

Big Blue in the Bottomless Pit: The Early Years of IBM Chile

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In examining the history of IBM in Chile, this article asks how IBM came to dominate Chile's computer market and, to address this question, emphasizes the importance of studying both IBM corporate strategy and Chilean national history. The article also examines how IBM reproduced its corporate culture in Latin America and used it to accommodate the region's political and economic changes.

Thomas J. Watson Jr. was skeptical when he first heard his father's plan to create an international subsidiary. "We had endless opportunity and little risk in the US," he wrote, "while it was hard to imagine us getting anywhere abroad. Latin America, for example seemed like a bottomless pit."¹ However, the senior Watson had a different sense of the potential for profit within the world market and believed that one day IBM's sales abroad would surpass its growing domestic business. In 1949, he created the IBM World Trade Corporation to coordinate the company's activities outside the US and appointed his younger son, Arthur K. Watson, to head the operation. By 1965, IBM World Trade had a gross income of more than \$1 billion.

Thomas Watson Jr. had a low opinion of the Latin American market. The phrase "bottomless pit" leaves little room for misinterpretation. However, his statement is highly misleading from a Latin American standpoint. It overlooks IBM's long history of selling office machines to countries in Central and South America and IBM's dominant position in the Latin American computer market for most of the 20th century. IBM had begun investing in Latin America before 1914 under its original acronym, CTR (Computing Tabulating Recording Company), with operations in Buenos Aires and soon after in Brazil and Uruguay.² The Chilean market, concentrated in the city of Santiago, constituted IBM's fourth office within the region. By the end of World War II, IBM had opened at least 19 offices in no fewer than 12 Latin American countries, each facility dedicated to selling punched-card tabulating machinery to Latin American governments and businesses.

The history of IBM has been documented from a number of perspectives. Former employees, management experts, journalists, and historians of business, technology, and computing have all made important contributions to our understanding of IBM's past.³ Some works have explored company operations outside the US in detail.⁴ However, most of these studies do not address company activities in regions of the developing world, such as Latin America.⁵ Chile, a slender South American country bordered by the Pacific Ocean on one side and the Andean cordillera on the other, offers a rich site for studying IBM operations outside the US and Europe. The history of IBM Chile adds a new dimension of geographical richness to the existing studies of IBM because it tells the company's history from a Latin American perspective. This history also illustrates how the purchase, adoption, and use of computers and tabulating machines intersected with other historical developments in Chile, such as changing presidential administrations and economic policies.

In addition, the history of IBM Chile sheds new light on the famous corporate culture that IBM developed and promoted throughout its world operations. The scale and scope of IBM's international business required the company to address cultural difference as an important part of its strategy for growth and continued market dominance. IBM Chile provides a case study for understanding how the company worked to reproduce its corporate culture outside the US and how it then used that corporate culture to smooth over the cultural variations of different nations. The strong sense of identification that IBM employees felt toward their company helped them to

communicate across national boundaries and relocate when called upon to do so. In the case of Chile, IBM's strong company culture also enabled the company to withstand the effects of political instability and social revolution.

In the beginning

IBM began exporting punched-card tabulating machinery to Chile as early as 1921.⁶ In 1925, the Chilean State Railroad Company, seeking to mechanize its department of statistics and finance, ordered tabulating machines directly from IBM headquarters in New York, as did the Customs Office, which wanted to calculate statistics on import and export activity (see Figure 1).⁷

IBM Chile quietly opened its first office in downtown Santiago on 10 April 1929. The new branch office began operations with only two employees—Sydney Wharin, an American who served as the first general director, and Daniel Toriello, a Chilean—both of whom were charged with assisting the newly formed Chilean Statistics Bureau and its effort to conduct the population census in 1930.⁸ Wharin and Toriello took turns watching the office and attending to their few clients, which included the railroad company, customs office, State Budget Office, and statistics bureau.⁹ The opening of the Chilean branch office signified the beginning of IBM's corporate infrastructure within Chile and of a dedicated effort to increase the size of the Chilean market for punched-card tabulating machines.

Despite its move into South America, IBM remained focused on its European clients.¹⁰ Nor did IBM's presence in Santiago elicit much attention from the Chilean general public. The technological marvel of the time that had caught the attention of Chile's major newspapers was the automobile, not tabulating machines. The oldest Chilean newspaper, *El Mercurio*, mentioned the application of tabulating machinery to the 1930 census effort in a tiny article hidden on page 7, nearly one year after IBM Chile opened its doors.¹¹

Within Chile's government offices, however, the adoption of IBM tabulating machines was part of a larger shift toward greater state bureaucracy and the increased collection of statistical data by the state using Western scientific methods.¹² The limited scope of this article does not permit a detailed discussion of this shift, but a brief overview of Chilean history during this period will allow the reader to better appreciate the significance of the new IBM Chile office and why it is important to tell this story in the context of Chile's past.



Figure 1. The Chilean Customs Office uses IBM tabulating machines in 1933. (Image reproduced with permission from IBM Chile)

The story of IBM Chile is tightly linked to the expansion of Chilean public administration, which began at the end of the 1920s and continued until 1973. IBM began its Chilean operations during the presidency of Carlos Ibañez del Campo, a general in the Chilean army who ascended to the presidential office after a controlled election gave him approximately 96 percent of the popular vote.¹³ Ibañez, who strengthened the state through bureaucracy rather than by force, became the symbol of a new, strong Chile. He subscribed to the philosophy that programs of state "socialism," or welfare from above, could prevent genuine socialist revolution from below.¹⁴ His government increased the generation of statistical data and demanded greater precision in its collection. He also favored the hiring of university-trained technical experts, or *técnicos*, a decision that further reinforced the application of scientific techniques to government practices and increased the quantity of data recorded from 1927 to 1930.¹⁵

Using IBM tabulating machinery to complete the 1930 census was one manifestation of a larger government effort that introduced scientific techniques, modern technologies, and university-trained technical experts into state administrative practice.¹⁶ These changes helped create a market for IBM products and services and motivated the government to purchase IBM machines. On one hand, the opening of the IBM Chile office in 1929 illustrates the company's desire to expand its operations within Latin America. However, it also illustrates the government's interest in acquiring these machines.



Figure 2. A Chilean Hollerith Service Bureau in 1936. A picture of Thomas Watson Sr. above the company motto, “Think,” hangs on the back wall. “Think” was later translated in Spanish as “Reflexione,” a word choice that emphasized the reflective definition of the verb. (Image reproduced with permission from IBM Chile)

The Great Depression of 1929 confirmed IBM’s decision to open a branch office in Chile. The company responded to the stock market crash by increasing its international sales coverage and converting independent dealers of IBM products into company-owned operations. To encourage international growth and market penetration, profits generated by the overseas branch offices remained within their host countries and were reinvested locally.

