defined as the volume of technology use, the reliance on technology to get one's job done, and the diversity of different functions put to use (Trice), it is inferred that if the percentage of CPA firms indicating reliance on information technology has increased then utilization has also increased.

To facilitate the analysis, data provided by the responding CPA firms were separated into two categories, sole practitioner firms, (i.e., single-owner firms) and multiple-owner firms, (i.e., partnerships, or professional corporations, for example). Multiple owner firms tend to be larger than sole practitioner firms. For example, multiple-owner firms revenues range, on average, from $250,000 to over 1 million dollars annually, compared with sole practitioner revenues which range, on average, from $70,000 up to $250,000 a year. Selected financial characteristics of the firms responding to the annual surveys are presented in Table 1.

Data Analysis and Findings

Table 2 presents data regarding multi-owner CPA firms information technology budget and utilization of information for the years 1997 through 1999. Using the Z-test for differences in proportions (Anderson, Sweeney and Williams, 1996), our analysis of the data for multiple owner CPA firms for the years 1997 through 1999 indicates that the information technology budget distribution of firms year by year has not changed significantly. The one exception is a significant decrease between 1998 and 1999 in the percentage of firms spending less that one percent of revenue on information technology.

Between 1998 and 1999 there was no significant change in the use of CDROM technology but there was a very significant increase in the use of on- line services and the Internet by multiple owner firms.

Several significant changes in the use of on-

Table 1
Selected Financial Characteristics of CPA Firms Surveyed

	Survey Year		
	1999	1998	1997
Multiple Owner Firms:			
Number of Firms Responding	714	716	698
Average Total Fee Revenue	$1,578,000	$1,426,000	$1,199,000
Average Total Net Income	$610,000	$562,000	$481,000
Average Total Assets	$625,000	$563,000	$463,000
Sole Practitioner Firms:			
Number of Firms Responding	770	838	774
Average Total Fee Revenue	$234,000	$217,000	$209,000
Average Total Net Income	$100,000	$94,000	$88,000
Average Total Assets	$90,000	$83,000	$81,000

Table 2. Multiple-Owner CPA Firms Information Technology Budget And Utilization Of Information Technology, 1997 Through 1999.

INFORMATION TECHNOLOGY BUDGET	PERCENTAGE RESPONDING			CHANGE IN PERCENTAGE	
AS A PERCENTAGE OF REVENUE:	1999	1998	1997	99-98	98-97
<1%	5.1	7.7	8.9	-2.6**	-1.2
1%-2.5%	38.5	39.6	44.5	-1.1	-4.9
2.5%-4%	34.7	33.0	31.0	1.7	2.0
4%-5%	10.3	10.4	7.8	-0.1	2.6
>5%	11.4	9.3	7.8	2.1	1.5
TOTAL % RESPONDING	100.0	100.0	100.0		
TYPE OF ELECTRONIC TAX SERVICE UTILIZED@:					
CD ROM	94.1	94.9	n/a	-0.8	n/a
Online research	45.9	36.2	n/a	9.7*	n/a
Internet research	69.3	57.8	n/a	11.5*	n/a
Electronic Tax Filing	31.6	27.6	25.5	4.0	2.1
TYPE OF INTERNET SERVICE UTILIZED@:					
Compuserve	8.0	10.6	16.0	-2.6	-5.4*
ISP	63.3	49.3	34.2	14.0*	15.1*
AOL	25.3	27.7	22.3	-2.4	5.4**
Prodigy	1.2	3.1	2.5	-1.9**	0.6
MSN	8.3	7.7	4.7	0.6	3.0**
Home Page	38.2	28.1	16.7	10.1*	11.4*
Other	9.3	8.0	5.6	1.3	2.4
None	5.8	10.5	25.7	-4.7*	-15.2*

*p<.01; **p,.05
@amounts will not sum to 100% since more than one category may have been selected by respondents.
n/a = data not available

line services also occurred during the time period under study. Multiple owner use of CompuServe decreased significantly between 1997 and 1998 while the use of AOL and MSN increased. There was also a significant decrease in the use of Prodigy from 1998 to 1999. In addition, each year there was a significant increase in the use of local Internet service providers as well as a decrease in the percentage of firms that did not use on-line services.

