

Biographies

Thomas Haigh, Editor
The Haigh Group

ADAPSO and the Service Bureau Industry, 1961–1968

The role of trade associations in the history of computing has so far received little attention. To begin to remedy that oversight, this article sketches the early years of the computer software and services industry trade association known as the Association of Data Processing Service Organizations (ADAPSO), to accompany biographies of two of its most prominent pioneer members: Bernard Goldstein and Frank Lautenberg. Established in 1961, the association initially catered to an almost forgotten breed of business: the computer service bureau. In 2002, the Software History Center organized a series of ADAPSO-related oral history interviews, and collected many of the association's records to form a unique historical resource, of which these short pieces can do little more than scratch the surface.

A trade association is essentially a society, the members of which are not individuals but business organizations within a particular industry. Though their activities are sharply constrained by antitrust law, trade associations are found in every American business from automobile parts to adult entertainment. Their conferences provide a neutral meeting place for business leaders to swap ideas, while their operations allow hundreds of smaller firms to share the costs of expensive activities

with shared benefits, such as public relations efforts, educational initiatives, legal actions, market research, and political lobbying. Recent historical work on the evolution of American business, such as Philip Scranton's influential *Endless Novelty*, has shown that associations of this kind played a vital role in industries such as jewelry, machine tools, textiles, and furniture where networks of smaller and more specialized firms predominated.¹

The computer software and services industry of the 1960s and 1970s fits a similar pattern, making associations and networks similarly important. In contrast, both historians and journalists concerned with the business history of computing have looked primarily to the stories and strategies of a handful of large, influential firms such as IBM, DEC, and Apple. This approach is well suited to the study of the hardware industry, in which platforms controlled by a handful of leading suppliers have historically dominated each major market segment. However, as Martin Campbell-Kelly showed in his recent history *From Airline Reservations to Sonic the Hedgehog*, the markets for computer software and services remained highly fragmented.² No computer processing services firm, consulting or contract programming group, or (until the 1990s) mainframe software company ever came close to achieving dominance in its field. Because the software and services industry was so immature, fragmented, and fast changing its pioneers found the association a vital place to learn from each other, create workable business models, promote their industry to potential customers, and pursue shared legal and political objectives. For the historian, ADAPSO is important not just in its own right, but also as a window into the changing concerns and structure of the evolving industry.

During the 1970s and early 1980s ADAPSO was the leading trade association for the computer software and services industry, expanding its scope to include professional services firms, value-added resellers, online services, and packaged software vendors. This expansion will be the focus of a second, companion article accompanied by further biographies. ADAPSO still exists today, as the Information Technology Association of America (ITAA). Though the expansion of regional IT associations, and of specialist groups in areas such as the personal computer software industry, have made this association less central than it once was as a social networking hub for the industry, it continues to serve a valuable role in representing the IT industry as a whole to Washington and organizing events for its 500 member companies.



Figure 1. This ADAPSO logo, used during the 1960s, evoked the punched cards (top right), paper tape (lower left), and magnetic tape (center) used by service bureaus to store and process machine-readable records.

ADAPSO's origins

When ADAPSO was officially inaugurated in 1961 there was no such thing as the computer software industry, or a computer software company. The association owed its existence to the desire in early 1960 of one middle-aged man, William H. Evans, to find convenient, part-time employment as the executive head of a trade association based close to his home in Abington, Pennsylvania. His background was in the office management field, and his then-current employer was the National Office Management Association, founded back in 1919 to spread the gospel of scientific management to office workers. Unsurprisingly, therefore, his initial plan was to create something called "The Office Services Institute," which according to the minutes of its first exploratory meeting would be "an association of companies rendering services to business offices." He had interested two other men sufficiently for them to attend the meeting, at which it was decided that "data processing center companies," temporary employment agencies, and independent service bureaus should definitely be part of the new association, and that other groups such as business consultants and computer manufacturers might well play a part. The founders were enthusiastic, and agreed to seek leads among their networks of professional contacts.³

The service bureau appeared, initially, as just one small part of the much broader field of office services. From this point, however, events moved in an unexpected direction. This was perhaps because both of the other organizers worked in the computer service bureau field. One—Romauld Slimak—was manager of the Univac Service Centers, while the other—C.W. Graf—was Manager of Advertising and Sales Promotion for the Service Bureau Corporation. Of the nine men who gathered in the Hotel New Yorker a few months later to pursue the creation of the new organization, all but one was directly concerned with the sale of data processing services or equipment. By the third meeting, he had dropped out "because of a change in business interest," and the organization was temporarily renamed DATA, standing unconvincingly for the Data Actuating Technical Association. Discussion of a name was "informative and inconclusive,"⁴ though at the fourth meeting in June, "it was felt that the designation 'Association of Data Processing Service Organizations' best typified the nature of the group." This was clearly not seen as an inspired choice, since the minutes went on to note that "it is hoped that other suggestions will be

forthcoming from among the Organizers."⁵ No superior alternative appeared, and the association was to retain this slightly cryptic name for three decades.

With the name resolved, two more substantive questions remained: the objectives of the association, and the makeup of its membership. These questions were never definitively answered. Instead, the association struggled through with a series of workable compromises between inclusivity and cohesion. The original constituency implied in its name, "Data Processing Service Organizations," was reasonably narrow, particularly when compared with the diverse group of time-sharing, professional services, and software product firms that were later to expand the ADAPSO. Commercial service bureaus were clearly going to be the core of the new association. Yet even here, the appropriate boundaries were far from obvious. After "much study," the 8 June 1960 meeting adopted the definition that

This organization is to be composed of companies whose major interest is that of serving clients through data processing centers. "Data Processing Centers" are those involving operations performed on the premises of the vendor, requiring the utilization of such equipment as punched cards, punched and magnetic cards, punched and magnetic tape, optical readers, computers, and such related pieces and activities as may from time to time be included by the board of directors.⁶

The same meeting recognized three classes of member organization: "independent centers" (small, one-off service bureaus), "chain centers" (larger operations with bureaus in several cities), and "manufacturers centers" (operated by computer manufacturers such as IBM and Univac).⁷ The interests of these three classes of member did not always coincide, so a few weeks later the association's Council resolved that its board should contain at least two members from each class.⁶

Several issues were left unresolved. One was the status of firms with no computer on their own premises, such as those providing programming services. Despite a reluctance to admit them as members, the association officially recognized that "programming and systems analysis services are now as much a part of the total data processing service activity as is the equipment itself, or its operation."⁸ Another was the possibility of membership for non-commercial computer centers, such as those operated by universities. These operated

much like service bureaus, and some sold computer services to the public. Also unclear was the status of companies whose internal computer centers sold their excess computer time to outside customers. A new class of associate membership was eventually created to accommodate these problematic cases. More pressing, however, was the question of how to apportion dues and voting rights between the different kinds of member. Was a chain with a dozen different locations to receive one vote or twelve? Was a leading bureau in a large market such as New York City to pay the same dues as a smaller operation based in a mid-sized city? Dues were initially set at \$100 per annum, and the decision was made that each additional location within a chain bureau would be counted as a separate member organization for dues purposes, but would receive no voting rights.⁹

Service bureaus

What exactly was a service bureau? At its simplest, a service bureau was an organization with a computer or punched card installation available for use by other companies. During the 1950s, computers were very expensive and were entirely unfamiliar to business administrators. Companies relied on sometimes elaborate “feasibility studies” to make an informed decision before ordering one, and even after an order was placed it might take a couple of years for the hardware to arrive. To give companies a chance to observe computer technology close up, and to gain experience in programming while waiting for delivery, computer manufacturers such as IBM created high-profile computing centers. The best known of these was the SSEC, installed in 1948 behind plate-glass windows on the ground floor of IBM’s New York Headquarters to promote IBM’s electronic computer technology several years before it launched its first commercial model.