The Great Depression also provided the Chilean government with a reason to acquire office technology. According to the League of Nations, the depression hit Chile harder than any other country in the world. From 1929 to 1932 imports dropped by 80 percent, and the value of copper and nitrate exports dropped from more than 200 million pesos to 18.1 million pesos. More than 50,000 workers lost their jobs in the nitrate fields.¹⁷ The economic crisis was the worst in Chile’s history. The government’s inability to ameliorate the worsening conditions of poverty and unemployment fed civilian and military opposition to Ibañez’s presidency and forced the president to resign.¹⁸ In the aftermath, the Chilean government turned to policies of import substitution and channeled its attention to spurring local production and implementing policies of state-led industrial growth. The heightened role of the state grew the national bureaucracy to new levels and created a market for office machinery, including the machines produced by IBM. This shift in the labor force offered new employment opportunities for educated Chileans. Between 1930 and 1949, employment in the public sector more than doubled, outpacing the growth in the mining, agricul-

tural, and industrial sectors.¹⁹ In the 40 years between 1925 and 1965, the number of employees in the Chilean public administration tripled, whereas the national population only doubled.²⁰

The Chilean bureaucracy and IBM’s Chilean operations grew in tandem during the 1930s and 1940s. As Chile struggled to recover from the devastating effects of the Great Depression, Wharin and Toriello decided to hire their first Chilean employee: Mena Verdaguer took over sales. Although the depression had caused sales to drop initially, IBM Chile had continued to expand its operations. In the early 1930s, the company added a training school; by 1933 the number of Chilean employees had swelled to 20. By 1939, 70 employees were on the payroll.²¹ Wharin continued as director of IBM’s Chilean branch until 1937, establishing separate departments for unit record machines, scales, and clocks, and opening a Hollerith “service bureau” department for small businesses and administrative offices (see Figure 2). Toriello took over as general director after Wharin left in 1938 and remained in the post until 1950, when he was replaced by the Chilean Hernán Elizalde.

Shortly before Toriello left, IBM Chile branched out into a new but related business: the manufacture of punched cards. IBM built the only punched-card factory in Chile, and it quickly acquired contracts from competing firms and, later, from firms operating in other Latin American countries.²² The early expansion of IBM’s Santiago operations and the hiring of more Chilean IBM employees no doubt pleased Watson Sr. as a businessman, a believer in Pan Americanism, and a proponent of “world peace through world trade.”²³

In 1949, the IBM offices in Latin America became part of the company’s World Trade subsidiary, and Thomas J. Watson Sr. made his first trip to the region in early 1950 to signal the importance of company activities in that part of the world.²⁴ He and his wife spent more than two months in South America, visiting IBM offices in Brazil, Argentina, Ecuador, Panama, Colombia, and Chile. Watson’s refusal to travel by air necessitated such a lengthy visit to the continent, which Watson traversed exclusively by land and sea. While in South America Watson chaired the first Latin American Hundred Percent Convention, held in Rio de Janeiro; among those attending were managers of IBM’s Latin American offices as well as those who had met company sales quotas for the year.²⁵ During his stop in Chile, Watson visited IBM’s Santiago office (see



Figure 3. Thomas J. Watson Sr. visits the Chilean office during his tour of South America in 1950. Watson is third from the left. Carlos Vidal, the general manager of IBM Peru and the special representative for Latin America, stands to his right, and Daniel Toriello, the general manager of IBM Chile is to Watson's left. (Image reproduced with permission from IBM Chile)

Figure 3) and lunched with the president of Chile, Gabriel González Videla.²⁶

Chile and IBM World Trade

As the story goes, Thomas J. Watson Sr. formed IBM World Trade in 1949 to end rivalry between his two sons and ensure that his younger son had a secure future. He appointed his older son, Thomas J. Watson Jr., to run IBM's massive US operation. Arthur K. Watson, the younger son, would preside over World Trade, the new independent subsidiary responsible for all company business outside the US. This arrangement permitted the father to provide ample opportunity for both sons while enabling the company to expand its international presence.²⁷ IBM's upper management clearly understood the personal motives behind the decision to divide the company. Some questioned the temperament of Arthur Watson and his suitability for the top job. As one biographer of Thomas J. Watson Sr. wrote, "To the top executives of IBM, including Tom Jr., World Trade's primary purpose was transparent."²⁸

Arthur Watson, or Dick, as he was more informally known, spoke French, Spanish, German, and Portuguese. He traveled extensively but spent most of his time overseeing IBM's European operations and hobnobbing with the European elite. He did not accompany his father to South America in 1950 but did join him on a similar trip to Europe the same

year to help build the World Trade subsidiary.²⁹ Although accounts differ on Dick Watson's efficacy as a manager, he turned World Trade into a lucrative and successful operation and transformed the company into a true multinational. World Trade's revenue increased from \$51 million to \$300 million in its first decade, a figure that reached \$788 million by 1963.³⁰ By 1965 World Trade had a gross income of more than \$1 billion, a figure that doubled by 1968 and approached the \$3 billion mark by 1970.³¹ In the early 1960s then-IBM President Al Williams quipped that Big Blue's competitors were "fighting us so hard here [in the US] that they're not even thinking about overseas. Wait until they find out how thoroughly World Trade has gotten itself entrenched."³²

Despite its growing contributions to the bottom line, World Trade lacked the prestige of IBM Domestic.³³ In the late 1950s Dick Watson began devoting energy to the domestic side of operations, and in 1963 his brother asked him to be in charge of corporate staff for IBM Domestic and direct the famed IBM System/360 project—duties that Dick Watson performed on top of his role as chairman of World Trade. The scope and complexity of the System/360 project overwhelmed him and he left the company in 1970.³⁴

IBM has been credited as one of the first industries to understand the value of creating a strong corporate culture and replicating it



Figure 4. The IBM department of the Chilean copper mine Chuquicamata, the largest open pit copper mine in the world. The department handled payroll, inventory, and accounting for the mine. (Image reproduced with permission from IBM Chile)

all over the world. From the outset, Thomas Watson Sr. tailored IBM sales tactics to the conventions of local culture while maintaining the hallmarks of IBM's business practice, including its strict dress code, open door policy, high standards for customer service, reward structure for those who met their sales quota (e.g., the One Hundred Percent Club), and the idea of the IBM family. Dick Watson and his successors also followed this approach throughout the 1960s and 1970s. In Europe, IBM hired members of the aristocracy and used their connections to build the company's customer base. In Chile, IBM hired largely from the Chilean navy, a recruiting ground that provided IBM with not only a technically



Figure 5. A navy chaplain inaugurates IBM's new office space in a Santiago high-rise. The company initially occupied two floors of the building but eventually grew to occupy eight. (Image reproduced with permission from IBM Chile)

literate workforce but also connections within government and military organizations. As in IBM's other international offices, IBM Chile hired local branch managers and staff but remained a US-owned company ultimately responsible to corporate headquarters in New York. This centralization was reflected in company tasks, such as the process of translating IBM manuals from English into Spanish and deciding on the Spanish names for IBM machine parts. The company maintained Spanish translation centers in Madrid, Mexico City, and Buenos Aires, and the branch offices in those cities regularly consulted with IBM corporate headquarters in New York to make sure the company used the same terminology worldwide.

According to Luis Lamassonne, a former IBM employee who oversaw company activities in Central America and the Caribbean from his office in New York, these coordinated translation efforts "created a situation in which our technicians in many different countries spoke the same language when they gathered at meetings."³⁵ In this way the language of IBM transcended the linguistic diversity of its employees, increased their ability to work with one another, and provided another feature of company culture.