Finally, the data indicate a significant increase in multiple-owner firms reporting the use of a homepage each year, but there has been no change in usage of electronic tax return services.

Table 3 reports sole proprietorship CPA firms information technology budget and utilization of information for the years 1997 through 1999. A similar analysis of sole practitioner CPA firms reveals no significant change in the distribution of firms with respect to their information technology budgets, much the same as was found for multiple-owner firms. Sole practitioner use of on-line services and the Internet increased significantly between 1998 and 1999 just as multiple owner use did.

Table 3. Sole Practitioner CPA Firms Information Technology Budget And Utilization Of Information Technology, 1997 Through 1999.

INFORMATION TECHNOLOGY BUDGET	PERCENTAGE RESPONDING			CHANGE IN PERCENTAGE	
AS A PERCENTAGE OF REVENUE:	1999	1998	1997	99-98	98-97
<1%	11.2	11.8	14.3	-0.6	-2.5
1%-2.5%	31.8	32.6	31.5	-0.8	1.1
2.5%-4%	25.3	26.7	28.4	-1.4	-1.7
4%-5%	13.4	12.6	10.0	0.8	2.6
>5%	18.3	16.3	15.8	2.0	0.5
TOTAL % RESPONDING	100.0	100.0	100.0		
TYPE OF ELECTRONIC TAX SERVICE UTILIZED@:					
CD ROM	87.0	85.0	n/a	2.0	n/a
Online	25.7	18.5	n/a	7.2*	n/a
Internet	50.1	40.9	n/a	9.2*	n/a
Elec Tax File	31.9	25.5	23.4	6.4*	2.1
TYPE OF INTERNET SERVICE UTILIZED@:					
Compuserve	6.7	7.0	9.7	-0.3	-2.7**
ISP	38.8	24.0	21.9	14.8*	2.1
AOL	27.3	27.3	27.3	0.0	0.0
Prodigy	1.5	2.3	2.2	-0.8	0.1
MSN	7.4	6.0	4.5	1.4	1.5
Home Page	12.5	7.7	6.1	4.8*	1.6
Other	12.5	10.2	4.0	2.3	6.2*
None	11.3	21.3	35.9	-10.0*	-14.6*

*p<.01; **p<.05
@amounts will not sum to 100% since more than one category may be selected by respondents.
n/a = data not available

With respect to the use of specific on-line services, there was a significant decrease in the use of CompuServe by sole practitioners between 1997 and 1998. There was at the same time a very significant increase in some form of Internet access other than those listed. The use of local Internet service providers did increase significantly from 1998 to 1999. The sole practitioner shift to local Internet providers appears to have occurred later than it did for multiple owner firms. Each year there was a significant increase in the use of some form of on-line service as evidenced by the significant decrease in those who reported using no Internet service. Furthermore, a significant increase in the use of a homepage and electronic tax filing services did not occur until the 1998-1999 time period.

Also of interest is how sole practitioners compare to multiple owner firms with respect to the use of information technology. Table 4 reports multi-owner versus sole proprietorship CPA firms information technology budget and utilization of information for the years 1997 through 1999. In each of the three years for which data are available, the percentage of sole practitioners is significantly greater than that of multiple owners at both extremes of information technology budgets (less than one percent and more than five percent). While sole practitioners tend to be smaller firms with respect to revenue and are therefore less able to invest in information technology, it is surprising that they exceed multiple owner investment at the higher end of the distribution. This may be due to a smaller total budget for sole practitioners as com-

Table 4. Multiple-Owner Versus Sole Practitioner CPA Firms Information Technology Budget And Utilization Of Information Technology, 1997 Through 1999.