The first organizations to acquire or build computers were quick to realize that they might be able to offset the cost of their new toy by offering computing services to others. The service bureau market developed rapidly, particularly in scientific computing. In 1955, a *Harvard Business Review* article by Richard F. Clippinger listed no less than 36 centers, “offering automatic computing services and having at least one automatic computer.” Service bureau operations appeared a natural fit for scientific computation centers, such as those of universities and firms like Northrop Aircraft, because of the similarity to the normal operation of such installations: a staff of specialist operators, analysts, and programmers

tended to the machine and provided varying degrees of assistance to a constant stream of scientists and engineers with problems in need of a solution. The list was dominated by universities, and included such celebrated machines as the Cambridge University EDSAC, the Harvard Mark I, and (for governmental use only) the National Bureau of Standards’ SWAC. The machines available ran from electro-mechanical punched card calculators, through differential analyzers, to IBM’s mighty model 701. Most of the private firms listed, such as IBM, Burroughs, Engineering Research Associates, and NCR were marketing their own computers (or planning to), although a handful of specialist computer services firms such as the Telecomputing Corporation of Burbank, California were listed.¹⁰

ADAPSO, however, represented “data processing” service organizations. By the 1960s, data processing was a term applied almost entirely to the use of computers and punched card machines for the purposes of business administration.¹¹ Although administrative services firms predated electronic computers, adoption of computers by these service organizations was slower in this field than the scientific arena. This was in part because electronic data processing as a whole took a few years to catch up with scientific computing as a user of computer resources, but also because most administrative jobs were run repeatedly on a weekly or monthly basis. Whereas an engineering design calculation might be run only once, a company could be confident that its payroll process, accounts receivable, and inventory handling programs would collectively consume a significant and predictable amount of computer time for the foreseeable future. This made the in-house option more attractive.

One advantage of service bureaus was their affordability for medium-sized companies. Because of their tiny memories, slow processing speeds, voluminous printed output, and reliance on magnetic tape for storage, most early data processing computers spent a great deal of time running full speed to handle routine jobs. Most computers were operated for two, and sometimes even three, eight-hour shifts each working day. Yet the conventional wisdom of the era, codified as Grosch’s Law, held that large computers were much more efficient than small ones. Thus while a smaller company might not be able to justify the expense of a reasonably powerful computer, and would find the smallest models ill-suited to high-volume administrative tasks, it might well make economic sense for them to effec-

tively share in the cost of a larger computer by renting time on it. While small cooperatives fulfilled this role for some firms, many more turned to commercial services.

This idea was nicely captured in the title of a 1966 article in the trade magazine *Business Automation*, "The Service Bureau: Everybody's Data Processing Department." Customers would hand over paper forms, punched cards, and master tapes of their existing data and get back printed output (such as reports, bills, and checks) together with updated data tapes. The largest independent firm of this kind, Statistical Tabulating Corporation, had started in 1936 as a provider of punched card services. Thirty years later it boasted 12 separate computer centers, 31 offices, and 15,000 employees. The firm provided ADAPSO with its second president, Clifford G. Green. About 60 percent of its work came from firms without their own computers, the rest was overflow that exceeded the capacity of internal data processing groups.¹² The most extensive service bureau operation, however, lay within the 72 national offices of the Service Bureau Corporation, spun off by IBM into a wholly owned subsidiary in 1956. The other computer suppliers ran similar, though much smaller, networks. Although ADAPSO was later dominated by the independent firms, its first president, Romuald Slimak, worked for the Sperry Corporation (parent of computer manufacturer Univac).

Service bureaus often provided far more than the simple rental of computer time. Most reasonably large, general-purpose service bureaus offered a range of services, from assisting users with feasibility studies through systems analysis and programming. The line between service bureau, consulting firm, and programming contractor was frequently blurred. C-E-I-R, for example, claimed to be the world's largest computer services organization. In 1963 it already boasted 27 computers and offered a broad range of services, although its original core business was in operations research and economic modeling for the federal government.¹³ The firm provided ADAPSO with its third president.

Falling hardware costs and improving performance made the installation of a computer increasingly attractive to smaller firms by the late 1960s. However, the cost of hiring and retaining a large programming staff did not fall along with the price of hardware. For this reason, many of the most successful service bureaus provided an array of specialized services, rather than just selling computer time as a commodity. Some of the most successful service bureaus specialized in particular application

areas, writing general-purpose software that could be used with little or no reprogramming by other customers in the same industry. Computer manufacturers had begun to provide skeleton application programs for particular tasks and industries, but for a specialized task such as payroll processing a service bureau could dramatically lower the cost of computerization by eliminating the need for custom programming work entirely well. One particularly important example was Frank Lautenberg's firm, Automatic Data Processing, which began as a small, low-margin business processing business payrolls but seized on computers as a way of improving efficiency and gaining an edge over competitors. In 1967, Lautenberg became the seventh president of ADAPSO.

One did not need an enormous amount of capital to start such a business in the late 1950s.

Future ADAPSO President Bernie Goldstein's formed his first company, Computech, with three partners and a total capitalization of \$5,000. Service bureaus needed to be close to their potential customers, which meant being spread out across the country. Unlike firms in manufacturing industries, or the celebrated regional clusters of Silicon Valley, they had no need to situate close to suppliers or competitors. In the early days, customers were won by persistent personal selling to local businesses. Small firms, and regional operations, could therefore often hold their own against large companies with a national presence. For such fledgling businesses, ADAPSO's most valuable initial function was as what Goldstein called "an educational organization."¹⁴ Increasing competition and the economies of scale needed to support application development drove an increasing number of mergers and takeovers toward the end of the 1960s.

ADAPSO's evolution

For its first five years, ADAPSO grew quite slowly. While a steady trickle of new members entered the association, this was partially counterbalanced by an equally steady stream of departures. In some cases this reflected nothing more than the departure of the one individual with an interest in ADAPSO from the company in question. By May 1966 there were 116 full members and 45 nonvoting members. The latter were mostly branches of larger operations, including seven locations of the independent services firm C-E-I-R and 11 bureaus operated by computer manufacturer CDC. The focus of the association shifted gradually toward independent service bureaus, and computer manufacturers CDC, NCR, Univac, and Philco left the association

between 1963 and 1965 (although some of these firms repeatedly departed and rejoined).

The combination of a small association, high membership turnover, and low dues payments meant that the operations of ADAPSO remained quite limited. Evans was paid according to a reasonably generous salary of \$15,000 annually, but the association could initially only afford to pay him \$2,100—representing about one day a week.¹⁵ In 1963, it rented its first small office for \$690 a year, with one full-time office assistant.¹⁶ The next year, review of the executive fees paid to Evans was deferred “in the light of the financial stringency imposed by the withdrawal of certain large contributors.”¹⁷ By 1966, dues increases and the somewhat larger membership base allowed Evans to work half time, and supported the retention of Milton Wessel of Kaye, Scholer, Fierman, Hays, & Handler as the association’s counsel.¹⁸

The most important formal activity organized by ADAPSO in its early years was its series of “management symposia.” The first of these was held in January 1961, and featured a full program of speeches and panel discussions addressing topics of interest to service bureau managers. For the next two years, the association held four of these a year, shifting between cities and regions to raise the association’s profile and make it easier for its members to attend. Since the traditional annual meeting had been dismissed as infeasible because of “geographic spread,” these symposia were the venue in which its members mingled and conducted the kinds of informal education and discussion which many recall as the key benefit of membership.¹⁹

The early meetings each attracted only a few dozen people. From 1963 onward, only two symposia were held every year, and each meeting lasted for two full days. Proceedings, including the text of speeches, were printed for the benefit of members unable to attend and, presumably, for promotional purposes. With only one-and-a-half employees, ADAPSO relied heavily on the energies and resources of its volunteer member representatives. In its early years, it was particularly dependent on the relatively deep pockets of service bureaus owned by computer manufacturers. Firms such as Burroughs and NCR provided meeting facilities for its Management Symposia, printed the resulting proceedings, and produced ADAPSO’s first membership directories.

