association's bylaws to deny it even associate membership. M.R. Wessel, "Letter to Larry Welke, July 13, 1972," ADAPSO Records (CBI 172), Charles Babbage Inst. (CBI), Univ. of Minnesota, Minneapolis. Hereafter this collection will be referred to as CBI 172.

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8. L. Welke, oral history interview by T. Haigh, 3 May 2002, OH 369, CBI, p. 14.

9. L. Keet, oral history interview by P.L. Frana, 3 May 2002, OH 341, CBI, p. 14.

10. L. Johnson, ed., "Big Eight Accounting Firms Workshop," *ADAPSO Reunion Transcript, May 2–4, 2002*, iBusiness Press, 2003, pp. 209-236. The apparently fluid line between software products and services led several accounting firms to attempt to enter the packaged software business during the 1970s.

11. "ADAPSO Position Paper: Incremental Marketing of Computer Services by Certified Public Accountants as an Unlawful Tie-In Sale," CBI 172, not dated.

12. "ADAPSO Position Paper: The Incremental Marketing of Computer Services Generally," 24 Feb. 1976, CBI 172.

13. Both of these position papers are to be found in the bound volume "ADAPSO Position Papers" in CBI 172. Wessel explored similar ideas in a number of books and articles, including B. Gilchrist and M. Wessel, *Government Regulation of the Computer Industry*, AFIPS Press, 1972.

14. *1984 Annual Report*, CBI 172.

15. ADAPSO Microcomputer Software Association (MCSA) board meeting, 21 Feb. 1988, CBI 172.

16. The story of IBM's relationship with ADAPSO in the 1970s and 1980s is explored in M. Goetz, "Memoirs of a Software Pioneer: Part 2," *IEEE Annals*, vol. 24, no. 4, 2002, pp. 14-31.

17. The later careers of both Larry Welke and Rick Crandall show some of the new groups that emerged to facilitate interaction between business leaders in the field. T. Haigh,

"Biography: Larry A. Welke," *IEEE Annals*, vol. 26, no. 4, 2004, pp. 85-91; T. Haigh, "Biography: Richard L. (Rick) Crandall," *IEEE Annals*, vol. 26, no. 4, 2004, pp. 79-85.

Lawrence J. Schoenberg

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Lawrence Schoenberg was the founder and longtime head of the computer firm AGS, a programming services firm that grew from acquisitions into a range of areas including packaged software and microcomputer distribution. He spent 20 years on the ADAPSO board and has the unique distinction of having served as head of three of its sections: Software Products, Professional Services, and Information Systems Integration. Schoenberg served ADAPSO in many capacities from the late 1970s into the 1990s, including a term as its chair. He was influential in developing and negotiating the association's positions on financial and accounting issues.

Early career

Schoenberg grew up in the Bronx, the only child of a family of teachers. After what he recalls as a competent but uninspired high school performance, he entered the University of Pennsylvania. After graduating in 1953, he was drafted into the army, serving for two years in New Mexico with the US Army Signal Corps. During this time he had his first exposure to computing.[1]

Upon his release from the army, Schoenberg attended Wharton where he studied intensively and earned an MBA in one year. He then applied to IBM and, on the basis of its celebrated aptitude test, was assigned to work as a programmer in its midtown Manhattan headquarters. Schoenberg threw himself into the arcana of early computing, writing systems routines for the large IBM 700 series vacuum tube machines.

His next job was with the Litton Industries conglomerate, then attempting to compete in the low-end computer market with its Monrobot. The Monrobot too required skilled low-level programming, but because Litton did the work necessary to tailor the machines to specific tasks, he was now brought into contact with customers and business systems analysis for the first time. In 1961, Schoenberg went to work in the New York offices of the Computer Sciences Corporation, then focused on systems software development for computer

manufacturers. The New York office did not thrive and was closed down two years later. Work as a subcontractor for John Diebold, a principal in an unsuccessful systems software startup, and as a community college computer science department chairman followed in quick succession.

Creation of AGS

In 1967, Schoenberg joined Joe Abrams, a fellow resident in his New Jersey apartment complex, to create AGS Computers. The name stood for Abrams, Graf, and Schoenberg (in the end, Graf was not involved with the company's work). For a while the firm struggled to attract consulting business, picking up some jobs such as an early containerization project for U.S. Lines. Reaching potential customers was a real challenge, which the partners attempted to address by running technical seminars for the data processing directors of New York companies. Schoenberg believes that by 1970 it had around 20 employees and revenues of approximately a million dollars a year. In 1969 it made a small initial public offering, joining other computer services firms during the "go go years" for computer company stocks. Schoenberg views this as an action driven by "a combination of ego and perception among customers," which "didn't really do much for anyone."[2]

At the beginning of the 1970s, AGS attempted to enter the emerging market for packaged software. This met with little success, though some products, including a report generator and test system, were used within AGS, or formed the basis for repeated sales of applications in related areas. The packaged software initiative, and a number of other ventures into areas such as optical scanning and training, fell victim to the recession of 1970–1971, which wiped out many of AGS's larger competitors.