	PERCENTAGE RESPONDING						DIFFERENCE IN PERCENTAGE		
INFORMATION TECHNOLOGY BUDGET	1999		1998		1997		1999	1998	1997
AS A PERCENTAGE OF REVENUE:	MO	SP	MO	SP	MO	SP	MO-SP	MO-SP	MO-SP
<1%	5.1	11.2	7.7	11.8	8.9	14.3	6.1*	4.1*	5.4*
1%-2.5%	38.5	31.8	39.6	32.6	44.5	31.5	6.7*	7.0*	13.0*
2.5%-4%	34.7	25.3	33.0	26.7	31.0	28.4	9.4*	6.3*	2.6
4%-5%	10.3	13.4	10.4	12.6	7.8	10.0	3.1	2.2	2.2
>5%	11.4	18.3	9.3	16.3	7.8	15.8	6.9*	7.0*	8.0*
TOTAL % RESPONDING	100.0	100.0	100.0	100.0	100.0	100.0			
TYPE OF ELECTRONIC TAX SERVICE UTILIZED@:									
CD ROM	94.1	87.0	94.9	85.0	n/a	n/a	7.1*	9.9*	n/a
Online research	45.9	25.7	36.2	18.5	n/a	n/a	20.2*	17.7*	n/a
Internet research	69.3	50.1	57.8	40.9	n/a	n/a	19.2*	16.9*	n/a
Electronic Tax Filing	31.6	31.9	27.6	25.5	25.5	23.4	0.3	2.1	2.1
TYPE OF INTERNET SERVICE UTILIZED@:									
Compuserve	8.0	6.7	10.6	7.0	16.0	9.7	1.3	3.6**	6.3*
ISP	63.3	38.8	49.3	24.0	34.2	21.9	24.5*	25.3*	12.3*
AOL	25.3	27.3	27.7	27.3	22.3	27.3	2.0	0.4	5.0**
Prodigy	1.2	1.5	3.1	2.3	2.5	2.2	0.3	0.8	0.3
MSN	8.3	7.4	7.7	6.0	4.7	4.5	0.9	1.7	0.2
Home Page	38.2	12.5	28.1	7.7	16.7	6.1	25.7*	20.4*	10.6*
Other	9.3	12.5	8.0	10.2	5.6	4.0	3.2**	2.2	1.6
None	5.8	11.3	10.5	21.3	25.7	35.9	5.5*	10.8*	10.2*

*p<.01; **p,.05

@amounts will not sum to 100% since more than one category may have been selected by respondents.

n/a = data not available

pared with multiple owner firms. Thus, the sole practitioner's minimum investment in CIS technology would constitute a greater percentage of the sole practitioner's total budget. With the exception in 1999, multiple owner investment in the one percent to five percent range exceeds that of the sole practitioners whenever differences are significant.

Multiple-owner use of tax research services significantly exceeded use by sole practitioners in both 1998 and 1999 (data for 1997 were not available). As presented in Table 4, there was no significant difference in the percentage of sole practitioners and multiple owners firms utilizing electronic tax filing for 1997, 1998 and 1999.

An analysis of the particular on-line services used indicates that in 1997 and 1998 sole practitioners were less likely to use CompuServe that were multiple owner firms. Sole practitioners as a group made greater use of AOL in 1997. In each of the three years covered by this study, the percentage of multiple owner firms using local Internet service providers was significantly greater than for sole practitioners. In all three years, sole practitioners were less likely to use some form of Internet service than were multiple owner firms.

Finally, while there is no significant difference in the use of electronic tax filing services between sole practitioners and multiple owner firms, the percentage of multiple owners using a home page in significantly greater than for sole practitioners.

Implications

This study is consistent with the findings of earlier studies suggesting that businesses are spending more on information technology and utilizing greater amounts of CIS technology. Among small and large CPA firms surveyed throughout the United States, overall, it appears that from 1997 to 1998 expenditures for and utilization of CIS technology grew significantly. Such growth in expenditures for and utilization of CIS technology may be explained by the potential productivity enhancements that may occur thereby allowing CPA firms to operate more efficiently and effectively.

Suggestions for Future Research

Future research in the area of CPA firms' utilization of CIS technology could be directed toward the type of IT that CPA firms are buying, IT skills requirements of new hires, and the effect IT has had on staffing and firm productivity. It would be interesting to determine what types of hardware and accounting software that CPA firms are using. Additionally, the specific IT skills sets that CPA firms are expecting of new hires could be of interest to AIS professors and students alike. Finally, it would be interesting to examine the relationship between CIS technology utilization and CPA firm staffing and productivity. Has IT utilization led to improvements in firm productivity? Are employees able to work more efficiently and effectively with the use if IT compared with employees of firms that do not utilize such technology? Research aimed at addressing such questions could be of benefit to both accounting practitioners and professors.

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