The proceedings of the first symposium included a list of ADAPSO services. Among those promised in the near future were a membership directory and a code of ethics. Work

continued on the code of ethics, eventually renamed “Standards of Conduct,” for several years until a suitable version was agreed. The first directory appeared in 1961, listing around 250 service centers (most of them nonmembers, who were excluded from 1965 onward). More than 8,000 copies were requested by member companies and potential customers. The initial list of planned services also noted that “soon a periodical will become a necessity.” For the first few years, this took the form of *ADAPSO News*, a basic newsletter. From around 1964, this publication was upgraded to a glossier booklet and combined with the oddly named *ADAPSO Management Guidon* to mix articles and news of interest to members.

Fighting the banks

Despite its limited resources, by the mid-1960s the association had already begun to address what became its signature policy issue: whether its members should face competition from organizations whose main business lay in legally protected and regulated fields such as auditing, banking, and telecommunications. In the 1970s and 1980s this issue became the heart of an expanded political and legal presence for ADAPSO, as Wessel advanced some novel legal principles in the area. The first skirmish came earlier, when ADAPSO defended its members’ interests against what they saw as a threat of unfair competition by banks.

Following the reforms of the New Deal era, the American banking system of the 1960s was highly regulated. Unable to set their own interest rates for deposits, branch out into other area of financial services, or expand nationally the banks were left with a protected, remarkably stable, and generally profitable business. For the most part, they competed on quality of service, convenience, and free gifts such as toasters. However, to lure small business customers, some banks were attempting to use their spare computer capacity, and their existing customer relationships, to offer services such as payroll processing at little or no extra cost to the customer. ADAPSO feared that its members might be crushed as well-funded banks abused their legally protected profit margins on deposits to destroy the market for independent computer services.

The issue first surfaced before the ADAPSO board in 1962, when the House was considering a bill allowing smaller banks to set up cooperative service centers and provide service to the public. Following this, ADAPSO set up its Legislative Committee to monitor further legislation and recommend action when required.

Relations with the banking industry remained strained, as banks sought other ways to enter the data processing services market. By 1964, a special ADAPSO Bank Survey Committee had studied the problem, and in 1966 the association passed a resolution directing that "to the extent permitted by law, and within the practical limits of its resources, ADAPSO will assist and participate in judicial proceedings instituted to end the unlawful marketing of electronic data processing services by banks."²⁰ The case dragged on for many years through several trials and numerous appeals, including an appeal to the Supreme Court regarding the association's standing to sue American National Bank and the US Controller of the Currency.²¹ This set

an important legal precedent, a startling achievement for the young association. The costs of litigation triggered a rise in dues, and required special contributions from the member firms most closely involved.

The battle against the banks was an inherently political fight, concerning as it did the legal and regulatory framework with which congress and the federal agencies bound the industry. However, ADAPSO's limited resources and low political profile made lobbying challenging. After testifying before the House Committee on Banking and Currency in 1969, Goldstein reported to his colleagues that

... it was an uphill battle to educate the Committee, in a short period of time, to the needs of the computer services industry and to the fact that an industry does exist that is being injured by the excessive appetites of the banking industry.²²

Challenges notwithstanding, Goldstein later suggested that the association had "got lucky" in winning the sympathy of Wright Patman, chair of the committee and a man of old-fashioned populist sympathies for small business.²³ Its fortunes with the Senate were less rosy and the final legislation was much less restrictive than that favored by the House.

Table 1. ADAPSO Presidents, 1960–1985.

Year	President Elected	Representing
1960 & 1961	Romuald Slimak	Sperry Corporation
1962	Clifford G. Green	Statistical Reporting & Tabulating, Ltd.
1963	H.W. Robinson	C-E-I-R, Inc.
1964	Ray W. Johnson	Systems Data Processing Corporation
1965	Samuel J. Tesauro	S. J. Tesauro & Company
1966	Salvatore Parisi	Tabulating & Data Processing Corporation
1967	Frank Lautenberg	Automatic Data Processing, Inc.
1968	Leonard J. Palmer	Computer Servicecenters, Inc.
1969	John L. Roy	United Data Processing Services
1970 & 1971	Bernard Goldstein	United Data Centers
1972 & 1973	Thomas J. O'Rourke	Tymshare
1974 & 1975	Robert W. Olsen	Computer Services Corporation
1976	Leon Weisburgh	Anstat
1977	Louis E. Pfeiffer	A.O. Smith Corporation
1978	Richard L. Crandall	Comshare, Inc.
1979	John P. Imlay	Management Sciences America, Inc.
1980	A.S. "Buck" Blankenship	Data Processing of the South, Inc.
1981	Robert Weissman	National CSS, Inc. (then a subsidiary of Dun and Bradstreet)
1982	Lawrence J. Schoenberg	AGS Computers, Inc.
1983	Fred S. Lafer	Automatic Data Processing, Inc.
1984	Douglas C. Altenbern	Endata, Inc.
1985	Arthur M. Kramer	Mobix Partners

Unfortunately for ADAPSO, its biggest case against the national banks was undermined by newly clarified limits on regulation of so-called One-Bank Holding Companies, which made its legal argument moot. On dropping the case in 1971, the Executive Committee noted that "it was a crushing defeat and there is no way to color it into a victory."²⁴ The broader issues of competition from banks remained important to ADAPSO well into the 1980s.

The association's success in political and legal action was to remain mixed, which is unsurprising given the disparity between its resources and those of its opponents. ADAPSO's greatest contributions probably came more through its informal and social roles than its formal programs. However, participants feel that its public actions were critical in raising its profile and attracting new members. Recalling his stint as a paid recruiter for the association, Goldstein characterized this work as an uphill struggle, "staying in cheap motels, driving from city to city, and getting people together at lunch or dinner to think that a trade association made sense." He found service bureau operators "very concerned" about unfair bank competition, and worried that "there was no way they would survive." By taking a stand on the matter, ADAPSO found "an issue to energize the industry as to what it could do."²⁵

Several important changes during the late 1960s altered ADAPSO's path. One of these was a change in personnel. In 1968 the association parted ways with Evans. He and his clerical assistant retired, and closed their little office in Pennsylvania. His replacement, Jerry L. Dreyer, served briefly as Assistant to the President (then Frank Lautenberg) before taking over as Executive Vice President. With this came the establishment of a new ADAPSO headquarters on Lexington Avenue in New York City. Dreyer was to run the association until the mid-1980s, during which time the scale and scope of its activities increased enormously. The other shift was the expansion in the association's membership, to include firms in the newly emerging areas of time-sharing services and software products. This necessitated a fundamental reorganization, during which ADAPSO became a federation of specialized groups (known as *sections*), each with its own leaders and directors. These transitions, a mirror of the broader transformations underway within the emerging computer software and services market, are the subject of the second article in this series.

Acknowledgments

This article, and its accompanying biographies, could never have been produced without the work of the Software History Center (SHC), and its current and past presidents, Burt Grad and Luanne Johnson. In 2002, the center held an ADAPSO Reunion event, including a large number of oral history interviews and a set of roundtable discussions between participants and historians. These were then edited and transcribed, with the oral histories available online from the Charles Babbage Institute of the University of Minnesota, Minneapolis and the round-table discussions published under L. Johnson (ed.), *ADAPSO Reunion Transcript, May 2–4, 2002*, iBusiness Press, 2003. My own work on this project was supported by a three-month research grant as the first SHC research fellow, using funds provided to SHC by the Charles Babbage Foundation. The center was also instrumental in saving many of ADAPSO's records from destruction, and depositing them with CBI, where they are currently being sorted and catalogued to greatly expand the ADAPSO Records collection (CBI 172). Closely related material is already processed in other CBI collections, including Martin A. Goetz Papers (CBI 159) and Milton R. Wessel Papers (CBI 120). I am most grateful to the CBI staff—

particularly archivists Beth Kaplan and Carrie Seib—for making these available to me, and for assisting me during an extended visit. Bernie Goldstein was generous in answering questions and providing further materials, and my wife worked with me every day in the archives to assist in this research.