IBM Chile expanded its customer base throughout the 1950s and 1960s and solidified its position as market leader. IBM Chile secured contracts with major customers such as the Chilean Armada (1951), the National Petroleum Company (ENAP, which installed IBM Unit Record machines in Patagonia in 1957), and the Chilean Electric Company (1959). The customers in turn formed internal "Hollerith departments" or "IBM departments" (see Figure 4). By 1956, IBM Chile had grown to more than 100 employees. This rate of growth forced the company to move to a larger space. In 1960, IBM Chile relocated its central office to a high-rise in downtown Santiago and occupied two floors. "For us, the change was fantastic," remarked Hernán Elizalde, the general manager for IBM Chile. "The location was excellent, the building was new, and the space that we had was very suitable."²¹ The company hosted an inauguration ceremony to celebrate the move and invited a navy chaplain to bless the new office space (see Figure 5).³⁶

In 1962, IBM Chile started selling electronic computers, and the Customs Office, Treasury, and air force all acquired IBM 1401 machines.³⁷ However, the Chilean computer market truly changed in the mid-1960s when

IBM announced its System/360 and the Chilean people elected a president who promised revolutionary change.

Mainframes change the market

From 1964 to 1970, Chilean politics meshed with changes to the IBM product line and altered the national computer market. On the political front, Chileans elected to the presidency the Christian Democrat Eduardo Frei Montalva with 56 percent of the popular vote. On the technological front, IBM released its highly successful System/360, a family of computers and peripheral equipment that Thomas Watson Sr. called the most important in company history.³⁸ These developments, combined with long-standing government practices of using IBM Unit Record machines, provided the context for the Chilean government to form a national data processing center known as EMCO. It is impossible to describe any of these developments in full detail given the space constraints of this article. However, a brief overview will help the reader appreciate how this confluence changed the nature of Chilean computing and the market for IBM machines.

Frei won the 1964 Chilean presidential race on the platform of “revolution in liberty.”³⁹ His victory represented a gain for the Chilean political center and for those who wanted a third way of bringing about economic and social change that did not conform to the ideological poles of capitalism or communism. Frei’s platform included plans to improve Chile’s social conditions through increased public spending on education, housing, and health care; agrarian reform; the “Chileanization” (or state majority ownership) of the nation’s copper mines; and programs to increase industrial production, foreign investment, and the use of advanced technology. These strategies were in line with the stated goals of United Nations development agencies and programs such as the US-led Alliance for Progress.⁴⁰

Centralized economic planning took on new levels of importance during the Frei administration as the government presented Chile to the world as an ordered nation attractive to foreign investment and foreign aid. Under Frei’s guidance the Chilean state grew to include new offices and agencies dedicated to centralized planning, administrative management, and data collection. During the previous administration the government used IBM Unit Record machines for data processing and introduced organization and methods (O&M) techniques. Applying powerful main-

frame technology to state administration and management seemed a logical next step.⁴¹

Moreover, the Frei government had a natural disposition toward the use of mainframe technology, despite its expense. Frei believed strongly in the promise of science and technology for advancing society and felt that the state should play an active role in support of both. These sentiments were no doubt bolstered by the substantial number of university-educated engineers, economists, and technocrats who held high positions within the Christian Democracy. In 1967 Frei’s government formed the national commission known as CONICYT, an organization similar to the National Science Foundation in the US, and charged it with directing Chilean science and engineering initiatives to meet national needs. The same year Frei formed the Commission for Data Processing within the Ministry of Finance to study the application of computer technology within public administration. In 1968 his government formed INTEC, a government institute dedicated to technological research and development.

The 1960s also proved to be an important time for IBM. The company announced its new System/360 on 7 April 1964.⁴² In the words of Thomas Watson Sr., the Systems/360 represented “a new generation—not only of computers—but of their application in business, science and government.”³⁸ Developing the new product line was a risky move for IBM because it required a tremendous investment by the company. As the *Fortune* magazine reporter Tom Wise wrote, the System/360 was “IBM’s \$5 billion gamble.” The gamble paid off. Orders for the new machines quickly outstripped what IBM could supply.

Mainframes from the 360 series quickly became sought-after commodities in Chile. IBM Chile sold its first IBM 360 mainframe to the Chilean private sector in 1966. When the University of Chile acquired an IBM 360/40 in 1967, President Frei himself attended the elaborate welcome ceremony.⁴³ Because of the high price of the machine and its ability to process data around the clock, the university and the government reached an agreement whereby the mainframe would serve the research and teaching needs of the university and the data processing needs of several government agencies, including the State Development Agency (CORFO) and the National Health Service. This arrangement eased some of the demand within the Chilean public administration, but other agencies and government offices also wanted access to main-

frame technology and could not afford to purchase their own machines.

A year after the university acquired its IBM mainframe, the Chilean government established the State Computer Service Enterprise (EMCO), which was dedicated to meeting the data processing needs of the Chilean government. Four months later, on 16 January 1969, EMCO celebrated the arrival of its first machine, an IBM 360/40 purchased with \$2 million in French credit.⁴⁴ Frei again attended the arrival ceremony, but this time he also delivered a speech in which he linked the technology to the creation of a modern state and “orienting, advancing, and coordinating all of its national activities,” goals that were central to his administration.⁴⁵ Establishing EMCO allowed the government to centralize its computer resources and cut costs while still making the technology widely available to state offices, agencies, and ministries. In 1970 EMCO purchased two more IBM 360 mainframes, dubbed EMCO-2 and EMCO-3.

Outside the US, governments often intervened in the national computer market. World Trade branch offices often found themselves challenged by expressions of nationalism that ranged from governments that wanted to manufacture their own computers to governments that formed state computer agencies such as EMCO. Employees of IBM Chile saw EMCO as an organization that would limit their future sales and potential market share. Some also believed it to be a symptom of the anti-US sentiment that had taken root in Chile by the end of the 1960s.⁴⁶ However, IBM Chile continued to maintain a close relationship with the Chilean government—its largest single customer—and helped it meet its data processing needs with the use of IBM machines.

La Mamá IBM

Alfredo Acle began working for IBM in 1964, the year the Christian Democrats came to power. He was employed first in the education division and later as the director of systems engineering for IBM Chile. Acle also directed IBM Chile’s government operations branch and participated in many of the government projects that applied computer technology to administrative operations. He retired after 27 years with the company and continues to live off his pension check. He gushes when speaking of his former employer, to which he refers affectionately as “La Mamá IBM.”⁴⁷ He praises the company for the many benefits that he and his family received over the years, including healthcare, educational

opportunities, job security, and a generous retirement plan. He once considered leaving the company, but his wife would not let him. Laughing, he recounted his many job offers and his wife’s protestations of “Don’t go! We are so protected here!”

Forty years after he began working for Big Blue, Acle could still recite IBM’s company principles verbatim. Asked how the culture at IBM Chile differed from the IBM culture in other countries, Acle replied,

There was no difference—the culture of the country was different, but the culture of IBM was the same. IBM was like a family or a separate country. We were a country within other countries. ... I believe that almost all of IBM’s old employees think that way.⁴⁶

Fernando Villanueva, a former navy engineer who began working for the company in 1962 and managed IBM’s education center from 1964 to 1968, recalled several cultural differences that the company needed to accommodate.

