



GEOFFREY JONES

DAVID KIRON

Globalizing Consumer Durables: Singer Sewing Machine before 1914

In 1914, the Singer Sewing Machine Company (Singer) held a 90% share of all sewing machine sales outside the United States and was the seventh-largest firm in the world.¹ By successfully developing the huge, but far-flung, Russian market, reinvigorating the industrial revolution in Great Britain, and transforming the lives of countless millions, Singer became the world's first successful multinational company. Although Singer was the first to produce a reliable sewing machine,² the company's market dominance was due more to extraordinary leadership, marketing ingenuity, organizational adaptability, and its continuous efforts to refine one of the most important inventions of the nineteenth century. (See **Exhibit 1** for timeline of major events in Singer's history.)

In 1860, *The New York Times* proclaimed, "What the telegraph is to the commercial world [...] the sewing machine is to the domestic."³ A typical seamstress needed more than 14 hours to stitch a man's shirt. Early commercial sewing machines could do the same job in slightly more than one hour. Originally called "The Great Civilizer," the sewing machine created new markets for ready-to-wear clothing, shoes, and virtually all textile home goods, including canvas, sheets, drapes, curtains, rugs, blankets, and towels.

During the 1850s, many American inventors and young companies crowded the nascent sewing machine market to take advantage of one of the period's most promising commercial opportunities. That Singer was able to dominate such a crowded market is reflected in the fact that the only word for sewing machine in many languages was "Singer." That Singer would dominate the market is much less obvious from a look at the personal life of company founder Isaac Merritt Singer (I.M. Singer).

A skilled machinist, I.M. Singer was also a hot-tempered polygamist and would-be thespian. During a period of American history when prudish Victorian values dominated the social landscape, Singer had 28 children by five different women, all who claimed to be his wife.⁴ His scandalous personal affairs, which made headlines in the country's leading newspapers, were a continuous affront to his business partner, attorney Edward Clark. A somber, deeply religious man, Clark was part of New York City's high society, which shunned I.M. Singer. This unlikely and fractious duo led the company during its first 12 years of growth (1851–1863).

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Midway through the U.S. Civil War (1861–1865), Clark and I.M. Singer dissolved their business partnership, with the understanding that neither partner could be president while the other was alive. Though I.M. Singer remained on the company's board, it was Clark who guided development of the company's internal organization and its expansion into new markets. Many of Clark's initiatives are now taken for granted in modern business practice.

Clark created an elaborate centralized branch office system that crisscrossed the industrialized world and many parts of the developing world. He cultivated best practices and tried to duplicate them across the entire organization. He supervised the establishment of large-scale foreign manufacturing facilities to coordinate supply and demand when foreign investment was considered a high-risk growth strategy. Clark created an internal credit business to implement installment purchase plans for family buyers, a move that few competitors risked following. His extraordinary ability to choose the right personnel led to innovations in the field, without which Singer's growth may well have faltered. In the United Kingdom, Singer management took advantage of the densely populated and geographically compact U.K. market, becoming the first large-scale enterprise to send its salesmen door-to-door to sell, service, and collect payments for a small home appliance.

When European sales began to slow, Singer management again successfully expanded. This time it moved into Russia, which was widely considered an undeveloped wasteland. Singer's expansion in Russia, without benefit of governmental favor and despite governmental efforts to impose tariffs on foreign goods, solidified the firm's position as the largest sewing machine company in the world and one of the preeminent companies of the early twentieth century. However, at the start of World War I in 1914, Singer had significant financial commitments (e.g., manufacturing facilities) in countries that were about to go to war with one another, specifically Germany, Russia, and England. All of the managers who had initially propelled Singer to greatness were dead or had left the company. Singer's next generation of management was facing its biggest crisis yet. How would Singer survive the war?

Company Background

Inventing the Machine

I.M. Singer was born 35 years after the Declaration of Independence and a year before the start of the War of 1812. The youngest of eight children, Singer grew up in a working class, upstate New York family. At age 12, he left home to live with his brother in Rochester, New York, where he apprenticed as a machinist in local shops. Although he excelled as an apprentice, Singer became restless and signed on with a traveling theater troupe. At the age of 19, he married a 15-year-old fan and moved to New York City to become an actor in the big city.