References and notes

1. P. Scranton, *Endless Novelty: Specialty Production and American Industrialization, 1865-1925*, Princeton Univ. Press, 1997. Among users of computer technology, the role of a life insurance trade association has been considered by JoAnne Yates in J. Yates, "The Structuring of Early Computer Use in Life Insurance," *J. Design History*, vol. 12, no. 1, 1999, pp. 5-24, and J. Yates, "The Structuring of Early Computer Use in Life Insurance," *J. Design History*, vol. 12, no. 1, 1999, pp. 5-24. Likewise, the user group SHARE played an important part in the early history of computing, recorded in A. Aker, "Voluntarism and the Fruits of Collaboration," *Technology and Culture*, vol. 42, no. 4, Oct. 2001, pp. 710-736.
2. M. Campbell-Kelly, *From Airline Reservations to Sonic the Hedgehog: A History of the Software Industry*, MIT Press, 2003.
3. "Office Services Institute Inc. Discussion of Proposed Service Organization," *ADAPSO Records (CBI 172)*, Charles Babbage Inst., Univ. of Minnesota, Minneapolis, 3 Feb. 1960. Hereafter, this collection will be abbreviated as CBI 172.
4. "DATA, Minutes of Organization Meeting, Statler-Hilton Hotel, New York, NY," *CBI 172*, 8 June 1960.
5. "Minutes of the Council, Remington Rand Offices, NY," *CBI 172*, 22 June 1960
6. "Minutes of the Council, Remington Rand Offices, NY," *CBI 172*, 22 June 1960.
7. "DATA, Minutes of Organization Meeting, Statler-Hilton Hotel, New York, NY," *CBI 172*, 8 June 1960.
8. "Council Meeting Minutes, Remington Rand Offices, New York," *CBI 172*, 17 Apr. 1962.
9. "Minutes of the Council, Karl Prien Restaurant, Abington, PA," *CBI 172*, 27 Feb. 1961. Although dues were soon increased to \$150, and later to \$200, this basic structure remained in place until 1965. "Association of Data Processing Service Organizations, Inc., Board Meeting Minutes, Statler Hotel, Washington," *CBI 172*, 13 Oct. 1965. It was first supplemented, and later replaced, by a different dues structure based on revenues rather than number of branches. "Association of Data Processing Service Organizations, Inc., Retiring Board Meeting Minutes, Doral Beach Hotel, Miami," *CBI 172*, 15–16 June, 1967.
10. R.F. Clippinger, "Economics of the Digital Com-

puter," *Harvard Business Review*, vol. 33, no. 1, Jan./Feb. 1955, pp. 77-88.

11. T. Haigh, "The Chromium-Plated Tabulator: Institutionalizing an Electronic Revolution, 1954-1958," *IEEE Annals of the History of Computing*, vol. 23, 2001, pp. 75-104.
12. Anonymous, "The Service Bureau: Everybody's Data Processing Department," *Business Automation*, vol. 13, no. 9, Sept. 1966, pp. 30-35.
13. L.D. Fridelle, "C-E-I-R: Answers by Analysis," *ibid.*, vol. 9, no. 1, Jan. 1963, pp. 26-31.
14. B. Goldstein, "Oral History Interview by David Allison, 03 May, Washington DC," *Oral Histories* (OH 336), Charles Babbage Inst., Univ. of Minnesota, Minneapolis, 2002.
15. "Board Meeting Minutes, Statler Hilton Hotel, Cleveland, Ohio," *CBI 172*, 11 Sept. 1961.
16. "Minutes of Board of Directors' Meeting, St. Francis Hotel, San Francisco," *CBI 172*, 20 Jan. 1963.
17. "Board Meeting Minutes, Statler Hotel, New York, NY," *CBI 172*, 14 Oct. 1964.
18. "Board Meeting Minutes, Stardust Motor Hotel—San Diego," *CBI 172*, 16 Feb. 1966, and "Incoming Board Meeting Minutes, French Lick-Sheraton Hotel, French Lick, Indiana," *CBI 172*, 26 May 1966.
19. "Minutes of the Retiring Board Meeting, Statler Hilton Hotel, New York, NY," *CBI 172*, 9 June 1961.
20. "Incoming Board Meeting Minutes, French Lick-Sheraton Hotel, French Lick, Indiana," *CBI 172*, 26 May 1966. The first legal opinion secured by ADAPSO relating to the case appears to be M. Wessel, "Re: ADAPSO—Unlawful Bank Data Processing Service Activities," letter to S.J. Tesaro in *Milton R. Wessel Papers* (*CBI 120*), Charles Babbage Inst., Univ. of Minnesota, Minneapolis, 31 March 1966.
21. "Minutes of Meeting, Executive and Banking Committees," *CBI 172*, 12 Mar. 1970.
22. "Board of Directors' Meeting Minutes, Hotel Jung, New Orleans," *CBI 172*, 18 July 1969.
23. B. Goldstein, "Oral History Interview by David Allison, 03 May, Washington DC," *OH 336*, Charles Babbage Inst., Univ. of Minnesota, Minneapolis, 2002, and L. Johnson, "Banking and Litigation Issues of the 1960s," *ADAPSO Reunion Transcript*, May 2-4, 2002, iBusiness Press, 2003, pp. 57-76.
24. "Association of Data Processing Service Organizations, Inc., Minutes of Meeting of the Board of Directors, Queen Elizabeth Hotel, Montreal, Canada," *CBI 172*, 23 June 1971.
25. L. Johnson, "Banking and Litigation Issues of the 1960s," *ADAPSO Reunion Transcript*, May 2-4, 2002, iBusiness Press, 2003, pp. 57-76.

—Thomas Haigh

Biography



Bernard "Bernie" Goldstein

Goldstein has enjoyed a remarkably diverse career during his more than four decades in the computer industry. He founded and ran many software and services companies, was one of the most prominent figures in the computer industry trade association ADAPSO, and finally used his knowledge and contacts to build a new and successful business as a mergers and acquisitions advisor in the software industry.

A career in business was no surprise for him, following as it did an undergraduate degree in business from the Wharton School of the University of Pennsylvania, which he soon followed with an MS earned from Columbia's Graduate School of Business during the evenings. But while Goldstein was entrepreneurially driven, neither his formal education nor his three years in the Navy had given him the slightest knowledge of computer technology. His introduction to the computer came in 1958 as a cofounder of a service bureau called Computech. The other two founders were friends with engineering backgrounds, who had hit upon the idea of starting a firm to use a computer to solve business and scientific problems.¹

The three partners had only \$5,000 of capital to invest, but that was enough to rent a small office. Like many early computer services and programming firms, Computech did not originally have its own computer. To begin with, the partners paid other bureaus for the use of the computer and punched card equipment needed to solve their clients' problems, relying particularly on IBM's Service Bureau Corporation. The newly available IBM 650, the first mass-produced computer and the first one cheap enough to replace conventional punched card equipment,



Figure 1. Goldstein after his time as ADAPSO chair.

made computer time an affordable commodity for many businesses. Fifty thousand dollars from an investment bank completed the firm's capitalization.