The first cultural change that took place in Chile is when we explained to the US that in Chilean and Latin American culture, we drink wine with our food. There were official IBM meals where there was no alcohol. If you do not offer wine at lunchtime, you are offending someone.⁴⁸

The company also had to confront and overcome differences between what Villanueva described as the “American spirit” and the “Latin spirit.” “When making a promise,” Villanueva said, “Latinos tend to be a little more lax with respect to the promise.” Chilean employees of IBM also had to adapt to the company’s strict dress code. “I entered in the age of the white shirt. They never told you [how to dress, but] you saw everyone dressed that way and you copied it,” Villanueva said. Repeating the instructions that he received in a training course, Villanueva added that employees had to “always be ready to meet with the president of a company.” He acknowledged that IBM’s formal style of dress was not normal in Chile and that “not all companies had a policy of being correctly well dressed.” For this reason “people looked at us ... strangely.” Villanueva recalled leaving a meeting with several coworkers and bumping into his aunt on the Santiago streets. “She asked me,” he said laughing, “What are you doing with all of these Mormons?”⁴⁸

Both Acle and Villanueva recalled IBM’s close relationship with the Chilean govern-

ment, no matter who the president was. "IBM never had politics," Villanueva said. "It maintained good relations with the governments [of Frei, Allende, and Pinochet]." He also noted that the Chilean government "always had a place for IBM at some table of government," a comment that clearly illustrates the economic motives behind the company's unwillingness to publicly align itself with any political ideology. "That's why President Frei went to inaugurate the computer and push the button," Villanueva concluded. "There was a very good relationship."⁴⁸

IBM maintained its "apolitical" position both inside and outside the company and was known as one of the few companies that never dealt with a unionized workforce, a considerable feat given the rise of organized labor in Chile during the 1960s.⁴⁹ Management prohibited employees from expressing political views in newspapers or other public forums and viewed any infraction as a serious matter. The company also sponsored workshops on how to deal with labor conflicts; the workshops included role-playing exercises in which employees simulated negotiations between managers and disgruntled workers. In addition, IBM transplanted from New York its open door policy, whereby anyone with a grievance was entitled to an audience with his manager, decreeing that employees therefore did not need to unionize to be heard.

IBM tended to its culture. "The culture of IBM was not that simple," Acle acknowledged. "It had to be manufactured, it had to be maintained, and it had to be studied." The company began using the phrase "La Mamá IBM" in the 1960s in parallel with the rise of the labor movement. During the socialist government of the early 1970s, Acle said, company officials "always referred to themselves as 'La Mamá.'" He added, "Behind all of the politics going on," such as strike activity, land seizures, and public demonstrations,

... there was a great IBM family. This was the slogan. And how do you maintain the great IBM family? You maintain it with a few meals during the year, where they invited your wife, a celebration at the end of the year that your whole family attended. They gave you food, gifts for the children, Santa Claus came ... [The feeling of the great family] was not born inside, [IBM] had to inject elements to keep it alive.⁴⁶

IBM navigated the Chilean political landscape and dominated computer sales to the government with the same dexterity that it

displayed in keeping politics out of its offices. Rental contracts for IBM machines included maintenance and training classes, services that many IBM clients perceived as free but that IBM saw as increasing its market penetration. At one point the government required that all individuals holding the job description of card puncher and data entry operator receive a "degree" from IBM. "They [the government] gave us tremendous responsibility," Villanueva said. "We were practically dictating who the programmers and card punchers were." The only problem was that IBM did not give degrees or certificates for completion of its courses. "They [the students in the training classes] came to us and asked, 'I want my degree,'" which of course Villanueva's education center could not provide.^{48,50}

Acle, who was in charge of IBM's government branch, said,

I worked for the government as a systems engineer, always in the technical aspects of engineering, advising the client. I introduced myself to the client without the goal of selling, which gave a different image. I helped the client solve his problems.⁴⁶

Acle's presence as an adviser freely offering his expertise kept the IBM name circulating among Chilean government administrators so that they would call IBM, rather than one of its competitors, for their computer needs. These strategies proved so effective that IBM became synonymous with the technology itself. Villanueva explained that if

someone [was] talking about computation or data processing [he] would say "IBM." ... [Saying] "IBM" in Chile was like talking about a Frigidaire or a Gillette razor—you could have any razor, but the people say "Gillette."⁴⁸

The company also gave money to the University of Chile to establish one of the leading computer science programs in Latin America and provided scholarships for Chileans to travel to the University of Waterloo in Canada to study computing using IBM machines.⁵¹ Although the Chilean market was small and had limited potential for growth, IBM invested in it, creating a group that would be inclined to buy IBM's products.⁵² By expanding its web of contacts within the universities and government agencies, maintaining an outwardly apolitical stance, and promoting the idea of the IBM family, the company's Chilean branch hoped to withstand the effects of growing political polarization and social mobilization.

'Turning out the lights'

In November 1970, the socialist candidate Salvador Allende became the next Chilean president and set the country on the road toward peaceful socialist change. His victory rocked Washington, D.C., and upset US attempts to contain communism in the region. US government documents reveal that on 4 September 1970, the day of Allende's election, US Ambassador Edward Korry sent 18 cables from Santiago to Washington, D.C., updating the Nixon administration on the latest poll results. According to former secretary of state Henry Kissinger, "Nixon was beside himself" with the election returns and promised to "circumvent the bureaucracy" in the future.⁵³

Allende's commitment to the nationalization of major industries elicited feelings of fear and excitement around the world. In his inaugural address on 5 November 1970, the president stated,

Our road, our path, is that of liberty—liberty for the expansion of our productive forces, breaking the chains that have smothered our development thus far; ... and liberty for all Chileans who work for a living to gain social control over and ownership of their work centers.⁵⁴

This promise of nationalization thrilled Chilean workers and those with Leftist sympathies, but terrified business owners and multinational corporations who feared losing their property and financial investment. Many business owners refused to invest in improving their operations. Others, such as Pepsi Cola and International Telephone and Telegraph, asked the US government to protect their financial interests by undermining support for the Allende government. Some multinational companies, such as the computer company Burroughs, opted to discontinue operations in Chile rather than risk the government expropriation of their Chilean office.

IBM, however, took a different tack. Acle, then director of systems engineering at IBM, reported that the company viewed the potential expropriation of IBM Chile as a legitimate threat; IBM was a large, foreign-owned enterprise of near-monopolistic proportions that sold high-end technology to the Chilean market.⁴⁶ However, instead of ending its Chilean operations, the company decided to use its international presence to relocate more than 80 Chilean employees to other IBM offices throughout Latin America and Europe.

This reduced the size of the Chilean operation to the bare minimum required to maintain existing service contracts. These changes also reflected the realities of the economic blockade, which prevented Chilean businesses and government offices from ordering additional IBM mainframes.