When growth resumed in 1972, AGS began to diversify into new areas of business. It developed a niche in back-office systems for brokerage firms and tackled other administrative projects for banks and communications companies. Continuing its involvement in system software, the firm engaged in security-related operating systems projects for IBM and systems projects for Bell Labs. Schoenberg lived in Murray Hill, New Jersey, close to Bell Labs, which became his biggest customer. He suggests that the firm "did a lot of the original Unix development" under contract, and that AGS at one point employed hundreds of programmers working on the system.[3] By the end of the 1970s, the firm had 300 employees and revenues of around $14 million.

ADAPSO involvement

AGS entered ADAPSO in early 1974, with Schoenberg as its representative.[4] His first recorded role within the organization came in 1977, when he served as one of four members of a new Organization Committee chartered to find solutions to the association's perennial problems of sectional structure, board organization, and fractionalism.[5] From 1978 onward he was a fixture of the association's committees and leadership. In 1978 alone he was a director of ADAPSO, chair of its Membership Committee, and vice president of its Software Industry Association section (representing suppliers of packaged software and programming services). In 1979, he was ADAPSO treasurer and president of the Software Industry Association, and during the 1980s he served numerous terms as a director of the association and chaired many of its committees. Schoenberg became chairman of the board and chief executive officer of ADAPSO (a new name for its president) in 1982.

During the 1970s, he worked to bring more professional services firms into the association, feeling that he and his competitors had sufficient common ground to make shared action on topics such as state sales taxation a sensible strategy. These efforts culminated in the creation of a Professional Services section, of which he became the first president. According to Schoenberg, the original project of this section was to defeat an attempt by New York State to tax computer services. Energized by success on this topic, the new section addressed a number of other issues, including software capitalization, competition from public accounting firms, and other accounting and tax issues. The section was also active on labor issues such as the classification of programmers

as independent contractors and the granting of visas for technical workers.[6]

In 1991, Schoenberg headed ADAPSO's newly formed Information Systems Integration section. Schoenberg recalls that this section represented the interests of large services firms, particularly those focused on the federal government market. The unique diversity of his involvement helped Schoenberg make connections between the sometimes squabbling sections of the association.

Growth and sale of AGS

From around 1979 onward, AGS began to grow rapidly through acquisitions. Despite AGS's previous lack of success with packaged software, by the early 1980s Schoenberg had been convinced by his experiences with ADAPSO that the time had come to try again. This time, however, he resolved to acquire high-quality programs rather than assume the high risk of failure associated with in-house development. Each acquisition brought the company a customer base and a team of expert developers as well as the product itself. These acquisitions focused on niche markets, such as Atlantic Software for its project management, and other firms for banking and brokerage systems.

Chief amongst its new businesses was a microcomputer distributor called Micro Distributors. AGS purchased it in 1981 because of its expertise in telemarketing, a distribution channel Schoenberg believed was the only economical way of reaching the many thousands of potential new customers scattered across large firms. A similar and larger acquisition, the privately held Microamerica, followed in 1983 for $5.3 million.[7] Revenues from this business soon reached several hundred million dollars, making it America's largest distributor of microcomputer products.[8]

In March 1988, Schoenberg suggested that he expected revenues to approach $700 million that year, and set a target of $1 billion by the end of the decade.[9] In June, however, the deal was dramatically canceled as AGS was sold for $275 million to Nynex, one of the regional Bell companies created by the breakup of AT&T.[10] Like other telephone companies of the period, it was awash with cash and convinced that the coming era of convergence between voice and data meant that it needed to get into the computer business. Nynex disposed of AGS and its other information services operations in 1993 to Keane, Inc. for around a third of what it had paid.[11] The microcomputer distribution business was not included in the Nynex deal, instead briefly becoming a separate public company before merging with Softsel Computer Products in 1990 to form Merisel.

Recent activities

Since selling AGS, Schoenberg has built on the professional relationships he developed through AGS and ADAPSO to serve as an external director of many public companies in the computer field. He has also served as a trustee of several nonprofit organizations, among them Dickinson College, Carlisle, Pennsylvania, and a long spell as chairman of the board of overseers of the University of Pennsylvania libraries. At Penn he underwrote the creation of the Schoenberg Center for Electronic Text and Image, a digital library providing virtual facsimiles of rare books. Schoenberg is a trustee of the Charles Babbage Institute and recently became a trustee of the Computer History Museum in Mountain View, California.

References

1. These facts are drawn primarily from L.J. Schoenberg, oral history interview by M. Campbell-Kelly, 3 May 2002, OH 343, Charles Babbage Inst. (CBI). In the remainder of this article, otherwise unattributed information is derived from this source.
2. CBI OH 343, p. 15.
3. CBI OH 343, p. 17 for the quotation. In a private communication with me on 9 Jan. 2005, Schoenberg suggested that AGS once had 500 programmers working on Bell Labs projects, primarily Unix.
4. ADAPSO, "Board Minutes," 10 Feb 1974.
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6. Private communication from L. Schoenberg, 7 Jan. 2005.
7. "Information Bank Abstracts," *Wall Street J.*, 15 Mar. 1983, p. 8.
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