Goldstein worked primarily as a salesman, knocking on doors and offering to solve problems of all kinds. This netted Computech a remarkably diverse range of customers, including contracts for the US Navy, the Johnson Development Center, and Union Carbide. Its projects included analysis of royalty distributions for music publishers, and the crunching of market research data, both of which grew from single consulting projects into important sources of specialized, recurring business. The best consulting jobs, in Goldstein's view, were those that created unique experience and specially developed programs that were applicable to other firms in the same industry.

The three bachelors worked long hours, marrying along the way. Goldstein recalls that marriage made them worry more about the stability of the firm, but they had the advantage that their wives were now available to impersonate secretaries when clients visited the office. By 1965, the firm had grown to around 15 employees, but as more competitors emerged, the other two founders were unsure of its long-term prospects. They sold the firm for \$900,000 to Control Data Corporation (CDC), a Minneapolis-based computer manufacturer looking to enter the large New York market for computer services. Goldstein stayed with his first business for another two years, making the transition from entrepreneur to salaried manager at CDC. This was an opportunity to gain experience within a large firm. In retrospect, he also sees it as the beginning of a life-long interest in computer industry mergers and acquisitions, teaching him the responsibilities of both buyer and seller.

In January 1961, Goldstein was a last-minute speaker at the first ADAPSO Management Symposium, held in a small room in New York's Pennsylvania Hotel. While several planned speakers had been frustrated by a heavy snowstorm, Goldstein worked in the city and found the blizzard less of an obstacle. Seven of the infant association's 16 members made it to the meeting, and were joined by 12 guests. The early symposia were a major recruitment tool for the young association, and indeed Goldstein himself only joined after making his presentation there.

In his speech, Goldstein urged his fellow service bureau managers to move beyond simple processing jobs and "utilize the skills of the accountant, the consultant, the mathemati-

cian, and the statistician ... at a higher level of professionalism than the client himself has available." He considered this particularly important for small, independent firms such as his own. These operated without subsidies from equipment manufacturers, and were constantly challenged to differentiate themselves from their competitors. As he put it, they must "recognize that skilled minds are a much 'hotter' commodity to sell than skilled machines."²

Recalling the meeting 25 years later, he said,

It was the first time we talked with each other in a formal context and, as might be expected, we were hesitant at first; reluctant to admit our failures; prone to exaggerate and embellish our most cherished dreams about our personal future and the future of our industry; sensitive about our many weaknesses. Whatever else we felt when we left that meeting, all of us knew, for sure, that the problems we thought were unique to our infant companies and divisions were far more universal than any of us anticipated ... This realization, this commonality of interest is what has held us together.³

Goldstein was active in ADAPSO throughout the early- and mid-1960s. After running a committee in 1964 to host another Management Symposium in New York, he was elected as a director the following year. He then became ADAPSO's representative to the American Standards Association.

By 1967, when Goldstein left CDC, he was serving on the ADAPSO board as treasurer. His appointment as the staff director for admissions was announced in the January 1967 issue of the association's newsletter, an action endorsed by the board in February. The March edition featured him a picture of him with the slogan "Campaign USA (and Canada!)." For seven months he traveled the country as ADAPSO's ambassador, visiting 45 states and hundreds of companies. The results were apparent almost immediately. From February to June, the association saw a net gain of 56 members, swelling its ranks by about a quarter. By June 1968, when Goldstein completed his staff job and returned to the board, ADAPSO had almost 400 members. It had doubled in size in just two years.

Less obvious were the personal benefits from this membership drive for Goldstein, which went far beyond mere commission payments. His work as a full-time recruiter gave him unique knowledge of hundreds of service bureaus and their owners across the country. This laid the foundation for his next business

venture—the publicly traded United Data Centers (UDC).

The idea was to acquire formerly autonomous service bureaus—primarily in smaller cities such as Lexington, Wichita, and Syracuse—where existing national chains had yet to establish a presence. Goldstein himself calls this a process of “running away from richer and stronger competitors.”⁴ After acquisition, these centers operated much as before, but under the UDC brand. They enjoyed better access to financial and technical resources, including specialized applications it would be impractical for independent centers to create. Goldstein recalled the advantages of this approach as being

a) reputation; b) insulation from competition and c) the economies of scale, building at that time what we perceived as reasonably expensive systems.

In the short-lived bull market for computer services stocks during the late 1960s, Goldstein was able to finance these acquisitions by issuing additional shares of UDC stock. Like Goldstein’s own erstwhile partners, many of the founders of independent firms were eager to trade an uncertain future—and a present often plagued with cash flow problems—for a lump-sum payment or a large pile of publicly traded stock. The UDC model made full use of Goldstein’s extensive personal networks, and built on his naturally optimistic nature as a booster for the future of the industry as a whole and for his own firms in particular.

Goldstein’s own experiences as a teacher and student of the service bureau business exemplify the ability of ADAPSO to serve as a meeting ground for determined competitors. As he put it back at the inaugural symposium in 1961, “We, in this very young business, admit we haven’t perfected the formula for our service opportunities.” The association, he continued, would serve as a place to indirectly swap and compare their current experimental efforts. Many years later, as he looked back on his career, Goldstein recalled, “The first thing ADAPSO did ... was [to become an] educational organization.” Business schools, he insisted, were doing nothing to prepare students for this new industry. So,

ADAPSO became its own university. Its meetings, which were held four ... times a year, were enormous educational opportunities where we learned from each other, as to how to price, how to sell, what application specialties would exist in the marketplace, how to manage if you will ...⁵

As ADAPSO grew and the industry matured, Goldstein maintained his faith in this communal spirit. In 1972, many ADAPSO members faced stiff competition for scarce business. But as the association’s president, Goldstein made a remarkable plea to its members:

I am sure that each one of us has at least one local competitor who, while not a member of ADAPSO, is a credit to the industry. Won’t you take the time to mail him the attached membership application form. ... A personal note from you (you see, he also has great respect for you as a competitor) will be a more effective solicitation of his participation than a dozen mailings from our Association offices.⁶

As a two-term ADAPSO president, from 1970 to 1972, he led the association through a difficult period as the computer industry experienced its first recession. The second of these terms was a particular vote of confidence, since immediately before reelecting him the outgoing board of directors had changed the bylaws to permit its leader to serve two consecutive terms.⁷

Hard times brought out the industry cheerleader in him, as he stressed the need for ADAPSO members to

offset the negative public imagery created by the disproportionate number of new data processing service organizations which ran into financial difficulty ... caused by premature public offerings of corporations led by inexperienced new entrants into the business.

This, he worried, was, “creating a capital squeeze for all computer service organizations regardless of their structure.”⁸ The title of an article he wrote in 1974, “The Future Looks Bright for the Computer Services Industry,” shows his valiant efforts to fight the disdain with which most investors continued to view computer software and services companies.⁹ Although the recession forced some cutbacks early in his term, disaster was averted and the foundations were laid for continued growth with the reorganization into interest sections, and the admittance of packaged software firms through merger with the Association of Independent Software Companies. Timesharing firms, which had joined earlier, were small in number but because of their larger sizes provided much-needed revenue for the association.