IBM's culture of company loyalty assisted these efforts, presenting relocation as a worthy sacrifice for saving "La Mamá IBM." Decreasing the size of the Chilean office, the company argued, made the enterprise less desirable to the state and could allow the company to continue operating under private ownership and maintain its management structure.⁵⁵ The relocation program, moreover, served the interests of the company. Trained Chilean employees filled vacancies in other IBM World Trade operations, many at the executive level. According to Acle, the majority of employees who decided to relocate had engineering degrees and years of experience with the company. Acle, however, decided to remain in Santiago "to turn out the lights."⁴⁶

The Chilean government never nationalized IBM Chile. The strategy of reducing the number of employees succeeded in lowering the company's profile. And because the company consisted of white-collar employees, rather than blue-collar workers, IBM never attracted the levels of worker or government attention found in other foreign-owned firms. IBM continued to support government projects and honored its contracts with Chilean government offices. The company also played a role in assisting the government with the construction of a new building for the Third United Nations Conference on Trade and Development (UNCTAD III). The conference was held in Santiago, and IBM machines helped the government oversee construction of the large building complex, which was completed in a record nine months.⁵⁶

The IBM practice of recruiting its engineers from the Chilean navy continued to benefit Big Blue. Many employees who decided to stay behind, particularly those in upper management, maintained ties to members of the armed forces. On 11 September 1973, the Chilean military launched a violent coup against the Allende government that abruptly ended the Chilean road to socialism and began 17 years of military dictatorship under General Augusto Pinochet. Acle reported receiving word of the military coup the night before it happened, as did all his coworkers but one. On the morning of the military coup, that lone IBM employee showed up for work as usual.⁵⁷

Conclusion

The Pinochet dictatorship signified a period of intense political repression and economic “shock treatments” to reorient the country from state socialism to neoliberalism.⁵⁸ The opening of Chilean markets to both foreign investors and foreign trade fundamentally changed the character of the Chilean computer market. On 19 July 1974, the military junta approved Law 1130, which lowered tariffs for approximately 150 imported goods—including computers—to a mere 10 percent of their purchase price.⁵⁹ Tariffs for imported computers had been 120 percent, and the number of computers purchased by Chilean businesses now grew to unprecedented levels.⁶⁰ These new machines began to arrive in 1975. “I would say that what we [IBM] brought [to Chile] from 1962 to 1974 corresponded to what we imported in 1975 [alone],” observed Hernán Cavallo, the general manager of IBM Chile who had replaced Elizalde in 1974.⁶¹ As a result of Law 1130, IBM Chile “tripled our computing capacity,” Cavallo remarked.⁶²

Competition swelled as early entrants IBM, NCR, and Burroughs were forced to share the market with such newcomers to the Chilean market as Digital, Wang, and Honeywell, among others. Computers became smaller and less expensive, shrinking from the enormous mainframes of the 1960s to the mini-computers of the 1970s and, finally, to the desktop personal computer epitomized by the IBM PC, which was introduced in 1981. Documenting these changes lies outside of the scope of this article, but these developments offer valuable topics for future study.

Clearly, the international history of IBM must be told from the perspective of the host country as well as from the perspective of corporate headquarters. In the context of IBM’s global operations, the Latin American market was not as significant as its markets in the US or Europe. However, IBM machines played an important role in the changes that took place in Chilean businesses and government offices from the 1930s to the 1970s, and the company easily dominated the small Chilean market. IBM’s corporate strategy of aggressive international expansion explains the supply side of this story, but it cannot fully explain the demand that came from Chilean government offices and businesses. Shifts in economic policies, labor force demographics, and international relations are fundamental to this history, as are national elections and periods of state expansion. The activities of IBM Chile cannot be understood

outside the context of Chile’s political, economic, and social history. Explaining IBM’s presence in the region is impossible without considering Chilean history as well as company strategies for international growth and market dominance.

The history of IBM Chile also illuminates how IBM reproduced its company culture in different national contexts. The cultural, economic, and political differences found in each country challenged IBM. Creating a homogeneous international company culture took work, but benefited Big Blue in the long run. By making IBM a “country within other countries,” IBM increased the fluidity of its workforce. This further served the company when political or economic changes in one region required the company to change its staffing and relocate employees and their families to other parts of the world. IBM employees sometimes joked that the company name really stood for “I’ve Been Moved.” However, the Chilean case ties the global movement of the IBM workforce to the political realities that IBM faced in different national contexts—not to programs of technology transfer or to building the skill set of IBM employees, as has been suggested elsewhere.⁶³ The strong corporate culture that IBM maintained fostered loyalty and helped produce an early example of a global workforce. Moreover, it allowed the company to adapt to the political and economic instabilities that occurred in different parts of the world and to maintain a viable international presence.

Studies of IBM have pointed to the company’s style of paternal management and Thomas J. Watson Sr. as a model for how an industrial capitalist could also be a benevolent patriarch. However, IBM management not only portrayed the company as paternal, but also as maternal—a mother who cared for her employees and needed their protection in return. In Chile the company became known as “La Mamá IBM,” a phrase that reinforced the idea of the IBM family and generated feelings of community, security, and loyalty among IBM employees. Moreover, it provided a rationale for employees to put the needs of the company ahead of the needs of their own families, as demonstrated by employees’ willingness to relocate during the Allende period. Maternal management complemented the other techniques the company used to prevent the organization of its workforce into unions and easily meshed with the open door policies and labor relations training sessions the company sponsored. In the Chilean case these



Figure 6. The general manager of IBM Chile, Hernán Cavallo (far right), welcomes Augusto Pinochet and his wife to the IBM booth at the 1985 Santiago International Fair (FISA). Alberto Cariola, the communications manager of IBM Chile, stands on the left. (Image reproduced with permission from IBM Chile)

techniques proved highly effective and succeeded in preventing strikes at IBM offices and card manufacturing plants. While IBM Chile was not the only World Trade office to implement these strategies, the Chilean case provides an clear example of how these policies intersected with the political, economic, and social changes that took place in the 1960s and 1970s and allowed the company to withstand these upheavals.

Finally, the Chilean case example illustrates the manner in which IBM secured a near-monopoly position in computer markets outside the US. More work needs to be done to fully understand how IBM secured contracts in the private and military sectors, but some general observations can be made about company activities in Chile's government offices. IBM benefited from its apolitical stance and the realization that members of the political opposition might win elections in the future and become valued IBM customers. IBM employees worked with government leaders regardless of their ideology, as illustrated by the good relationship IBM maintained with the Christian Democrat Eduardo Frei, the Socialist Salvador Allende, and the military dictator Augusto Pinochet (see Figure 6).

Its policy of putting business above politics contributed to the longevity of company operations in Chile and helped IBM sell its

products and services to the Chilean government. Moreover, the company kept IBM employees in government offices by presenting them as problem solvers rather than salesmen and lent its support to initiatives such as EMCO, even though the national data processing agency limited the size of the Chilean computer market.

IBM tended to the Chilean market, despite its small size, and explored other opportunities for generating revenue. For example, the company captured related markets, such as the manufacture and sale of punched cards. This side industry alone generated \$56 million in revenue from 1966 to 1976, most of which came from orders placed outside Chile.⁶⁴ IBM also helped educate Chilean card punchers, data entry operators, and programmers and made sure they received their training on IBM machines. This required a significant investment on the part of Big Blue, from its local training programs for government employees to its sponsorship of scholarships for talented Chilean engineers to attend the University of Waterloo in Canada, where they learned to use IBM mainframe technology.

The history of IBM Chile illustrates the value of including international perspectives in the study of computer history, in particular the experiences of Latin American nations such as Chile. This article constitutes a first step toward the telling of this history, but substantial work remains to be done. Future studies will surely enrich our understanding of how individuals, governments, and companies acquired computer technology and used these machines to address the challenges and goals of different national contexts and cultures. From a historian's perspective, computing in Latin America is far from a bottomless pit. Indeed, it holds promise as a site for future historical scholarship on computer technology and companies such as IBM.

Acknowledgments

I would like to thank Cristóbal Joannon, director of communications at IBM Chile, for allowing access to company documents and photographs. Fernando Villanueva shared his own historical work on IBM Chile and allowed his experiences working for IBM to be included in this study. This article also benefited from conversations with Bill Aspray and Jim Cortada. This material is based on work supported by the NSF under award number 0724104. Any opinions, findings, and conclusions expressed here belong to the author and do not necessarily reflect the views of the NSF.