Between 1830 and 1850, Singer took turns at acting, machinist jobs, and siring children. During this period, he had some success as an inventor but less success as an entrepreneur. Working on a canal project, he invented and patented a rock-drilling device. He sold the patent for \$2,000 (or \$65,000 in 2018 dollars), which he used to form his own traveling acting group. When the group went bankrupt several years later, he turned again to the machinist life and invented a machine that could carve typefaces into wood and metal. He found a financial backer, but an explosion destroyed his only working model before they could find a buyer. Another venture capitalist, George Zeiber, financed the model's reconstruction, but when I.M. Singer marketed the device to the major publishing houses in Boston, Massachusetts, he found no takers.

He left the machine in a Cambridge machine shop that produced and repaired sewing machines for a local company. The shop owner recognized Singer's ingenuity and offered space and workmen to

help him create an improved model. After 11 days of frenzied labor, he completed the first reliable sewing machine. I.M. Singer tried for a year to market the machine at carnivals, circuses, and promotional showrooms. However, by the time he finally received a patent in 1851, he had run out of money and financial support. Like many other struggling inventors of the time, he formed a business partnership with a lawyer, in his case Edward Clark, who received a one-third interest in the venture.⁵ They agreed that Clark would take over operational control of the company and that Singer would head product development.

The First Years

I.M. Singer and Clark introduced Singer's invention to a skeptical marketplace. Many sewing machine companies had promised, but failed to deliver, functional machines. Made exclusively in small shops, these first machines were complex, cumbersome to operate, and unreliable.

During the early 1850s, several factors conspired to slow growth in the sewing machine market. First, only commercial garment makers had the resources to buy sewing machines, as the consumer market awaited more user-friendly and inexpensive machines. Second, a spate of lawsuits by competing inventors and manufacturers limited the profits of all manufacturers. Elias Howe, who held one of the earliest sewing machine patents but had no interest in manufacturing sewing machines, sued all of the major sewing machine manufacturers for infringing on his patents. In August 1851, Howe sued I.M. Singer, whose machine duplicated Howe's machine's ability to make lock stitches (but through different mechanical means). Howe won his lawsuit, which required Singer to pay a hefty \$25 licensing fee — roughly 25% of the retail price — for each sewing machine it sold.⁶

Howe's legal victory marked the beginning of the so-called Sewing Machine Wars, as manufacturers frequently engaged in expensive legal wrangling over alleged patent infringements. Whenever Singer applied for a patent, for example, another company would file a patent-infringement suit.⁷ At one point, Singer faced 25 different infringement lawsuits. Each major sewing machine company held a patent for some, but not all, of the major components of the sewing machine, a situation that enabled the litigious nature of the early sewing machine market.

As the Sewing Machine Wars raged, manufacturers relied on two basic methods to raise capital and gain market share. They sold territory rights, which gave individuals and organizations the exclusive option to sell a given brand in a given region of the country. Selling territory rights offered manufacturers a low-risk, low-cost retail presence. The downside was that manufacturers ceded control over sales in a given region. In other countries, manufacturers tended to pay exorbitant fees to commission houses to represent their goods in these distant markets. The advantage of commission houses was their knowledge of local languages, markets, customs, and laws. The downside was that these agents often contracted with multiple manufacturers and had no loyalty to any particular manufacturer.⁸

Dissatisfied with these methods, Clark innovated. Beginning in 1852, he opened branch offices in Boston, New York, and Philadelphia, staffing the stores with knowledgeable company agents: a manager, a demonstrator, a salesman, and a mechanic. This marketing strategy was expensive. The nicely decorated retail stores occupied prime high-rent locations. The staff was paid weekly. In the short run, the retail stores ran at a deficit. Company profits were used to finance the high costs of operating the stores.

In 1855, Clark also tried to expand overseas without relying entirely on commission houses. After Singer won first prize at the World's Fair in Paris, France, Clark sold Singer's French patent to a Parisian businessman, who agreed to pay Singer 15% of all sales up to 4,700 machines and set up a factory. The

French businessman, however, used sales revenues to finance his own debts, never established the factory, and refused to account for funds. Singer had to buy back the French patent, and Clark vowed never again to sell a Singer patent.

Albany Agreement

Unable to make inroads into the European market, Clark turned his attention to the legal infighting snarling the U.S. market for commercial sewing machines. In 1856, the four companies holding patents to the sewing machine's 10 basic components — Singer, George and Baker, Wheeler and Wilson, and Howe — formed a patent pool (the first in history). The agreement, nicknamed “The Albany Agreement” for where it was signed, created a cartel that forced every other sewing machine manufacturer to pay the consortium a \$15 licensing fee for each machine it sold in the U.S. market.