His concerns for the future of the industry as a whole made him one of the most vocal ADAPSO members in representing the associa-

tion's positions to Congress and to the public. In his 1971 inaugural speech, he noted that

Above all, ADPASO has benefited by being an activist organization, an organization which has not hesitated to speak its mind on the important issues and events affecting the industry, our society, and finally our membership.¹⁰

During his term as President, he worked very closely with ADAPSO counsel Milton Wessel to raise the association's legal and political profile. It filed briefs in several cases, including state attempts to tax data processing services and in hearings before the FCC about the ability of telecommunications firms to offer computing services. Goldstein was personally involved in lobbying the House Banking and Currency Committee to restrict the entry of the Federal Home Loan Bank Board (FHLBB) into the data-processing services business.¹¹ Goldstein remembers this advocacy as "an opportunity to get new members" for ADAPSO. He adds that his

willingness and ability to speak out about these conditions enabled me to become a spokesman for ADAPSO, in which I subsequently served as president and board member and had a long-time involvement. On a selfish basis it gave me stature in the industry to continue to acquire companies and to build a recognized position in the marketplace.¹²

Later in the 1970s, Goldstein served as Vice President for Unfair Competition, responsible for all ADAPSO committees working on issues of bundling and competition from regulated or legally protected industries such as banks and accounting firms. Goldstein was the driving force behind the creation of ADAPSO's first Political Action Committee, formed in large part to support the candidacy of fellow ADAPSO stalwart Frank Lautenberg for the U.S. Senate in 1982. In 1986 he became the founding Chairman of the Board of Trustees of the ADAPSO Foundation, a new charity created to apply computer technology and donations from computer industry firms to assist the handicapped. During the 1980s Goldstein was also an active supporter of the creation of an "alternative dispute resolution" (arbitration) service for the computer services industry, as an alternative to lengthy and mutually destructive lawsuits. This was a personal interest of ADAPSO counsel Milton Wessel, and was finally realized after Wessel's death (though neither it nor the ADAPSO foundation ultimately survived).

In 1974 UDC merged with the large time-sharing firm Tymshare. At this point, many traditional service bureaus were worried that they would be made obsolete by the transition to online operations, which most observers then expected to be much more general and rapid than it ultimately proved. Tymshare, according to Goldstein, saw the acquisition as a way of moving beyond the sale of general-purpose computer time by adapting the kind of commercial applications built by UDC for online use. He remained with Tymshare for around two years, specializing in the management of further acquisitions. Goldstein then left to become chairman of National CSS, another timesharing firm. This was another two-year span—the firm was acquired in 1979 by credit-reporting giant Dun & Bradstreet, which was in part an attempt to improve what Goldstein describes as its "internal sloppy data processing."¹³

Having tired of the day-to-day work of the business manager, Goldstein moved in a new direction with his next venture. He joined Broadview Associates, which at that point was a one-person consulting practice founded by Gil Mintz in 1973. Broadview specialized in an apparently narrow field: mergers and acquisitions in the computer industry. However, such was the pace of acquisitions in software and services firms during the 1980s that this proved an extremely successful business.

Goldstein himself became one of its key assets, with his long experience of buying out companies, and of being bought out himself. As Goldstein recalls it, his "reputation had grown as a dealmaker" and so his "presence on the side of the seller or the buyer added value." Even a small percentage could amount to an enormous fee, which Goldstein admitted was often "outrageous in terms of what people are willing to pay for advice and guidance." He added, though, that "so much money is generally passing hands that the seller or the buyer doesn't mind paying" this amount.¹⁴

Despite his love of quiet deal making and discreet negotiation, Goldstein was sometimes unafraid to court controversy on topics he felt deeply about. One of these occasions was the 25th ADAPSO Anniversary event in 1986. The first half of his speech followed the expected course of nostalgia, praise for the association's achievements, and friendly jokes. The second half, however, was addressed directly to John Akers, Chairman of IBM, who as keynote speaker had just become the first IBM chief to address the association. His presence was the product of a push by ADAPSO to work more cooperatively with IBM, stressing the symbiot-

ic nature of its hardware and their software, rather than IBM's sometimes aggressive behavior as a competing source of software.

Goldstein was outraged by IBM's perceived breach of this attempted truce, after it acquired exclusive distribution rights for a supplier of bank software called Hogan Systems. For Goldstein, this was tantamount to an acquisition, and signaled a new strategy where IBM would try to make itself into an exclusive distribution channel for independently produced software. This, he said, was "equivalent to giving a frontal lobotomy to a software company." He accused Akers of "peeing in [his] own soup" by threatening the vitality of the independent software industry, and demanded that he abandon the strategy in an act of "enlightened self interest." IBM's representatives did not take this well, and the ADAPSO board quickly issued a statement that Goldstein's comments did not reflect official policy. Goldstein, however, was unapologetic, and used Broadview Associates to publicly distribute the text of the speech.¹⁵

In 1996, Goldstein retired from the board of Broadview. By that time the staff size had increased to 350 people. The company reaped huge rewards during the technology boom years of the late-1990s, and despite the sharp technology downturn that followed it remained an independent firm, and one of the leading global players in its niche. It was successful in scaling up an advice business—based on the personal connections and experience of Goldstein and Mintz—into a high-volume operation. It used a model stressing turnover and promotion of staff, where ambitious undergraduate recruits are trained for short-term positions as analysts, assisting associates, vice-presidents, and principals with MBA degrees from top schools.

Goldstein's deep knowledge of the computer industry and its participants made him a natural member of many corporate boards, including those of SPSS, SunGard Data Systems, and the consulting firm ThruPoint. As an Apple board member, he served through the tumultuous period during which both CEO Michael Spindler and his successor Gil Amelio were ousted in quick succession, making way for the return of its cofounder Steve Jobs.

Goldstein remains an active member of several corporate boards and a trustee of nonprofit institutions, including the Charles Babbage Foundation.

Selected publication

H.L. Poppel and B. Goldstein, *Information*

Background of Bernie Goldstein

Education: University of Pennsylvania, Wharton School, BSc 1953; Columbia University, Graduate School of Business, MS, 1963.

Positions held: Computech, executive vice president, 1958–1964; Control Data Corporation, New York district director, 1964–1966; United Data Centers, president, 1967–1974; Tymshare, senior vice president and director, 1974–1978; National CSS, chairman, 1978–1979; and Broadview International, managing director, 1979–1996. **Directorships:** Former: SPSS, SunGard Data Systems, Apple Computer, and Enterprise Systems; Current: SunGard Data Systems, COLLEGIS, ThruPoint, Allscripts Healthcare Solution, and In-Site One; Trusteeships: Stanford Institute for Quantitative Analysis of Society, University of Pennsylvania Library, and Charles Babbage Foundation.

Technology: The Trillion Dollar Opportunity, McGraw-Hill, 1987.

References and notes

1. This information, and much of the other material in this biography, is taken from B. Goldstein, "Oral History Interview by David Allison, 03 May, Washington DC," *OH 336*, Charles Babbage Inst., Univ. of Minnesota, Minneapolis, 2002. This will be cited only when a direct quotation is being made, and is known hereafter as *CBI OH 336*.
2. B. Goldstein, "Service Opportunities for Service Centers," *Proc. First Management Symp., ADAPSO Records (CBI 172)*, Charles Babbage Inst., Univ. of Minnesota, Minneapolis, 1961, pp. 16-17.
3. B. Goldstein, "ADAPSO 25th Anniversary Speech," *ADAPSO Records (CBI 172)*, Charles Babbage Inst., Univ. of Minnesota, Minneapolis, 1986, p. 3.
4. This precise phrase is taken from a personal communication with Goldstein, though he makes a similar point in *CBI OH 336*, p. 9.
5. *CBI, OH 336*, p. 12.
6. B. Goldstein, "President's Message," *ADAPSO Newsletter (CBI 172)*, vol. 2, no. 1, Jan. 1972, pp. 8-9.
7. Assoc. Data Processing Service Organizations, minutes of meeting of the retiring board of directors, 20 Oct. 1971.
8. B. Goldstein, "President's Corner," *ADAPSO Newsletter (CBI 172)*, vol. 1, no. 1, October 1971, pp. 4.
9. B. Goldstein, "Future Looks Bright for Computer Service Industry," *ADAPSO Newsletter (CBI 172)*, vol. 4, no. 1, Jan./Feb. 1974, p. 4.
10. Anonymous, "Annual Report," *ibid.*, vol. 1, Oct. 1971, pp. 1-3.
11. Anonymous, "Federal Home Loan Bank Board," *ibid.*, vol. 5, Sept./Oct. 1974, p. 5. This reports "a marked degree of success" over meeting with Congressman Wright Patman about the FHLBB issue.