References and notes

1. T.J. Watson Jr., *Father, Son, & Co.: My Life at IBM and Beyond*, Bantam Books, 1990, p. 175. Watson Jr. made this comment after learning his father's plan to carve out IBM World Trade for his younger brother, Arthur K. Watson. Thomas Watson Jr. was angered by this decision, and we must view his comment in this context, although it does not diminish the fact that he viewed the Latin American market as a boondoggle.
2. IBM Archives, *Frequently Asked Questions*, June 2004; <http://www-1.ibm.com/ibm/history/documents/pdf/faq.pdf>; "Buenas Ideas, Pilares de IBM" [Good Ideas: Pillars of IBM], *Diálogo IBM Chile*, Sept.-Oct. 1977.
3. Among the most cited works are those of Emerson W. Pugh, a former IBM employee who wrote several detailed histories of the company's organization and product line. An overview of company history can be found in E.W. Pugh, *Building IBM: Shaping an Industry and its Technology*, MIT Press, 1995. The memoir by Thomas Watson Jr. provides an insider view of the company as seen from the top. The recent biography of Thomas J. Watson Sr. by the journalist Kevin Maney is the first to use Watson père's papers to tell the IBM story. See K. Maney, *The Maverick and His Machine: Thomas Watson, Sr., and the Making of IBM*, J. Wiley & Sons, 2003, and T.J. Watson Jr., *Father, Son, & Co.: My Life at IBM and Beyond*, Bantam Books, 1990.
4. The article by Corinna Schlombs in this issue of the *IEEE Annals of the History of Computing* is one example. Others include the controversial E. Black, *IBM and the Holocaust: The Strategic Alliance between Nazi Germany and America's Most Powerful Corporation*, Crown Publishers, 2001; J. Vernay, "IBM France," *Annals of the History of Computing*, vol. 11, no. 4, 1989; R. Sobel, *IBM vs. Japan: the Struggle for the Future*, Stein and Day, 1986; S. Usselman, "IBM and Its Imitators: Organizational Capabilities and the Emergence of the International Computer Industry," *Business and Economic History*, vol. 22, no. 2, 1993. The literature on IBM World Trade is small but useful and includes work by the journalist Nancy Foy, *The Sun Never Sets on IBM*, Morrow, 1975, and a memoir by the former president of IBM World Trade, Jacques Maisonrouge, *Inside IBM: A Personal Story*, McGraw-Hill, 1989. The journalist Rex Malik uses documents released in connection with the antitrust suit brought by the US Department of Justice against IBM. Those documents paint a more negative picture of corporate strategies for international expansion. See Rex Malik, *And Tomorrow ... the World? Inside IBM*, Millington, 1975.
5. The memoir published by Luis Lamassone is a notable exception. In addition, IBM Chile has produced several short company histories by company employees. These histories are cited throughout the article. Studies of computing in Brazil and Argentina have addressed IBM's activities during the 1970s and 1980s, but have not documented the early history of the company in these regions. L.A. Lamassone, *My Life with IBM*, Protea, 2000, and E. Adler, *The Power of Ideology: The Quest for Technological Autonomy in Argentina and Brazil*, Univ. of California Press, 1987.
6. The firm of Buchanan, Jones, & Co. acted as the agent for CTR machines in Chile from 1921 to 1929. In addition to tabulating machines, Chileans could purchase scales, time clocks, mechanical punches, reproducing punches, and vertical sorters. IBM Chile, "Edición Especial de Aniversario, IBM 70 años en Chile," [Santiago de Chile: IBM Chile, 1999]; "Hablan los precursores" [The Predecessors Speak], *IBM Diálogo*, July 1987.
7. IBM Chile, "Edición Especial de Aniversario, IBM 70 años en Chile." The Chilean experience with tabulating machines parallels that of the US. In the US the heavy data processing needs of government agencies and railroad companies made them among the first purchasers of Herman Hollerith's early tabulating machines. Hollerith's background at the US Census Bureau and his involvement with the US censuses of 1890 and 1900 have been well documented. The importance of information technology to the railroad industry may appear less obvious. The economic historian Alfred Chandler cites the US railroad industry, which depended heavily on new innovations in information technology, as the prototype for modern business organization. Hollerith actively sought the railroad companies as his first clients after he left the census bureau. He also dedicated a number of years to reforming railway administration methods to incorporate the benefits of tabulating machines.
8. "Hablan los precursores," *IBM Diálogo*, July 1987. Sydney Wharin also served as the general manager of IBM Argentina.
9. "Hablan los precursores," *IBM Diálogo*, July 1987, p. 4.
10. However, Thomas J. Watson Sr. himself called Santiago in 1930 to inaugurate the new radio telephone service between New York and Santiago and to congratulate the branch office on its successful year. Watson also sent a letter to the Santiago office on the inaugural flight of Pan-American Grace Airlines (Panagra). The plane was piloted by Charles Lindbergh. IBM Chile, "Edición Especial de Aniversario, IBM 70 años en Chile."
11. "Máquinas especiales se emplearán en el escrutinio del censo general" [Special Machines

- Will Be Used in the Counting of the General Census], *El Mercurio*, 6 Mar. 1930.
12. Tabulating machinery was not the only office machinery shipped to Chile in 1930. Judging from the advertisements of the period, Burroughs calculating machines, National Cash Register's cash registers, and Remington typewriters all managed to secure a client base within Chile. Burroughs, for example, claimed that with 42 years of experience, it could offer a "Burroughs machine for any business." In 1929 alone Chile imported 282 calculating machines, 786 adding machines, 390 cash registers, and 4,368 typewriters from the US, sales totaling approximately \$560,000. "Hay una maquina Burroughs para cualquier negocio" [There Is A Burroughs Machine for Any Business], *El Mercurio*, 12 Oct. 1930; US Dept. of Commerce, *Foreign Commerce and Navigation of the US*, US Government Printing Office, 1929.
 13. B. Loveman, *Chile: The Legacy of Hispanic Capitalism*, 3rd ed., Oxford Univ. Press, 2001, p. 183.
 14. However, he also dealt aggressively with his political opponents and oppressed dissenting voices.
 15. The General Statistics Office expanded to become the General Statistics Bureau in August 1930 and welcomed additional labor and technical resources, such as Hollerith machines, to complete the population census in a timely fashion. The results of the 1920 census were published in one volume five years after the census was conducted. In contrast, the results of the 1930 census occupied three volumes, published in 1931, 1933, and 1935, respectively. Hollerith machines generated the various configurations of data that comprised the second and third volumes.
 16. Within this new labor force engineers gained considerable respect and influence and ascended to key posts in the administration. For example, the treasury minister, Pablo Ramirez, assembled a group of talented engineers from the State Railroad Company (Ferrocarriles del Estado) and placed them in a number of high-ranking positions throughout the government, including director of the Budget Office, director of the General Accounting Office, superintendent of customs, and director of the Internal Revenue Service, as well as in several crucial positions within the Ministry of Development. For more on science, engineering, and the growth of state administration during the Ibañez period, see M. Góngora, *Ensayo histórico sobre la noción de estado en Chile en los siglos XIX y XX* [Historic Essay on the Notion of State in Chile in the 19th and 20th Centuries], 2nd ed., Editorial Universitaria, S.A., 1986; A. Ibañez Santa María, "Los 'ismos' y la redefinición del Estado: tecnicismo, planificación y estatismo en Chile, 1920–1940" [The "isms" and the Redefinition of the State: Technicism, Planning and Statism in Chile, 1920–1940], *Atenea*, no. 474, 1996; and A. Ibañez Santa María, *Herido en el ala: estado, oligarquías y subdesarrollo* [Wounded on the Wing: State, Oligarchy and Underdevelopment], Universidad de Andres Bello, Santiago, 2003.
 17. Loveman, *Chile*, pp. 188, 98.
 18. Ibañez resigned on 26 July 1931 and temporarily sought exile in Argentina. After he resigned, Chile slid into political disarray. For all the dictator's attempts to create an administration that imposed order and abhorred chaos, six different governments came to power in 1932, including Chile's first "Socialist Republic," headed by Marmaduke Grove. It lasted only 12 days. By the end of 1932 members of the military were calling for civilian elections, which initiated a period of uninterrupted democratic rule that lasted until 1973.
 19. B. Loveman writes, "These developments provided a basis for the consolidation of a bureaucratic 'middle class' associated with an interventionist state." Loveman, *Chile*, pp. 199-200. See also K.A. Roseblatt, *Gendered Compromises: Political Cultures and the State in Chile, 1920–1950*, Univ. of North Carolina Press, 2000.
 20. Loveman, *Chile*, p. 200.
 21. "Hablan los precursores," *IBM Diálogo*.
 22. IBM Chile, "Edición Especial de Aniversario, IBM 70 años en Chile" [Special Anniversary Edition, IBM 70 Years in Chile]; "Cartulina para tarjetas de IBM" [Cardboard for IBM Cards], *Diálogo IBM Chile*, Nov.-Dec. 1976. In 1966 the card factory produced 25 million cards per month.
 23. T.J. Watson Sr. wrote editorials on Theodore Roosevelt's Good Neighbor policy (1940) and "world peace through world trade" (1953). These were later reprinted in T.J. Watson Sr., "As a Man Thinks": *Thomas J. Watson, the Man and His Philosophy of Life as Expressed in His Editorials*, IBM, 1954.
 24. The company also named Carlos Vidal as the special representative for Latin America. Vidal worked for IBM Peru, but took on the responsibility of promoting the company throughout the region.
 25. Lamassonne, *My Life with IBM*, p. 77.
 26. Maney, *The Maverick and his Machine: Thomas Watson, Sr., and the Making of IBM*, p. 371. Watson Sr. met the Chilean president again in April 1950 at a black tie dinner held in González Videla's honor in New York. The friendship between the González Videla family and the Watson family continued in the next generation. Watson Jr. stayed in contact with González Videla's daughter and her husband, the wealthy

businessman José Claro Vial. I thank Cristóbal Joannon of IBM Chile for sharing a 2005 interview he conducted with Claro Vial that contains many details of this friendship.

27. The details of the family drama surrounding the formation of IBM World Trade appear in *Watson Jr., Father, Son, & Co.: My Life at IBM and Beyond*, and Maney, *The Maverick and His Machine: Thomas Watson, Sr., and the Making of IBM*.
28. Maney, *The Maverick and His Machine: Thomas Watson, Sr., and the Making of IBM*, p. 377. Maney describes Arthur Watson as having a weak character and an uncontrollable temper. IBM banned alcohol, but Arthur Watson reportedly developed a drinking habit that embarrassed his father on numerous occasions.
29. However, Arthur Watson later went on two US government missions to Latin America, including a 1964 trip to Lima, Peru, where he started an investment group that funded local Latin American businesses. IBM Archives, *Arthur K. Watson*, IBM Builders Reference Room, 2008, http://www-03.ibm.com/ibm/history/exhibits/builders/builders_watson.html.
30. Foy, *The Sun Never Sets on IBM*, p. 42.
31. IBM Archives, *IBM Highlights, 1885–1969*, IBM Archives Documents, 2004, <http://www-03.ibm.com/ibm/history/documents/pdf/1885-1969.pdf>; IBM Archives, *IBM Highlights, 1970–1984*, IBM Archives Documents, 2004, <http://www-03.ibm.com/ibm/history/documents/pdf/1970-1984.pdf>.
32. Watson, *Father, Son, & Co.*, p. 344.
33. Foy compares World Trade to a “dumping ground,” “a place to send people who didn’t quite fit.” Later on, “good World Traders were wooed to Domestic for choice positions.” Foy, *The Sun Never Sets on IBM*, p. 41.
34. Arthur Watson served as the director of IBM World Trade from 1949 to 1954, the president of IBM World Trade from 1954 to 1963, and the chairman of IBM World Trade from 1963 to 1970. Details on how Arthur Watson managed the System/360 project are in E.W. Pugh, L.R. Johnson, and J.H. Palmer, *IBM’s 360 and Early 370 Systems*, MIT Press, 1991.
35. Lamassonne added, “In spite of [these coordinated translation efforts], I was never able to get people in Spain to use the word ‘computer.’ To this day they still say ‘ordenador’ in Spanish, rather than ‘computador.’” Lamassonne, *My Life with IBM*, pp. 86-87.
36. By 1985 IBM had expanded its operations to fill eight floors of the building, plus six other offices in Santiago. “Recuerdos de cambios de morada” [Memories of Changing Homes], *IBM Diálogo*, July 1987.
37. The transition from tabulating machinery to computing machinery is actually more gradual than this sentence implies. During the 1950s IBM began introducing electronics and electronic programmability into its electromechanical tabulating equipment. For this reason Usselman writes that “computers ... called for many of the same qualities as the older technology.” Usselman, “IBM and its Imitators: Organizational Capabilities and the Emergence of the International Computer Industry,” pp. 8-9. IBM announced the 1401 model in 1959. There was a three-year lag before the machine arrived in Chile.
38. IBM Archives, *IBM 360 Announcement*, http://www-03.ibm.com/ibm/history/exhibits/mainframe/mainframe_PR360.html.
39. IBM helped prepare the voter registration lists.
40. President John F. Kennedy introduced the Alliance for Progress in 1961 with the outward goal of improving economic and social conditions for Latin Americans and the unstated goal of curbing the spread of communism in the region. From 1961 to 1970 Chile received \$720 million in aid money from the Alliance for Progress. See A.L. Michaels, “The Alliance for Progress and Chile’s ‘Revolution in Liberty,’ 1964–1970,” *J. Interamerican Studies and World Affairs*, vol. 18, no. 1, 1976.
41. For example, Frei’s finance minister, Sergio Molina, theorized that “the science of informatics with its technological element the electronic computer has come to revolutionize administrative techniques.” S. Molina Silva, *El proceso de cambio en Chile: la experiencia 1965–1970* [The Process of Change in Chile, the 1965–1970 Experience], Editorial Universitaria: Santiago, Chile, 1972, p. 177.
42. The System/360 was a new family of computers with compatible software and peripheral components.
43. Despite IBM’s dominant position in the Chilean market, the first electronic computer at the University of Chile was not an IBM machine. The Department of Mathematics purchased a German-made Standard Electric ER-Lorenz in 1959.
44. This was logical since France provided technical support and foreign aid to modernize Chilean public administration. France was also the center for IBM World Trade operations outside New York.
45. E. Frei Montalva, *Discurso del Presidente Frei en inauguración computador electrónico* [Address of President Frei in Inauguration of Electronic Computer], Oficina de Difusión y Cultura de la Presidencia de la República, Archive of the Fundación Eduardo Frei, Santiago, Chile, 1969.
46. A. Acle, interview by E. Medina, 18 Dec. and 23 Dec. 2003, Santiago, Chile.
47. Other IBM offices referred to the company as “Mother IBM.” See Foy, *The Sun Never Sets on IBM*, p. xiv.