12. *CBI OH 336*, p. 12.
13. *CBI OH 336*, p. 16.
14. *CBI OH 336*, p. 17.
15. B. Goldstein, "ADAPSO 25th Anniversary Speech," 1986, *ADAPSO Records (CBI 172)*, Charles Babbage Inst., Univ. of Minnesota, Minneapolis, pp. 6-7. The resulting controversy spread beyond ADAPSO itself, and was reported on in D.R. Brousell, "The Domino Theory," *Data-mation*, vol. 32, 1 Dec. 1986, pp. 20-21.

—Thomas Haigh

Biography



Frank Lautenberg

Frank Lautenberg's background was different from the technical experience as a programmer or data processing manager held by most founders of software product and time-sharing firms. Indeed, he never learned much about computers. Lautenberg's firm, Automatic Data Processing, was never a general-purpose service bureau. Instead, it offered particular business services, initially payroll processing, and eventually began to use computer technology as a way to process this work more efficiently and benefit from economies of scale.

Lautenberg's story of his own life, polished to a fine sheen during his political campaigns, is that of the striving working class entrepreneur who never forgot where he came from. His own Web site unashamedly billed this as a "Classic American Tale." Born in 1924, Lautenberg grew up in Patterson, New Jersey, then a major center of silk production. His immigrant father, grandfather, and uncle all worked in this industry, and died early of diseases he believes were triggered by their working conditions.

After graduation from high school, Lautenberg seemed headed for a similar life of manual work in the neighborhood. He was diverted from this path through wartime enlistment in the Army Signal Corps—or more precisely, the government-funded college education that followed courtesy of the GI Bill. After graduating from Columbia, Lautenberg was working as a sales-management trainee for the Prudential Insurance company when he reestablished contact with Henry Taub, a neighborhood acquaintance.

Taub, a young accountant, was running a tiny and struggling business called Automatic Payrolls. Founded in 1949, its partners collected mountains of time sheets from their clients every week, and prepared the pay slips and checks together with whatever summary reports were needed. Each employee account brought in a fee of 25 cents for each weekly pay period, and processing was largely manual, which meant that their business model hinged on hard work, low margins, and long hours. The firm's only other edge over potential competitors was the ability of Joe Taub, Henry's younger brother, to read a time card at a glance.¹

Lautenberg began selling payroll service alongside insurance policies. This went well enough that in 1954 he went to work full-time for Automatic Payrolls as a third partner and its fifth employee. His sales skills and energy brought in enough new business to expand the company, but it remained arduous and repetitive work. Their only mechanical aid came from bookkeeping machines and Comptometer adding machines, both widely used since the 1910s.

Lautenberg recalls that he "used to sell during the daytime and then come in at night and do the payroll," often returning home well after midnight and rarely taking weekends off.² In 1957, however, the firm installed its first tabulating machines. At the same time, it changed its name to Automatic Tabulating Service, to capitalize on this technological edge. At this point the market for punched card machines was still growing rapidly, particularly in smaller businesses, despite increasing widespread use of computers among the largest firms.

With the electromechanical processing of punched cards came the separation of the data-entry task of punching employee information onto cards, handled mostly by young mothers working part time. The mathematical, reporting, and printing tasks that had formerly been inseparable from this work were now handled by tabulating equipment and a new kind of employee: the tabulating machine operator. Lautenberg, like the other partners, never got particularly involved with the machines, although he did appreciate the need to keep his "temperamental tabulating managers" happy and productive. As he recounts, "we almost shackled them to the machines because we couldn't afford to be without them."³

The next big technological step for Automatic Tabulating Service came in 1961. Its IBM account representative—traditionally a man who knew more about the working of a firm's tabulating department than any of its

own employees—convinced the partners that they would be able to process an ever-rising tide of payroll cards more effectively if they added a model 1401 computer to their array of punched-card machinery. Though much less powerful than IBM's flagship computer lines, the 1401 was also far less expensive. This made it cost effective for busy punched card installations, because it came with a high-speed printer and could be integrated with conventional punched-card equipment.

Even a simple and practical programmable computer was, however, a programmable computer, and so Lautenberg and the Taubs found themselves newly reliant on programmers as well as tabulating managers. With the 1401, many of the procedures formerly carried out by punched-card machine operators manually shifting decks of cards between machines now took place automatically as the machine stepped through its program. Once a program was working, operators could run it with little knowledge of its inner workings.

This had important business implications for a fast-growing business with a need to standardize its services. Lautenberg remembers that once they finished the programming,

When we made an acquisition in Miami, Florida, or Boston, Massachusetts, or Cleveland, Ohio, or wherever, we could send the service process out and have it working. It standardized the market.⁴

In 1961, the firm went public. It was still very small, with little more than \$400,000 in annual revenues, about \$35,000 of which was pre-tax profit. The offering was inspired by the desire of the partners—Lautenberg included—to “put their hands on some money” and thus actualize their escape from the threat of poverty. By selling Automatic Tabulating as a hot technology firm, they caught the tail end of a stock market boom, centered particularly on electronics firms. A second stock offering followed in 1965, when as Lautenberg recalls, it was aided by the ability of the underwriters to “blow up” the introduction of the IBM 360 range as “perhaps the coming of the space age.”

While its steady flow of work meant that the company had no particular need of the cash to finance its operations, it did begin to use its stock as a way of acquiring other small service firms, with revenues of a few hundred thousand dollars. The deal would usually include stock options, giving the managers of the acquired center a personal incentive to contribute to its future prosperity. This process became crucial to the firm's success, so that by

the mid-1970s, 40 percent of the firm's top managers had entered it through acquisitions.⁵ By the end of Lautenberg's reign in 1982, the company had successfully concluded more than 100 acquisitions.⁶

To promote its link with the new and alluring world of computer technology, the firm changed its name again. Automatic Tabulating Service became Automatic Data Processing (ADP). This formerly generic term, a variation of Electronic Data Processing (EDP)—used to describe the administrative use of computers and punched-card machines—became a protected corporate trademark. The new name was more modern than its suddenly passé predecessor, but was also less restrictive regarding the type of work performed.

In Lautenberg's view, the most important technological transition during his time with ADP came when the firm began to use the IBM 360 series in the second half of the 1960s. This shift required more programmers, prompting the firm to acquire a small programming company to recruit its talent. ADP also took on more managers with computer industry experience, including Bruce Anderson, an ex-IBM manager who rose during the 1970s to become executive vice president. While Lautenberg remembers giving high salaries and advanced technologies to the growing technical staff, he also emphasizes that service expertise in the firm's business had very little overlap with processing expertise, because “one didn't have to have that knowledge all bundled into one person.”⁷

Though Lautenberg did not say so, it is clear that ADP looked for service rather than processing expertise in its top managers. Crucial as computer technology had become to his business, he retained his sense of technology as a tool, knowledge of which should be delegated to specialists. In this it was not so different from the fleets of agile Volkswagens ADP deployed to pick up time cards and deliver pay checks.

Lautenberg was active within ADAPSO during the 1960s. He had participated in the association's activities since its early days, attending its sixth Management Symposium in January 1963.⁸ He formally joined ADAPSO in August 1964.⁹ Lautenberg became ADAPSO president in 1967, after serving as vice president the previous year. It remained a small, informal organization at this point, and was still administered by its elderly founder W.H. Evans. Lautenberg recalls visiting Evans' home office “to see what it was that I was going to be president of” and feeling that “I wouldn't want to work there because it had no dynamic to it.”¹⁰

In 1969, Lautenberg became president of



Figure 1. Lautenberg around his time as ADAPSO president.

ADP following the retirement of Joe Taub. His primary goal as the company's president was to broaden the scale of its activities beyond payroll operations and into other kinds of administrative processing services. The first major diversification was the creation of a back-office records service for brokerage firms. This ultimately became very successful, and provided a second major source of income for ADP. In the early 1980s, its financial services business expanded further as it built data networks designed for banking and electronic funds transfers, then a much-hyped new area with obvious connections to the direct bank deposit of payroll funds. ADP built a network to service banks offering their customers online banking (which developed much more slowly than initially expected), and to operate a system of ATMs.¹¹

Lautenberg's role changed again in 1977, to chairman and chief executive. Acquisitions continued at a rapid pace, so that after more than 50 takeovers, ADP had a network of 45 computer centers and annual revenues of 250 million dollars.¹² Five years later, when Lautenberg stepped down from ADP, this had risen further to 669 million dollars.¹³ At that point, its earnings per share had risen each year of the past decade, averaging a 22 percent annual increase.¹⁴ This, in turn, had made its stock attractive during a long period in which investors shunned computer-related stocks, underpinning a string of acquisitions at a time when few of its targets could expect to go public themselves.¹⁵

Throughout the 1970s, ADP continued to modernize its payroll operations, including a gradual shift toward online data entry from the late 1970s onward. This followed the 1975 acquisition of Cyphernetec Corp., giving ADP

an entry into the world of online services.¹⁶ Unfortunately, remote data entry introduced its own problems, making it harder to correct mistakes.¹⁷ Continued acquisitions brought ADP into different areas of business, including estimation of the damage from auto collisions. This was a seed of what became a large and successful ADP division supplying many kinds of automated systems for auto dealers and for estimating insurance claims.

Lautenberg left ADP in 1982, when he won election to the US Senate from the state of New Jersey. This was his first run for elected office, and he prevailed in a chaotic primary by spending three and a half million of his own dollars. (In one of the scandals that regularly enliven politics in New Jersey, his predecessor had vacated the seat unexpectedly after accepting bribes from FBI agents posing as rich Arabs). This was not, however, Lautenberg's first trip to the Senate. Early in ADAPSO's political involvement, he had testified before a Senate committee concerning the entry of banks into the payroll-processing field.

Lautenberg built a campaign platform around his business success, arguing that the same skills would work in government. This was much the same message adopted by Ross Perot—another former ADAPSO member—a few years later. Given Lautenberg's standing as one of the Senate's most liberal members, this was a smart counterbalance to remind voters that he was no hippie. Lautenberg successfully blended the mythic appeal of the self-made businessman with eloquent descriptions of his family's suffering, emphasizing his blue-collar background and concern for working people. His scrappy version of success made him in many ways an ideal representative for New Jersey. Despite its reputation for tawdry industrial decline and gritty waterfronts, the state today boasts both a patchwork of thriving, small-business-heavy immigrant communities and the highest median household income of any of the United States.

As senator, Lautenberg did promote some measures of interest to ADAPSO and the computer services industry, although primarily as part of a more general advocacy for technology firms. These included support for research and development tax credits, new laws to extend patent protection to industrial processes, and the creation of stronger international systems for intellectual property protection. He was a cosponsor of the 1987 Information Age Commission Act, which was passed by the Senate but never adopted by the House. This would have created a national forum for dis-

discussion of the social implications of information technology. ADAPSO backed the bill, although most other computer-related trade associations opposed it. Lautenberg also pushed for greater use of computers in schools. Among his particular areas of interest were improvements to the Small Business Agency and support for microloans and training for small businesspeople.

He toiled to bring spending to and facilities for his own state, something all senators take very seriously but at which Lautenberg proved particularly adept. As well as housing projects, military bases, transportation improvements, and environmental cleanups, these included a particular emphasis on applied science research centers intended to boost New Jersey's standing as a technology center.

He sponsored a number of laws in other areas, including education, gun control, and drunk driving. Lautenberg himself feels that one of his most important successes was the banning of smoking on airplanes, which he sees as the spark of other public health measures to eliminate smoking in public places. While he never courted the limelight, and is seldom praised for his oratory, Lautenberg's quiet-yet-dogged style produced an impressive record of pragmatic legislation in pursuit of his liberal goals. Since Republicans controlled either the White House or Congress for most of this period, this is a testimony to his command of Senate procedures, his negotiating skills, and his ability to engineer legislation able to obtain a consensus.

Lautenberg's career as senator was granted an unusual second act in 2002. In September, as the election neared, it became apparent that New Jersey senator Jim Torricelli was about to become the first Democratic candidate to lose a Senate race in the state since 1972. Although voters had no particular fondness for his Republican challenger, persistent reports of ethical abuses by Torricelli had disillusioned even the long-suffering electorate of New Jersey. Afraid that the loss of even one seat would jeopardize their precarious control of the Senate, Democratic leaders persuaded Torricelli to withdraw from the race. Torricelli and Lautenberg had publicly feuded during their four years together in the Senate—a relationship that had contributed to his earlier decision to retire. In a chaotic process, and after waging a reported vigorous lobbying campaign, Lautenberg was drafted as a replacement candidate. Although the legal deadline for such replacements had passed, the move was ratified by the New Jersey

Background of Frank Lautenberg

Education: Columbia University, BSc 1949 (Economics).

Professional experience: Army Signal Corps, 1942–1946; Prudential Insurance Company, salesman, 1949–1954; Automatic Payrolls/Automatic Tabulating Service/Automatic Data Processing, various positions, 1954–1969, president, 1969–1977, chairman and chief executive, 1977–1982; United States Senate, 1982–2000 and 2002–present.

Supreme Court. Lautenberg went on to win reelection after a truncated five-week campaign, during which his lead was never seriously challenged. Returned to the Senate, he now sits with the minority on the Commerce, Science, and Transportation and Government Affairs committees.

References and notes

1. Like much of the material in this biography, this information is taken primarily from F. Lautenberg, "Oral History Interview by Paul Ceruzzi, 03 May, Washington DC," 2002, *OH 369*, Charles Babbage Inst., Univ. of Minnesota, Minneapolis. This source is cited hereafter as *CHI OH 369*.
2. *CBI OH 369*, p. 5.
3. *CBI OH 369*, p. 10.
4. *CBI OH 369*, p. 5.
5. Anonymous, "The Acquisition Binge in Computer Services," *Business Week*, 5 Sept. 1977, p. 82.
6. M. Hofman, "Frank Lautenberg: My Biggest Mistake," *Inc. Magazine*, Apr. 2001.
7. *CBI OH 369*, p. 10.
8. The proceedings of this symposium are held in ADAPSO Records (*CBI 172*).
9. Anonymous, "Ten Year Membership Anniversary," *ADAPSO Newsletter (CBI 172)*, vol. 4, no. 5, Sept./Oct. 1974, pp. 2-3.
10. *CBI OH 369*, p. 6.
11. Anonymous, "Home Banking Moves Off the Drawing Board," *Business Week*, 20 Sept. 1982.
12. Anonymous, "The Acquisition Binge in Computer Services," *ibid*, 5 Sept. 1977, p. 82.
13. Anonymous, "ADP After Lautenberg," *Business Week*, Nov. 1982, p. 40.
14. Anonymous, "Earnings That Go Up and Up," *US News and World Report*, 8 Nov. 1982, p. 70.
15. Anonymous, "A Do-It-Yourself Approach That Proved Disastrous," *Business Week*, 8 Oct. 1984, p. 134.
16. Anonymous, "The Acquisition Binge in Computer Services," *ibid*, 5 Sept. 1977, p. 82.
17. Anonymous, "A Do-It-Yourself Approach That Proved Disastrous," *ibid*, 8 Oct. 1984, p. 134.

—Thomas Haigh
thaigh@acm.org