48. F. Villanueva, interview by E. Medina, 9 Dec. and 16 Dec. 2003, Santiago, Chile.
49. During Frei's presidency the number of industrial unions doubled and the membership in agricultural unions grew from 2,118 organized workers to 136,984. In 1966 employees in the IBM department of the Yarur Textile Mill staged the first successful white-collar strike in the mill's history. Other Chilean firms also had strong white-collar (*empleado*) unions. In this context, it is even more significant that IBM Chile never had a unionized workforce. See P. Winn, *Weavers of Revolution: The Yarur Workers and Chile's Road to Socialism*, Oxford Univ. Press, 1986; A. Valenzuela, *The Breakdown of Democratic Regimes: Chile*, Johns Hopkins Univ. Press, 1978, p. 29.
50. The IBM training programs raise an important point that is frequently overlooked by historians of computing: training a computer-literate workforce did not entail only the education of programmers, systems analysts, and later computer scientists, positions that were usually held by men, but also the training of card punchers and data entry operators, clerical tasks usually performed by women. The gendered division of labor found in Chilean IBM departments is quite apparent in Figure 4.
51. Some of Chile's first computer scientists studied in the Faculty of Engineering and Mathematics at the University of Chile, then went to Canada on IBM scholarships to train at Waterloo. This institutional connection most likely came about in 1967, when Wes Graham of the University of Waterloo traveled to South America from 30 Mar. to 11 May 1967. He spent 10 days in Brazil, 4 in Uruguay, 4 in Argentina, 3 in Chile, and 2 in Peru under contract with IBM World Trade Corp. to participate "in a university and postsecondary school curriculum program as an independent consultant." I thank Jane Britton, archivist at the University of Waterloo, for locating Wes Graham's travel schedule in the university archives (file 384, Wes Graham Papers).
52. "Valioso aporte de IBM a la 'U'" [Valuable Contribution of IBM to the 'U'], *La Nación*, 23 Mar. 1969; R. Peralta, interview by E. Medina, 12 Jan. 2004.
53. H. Kissinger, *White House Years*, Little, Brown, 1979, p. 671. Cited in Davis, *The Last Two Years of Salvador Allende*, p. 6.
54. J.D. Cockcroft, ed., *Salvador Allende Reader*, Ocean Press, 2000, p. 60.
55. Moreover, it would allow the company to maintain the promise of "full-employment," upholding IBM's reputation of providing its employees with lifetime job security. Although this article presents relocation as serving company interests, it is important to remember what job security, benefits, and a stable income meant to IBM's Chilean employees, especially when other foreign-owned companies closed their Chilean offices and government economic policies caused runaway inflation and contributed to massive consumer shortages.
56. The building team used an IBM 360 mainframe that ran Project Control System software. IBM Chile, "Edición Especial de Aniversario, IBM 70 años en Chile." For more on the construction of the UNCTAD III building, see D.F. Maulen de los Reyes, "Proyecto Edificio UNCTAD III: Santiago de Chile (junio 1971-abril 1972)" [Project UNCTAD III Building: Santiago, Chile (June 1971-April 1972)], *De Arquitectura: Revista de Arquitectura de la Facultad de Arquitectura y Urbanismo de la Universidad de Chile*, no. 13, 2006, pp. 80-92. An IBM 360 mainframe was also used to process the economic data collected through Project Cybersyn, a technological system built to regulate the public sector of the economy in real-time. However, the project did not receive direct support from IBM employees. E. Medina, "Designing Freedom, Regulating a Nation: Socialist Cybernetics in Allende's Chile," *J. Latin American Studies*, vol. 38, no. 3, 2006.
57. Aclé recounted the misfortune of this particular employee, who spent three days holed up in the downtown IBM office eating crackers and other food items he found in the desk drawers of his co-workers.
58. By 1975 Pinochet had decided to back the neoliberal "shock treatments" proposed by the Chicago Boys, a group of economists who had studied either with Milton Friedman at the University of Chicago or with professors at the Catholic University in Santiago who were well versed in Friedman's monetarist economic theories. The plan for the economy called for continuing cuts to public spending, now by an additional 15 percent to 25 percent; freezing wages; privatizing the majority of the firms nationalized by the government; reversing the agrarian reform carried out during the Allende and Frei administrations; raising income taxes by 10 percent; and laying off 80,000 government employees. See J. Gabriel Valdés, *Pinochet's Economists: The Chicago School of Economics in Chile*, Cambridge Univ. Press, 1995.
59. Ministerio de Hacienda, Rebaja derecho ad valorem a bienes de capital que indica, Decreto 1130 [Ministry of Finance, Lower ad valorem Duty to Capital Goods Indicated, Decree 1130], 19 July 1974.
60. Several individuals whom I interviewed put tariffs at 200 percent or 300 percent of purchase price before the junta instituted Law 1130. The 120 percent figure stated in the text comes from a

letter sent to Jorge Cauas, minister of finance, describing the effects of Law 1130 and signed by Chile's top computer professionals in government, industry, and academia nearly a year after the law took effect. Regardless of the exact figure, the change to 10 percent was a considerable difference. Letter to Jorge Cauas Lima, 28 May 1975, box 754 08R-0101 SECICO 1973 a 1983, folder "Correspondencia recibida y despachada, memorandos e informes. CECICO 1974-1979," Archive of the Pontificia Universidad Católica de Chile, Santiago.

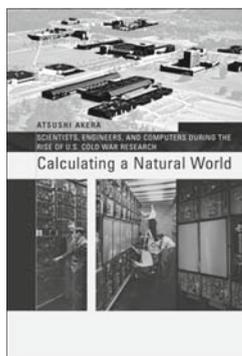
61. This comment reflects the one-year lag between the time that Chilean customers placed orders for computer machinery (1974) and when these machines actually arrived (1975).
62. S. Prenafeta Jenkin, "IBM, bastante más que computación" [IBM: Much More than Computation], *Informática*, April 1979, p. 17. On 1 Jan. 1975, the tariffs levied on imported computing machinery returned to 100 percent. However, Law 1130 proved that Chileans wanted to invest in computing technologies and encouraged others to enter the market. Unfortunately, the need to buy machines within the four-month period resulted in hasty purchases of inappropriate machines that businesses were stuck with and created a shortage of those trained to operate the new machines—members of the computer community put the shortage at about 1,500 computer specialists. Letter to J.C. Lima.
63. For example, see Foy, *The Sun Never Sets on IBM*.
64. Of this total, \$6 million resulted from sales to customers in Chile while the remaining \$50 million came from sales to clients in other Latin American countries. "Cartulina para tarjetas de IBM."



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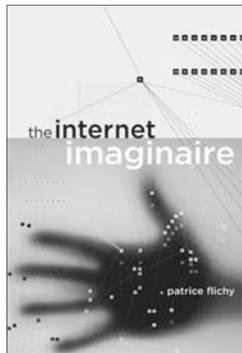


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