The Albany Agreement set the stage for Singer's future growth. With licensing fees generating a steady income,⁹ Singer introduced its first sewing machine designed for home use at a price of \$100. To promote the machine, Clark crafted a novel marketing strategy that no competitor was willing to copy . . . at first. On the domestic front, Clark introduced the “hire-purchase plan” (the prototype of all installment buying plans¹⁰) for the majority of consumers who could not afford the full cost of the machine. For a small \$5 down payment and a monthly fee of \$3, many families could own a machine for the first time. Clark also marketed the sewing machine at churches, offering ministers' wives 50% discounts if they introduced the machines to church members. He also originated trade-in programs, by which Singer accepted competitor products in exchange for discounts on newer Singer machines. Singer quickly snared a majority share of the rapidly expanding consumer sewing machine market and expanded its retail network across the United States. Its New York office became company headquarters and centrally managed the company's budding office system, which coordinated everything from inventories to distribution to credit to accounting.

On the European front, Clark built a sales force dedicated to the Singer brand. For the first time, Singer successfully hired independent foreign agents who honored their “exclusive” contracts to sell only Singer sewing machines. Although Singer was not a technology leader, the company was able to capitalize on its increasingly visible brand by building a small army of independent businessmen with exclusive contracts in Europe, South America, and Canada.

The company's success made Singer's founding partners, Clark and I.M. Singer, wealthy men. I.M. Singer bought a lavish mansion on Fifth Avenue and traveled the streets of Manhattan aboard a 3,800-pound horse-drawn carriage that could (and did) transport 31 adults. However, I.M. Singer's wealth could not protect him from himself. In 1860, he divorced his first legal wife, Catherine Mary Haley,¹¹ and was arrested for choking his longtime mistress, Ms. Sponsler, after she publicly rebuked him upon seeing him with a different mistress out and about in Manhattan.¹² Publicly disgraced, I.M. Singer escaped to England with the sister of another of his mistresses. Clark was said to have remarked, “Curse them. . . . I'm making them all rich!”¹³

The animosity between I.M. Singer and Clark had little impact on company performance. In 1858, Singer unit sales were 3,000, but five years later, annual unit sales had reached 20,000.¹⁴ While I.M. Singer ridiculed Clark's ill-fitting wig and moralizing and Clark registered disgust with Singer's profligacy, the company had salaried representatives in London and Glasgow to manage its network of independent British agents at the start of the U.S. Civil War.

Civil War (1861–1865)

The Civil War cut off southern markets from northern manufacturers, depressed the dollar, and flattened Singer's sales. Many U.S. sewing machine manufacturers sought out European markets in response. However, Singer alone was able to use a preexisting system of independent agents to expand overseas. By the time the war ended, Clark and Singer had dissolved their partnership (1863), Singer's consumer sewing machine was in its third incarnation (its most popular make, The New Family, is depicted below), and exports represented a significant portion of overall revenues. However, directly after the war, U.S. demand for sewing machines, especially among housewives, soared and the dollar appreciated. Most manufacturers, priced out of European markets, focused their sales efforts almost entirely on the booming U.S. market. The U.S. market for sewing machines grew more than 12-fold between 1866 and 1872: from 62,092 to 770,037 unit sales.¹⁵ Singer became the only American manufacturer to hold its place in the European markets. In fact, Singer's European operations, particularly in Britain, would drive sales growth in the coming years.

Figure A The New Family Sewing Machine from Singer



Source: <<http://www.singershop.com/history/2.html>>, accessed June 6, 2003.

The British Market

In the 1860s, Britain appeared to possess an attractive climate for foreign investment. It had the highest per capita income in Europe. It was the political center of a global empire that included South Asia, Australia, the West Indies, Canada, and parts of Africa. It had low tariffs and no restrictions on foreign ownership of British assets. Its legal system was highly developed and its political apparatus firmly established. Its manufacturing sector included a skilled but relatively low-wage labor force (about half the wages of skilled American workers), and its shipping facilities, especially in Scotland, were among the best in the world.

However, many foreign investors who tried to develop manufacturing facilities in the United Kingdom failed. For instance, successful U.S. gun manufacturer Samuel Colt tried to establish a cutting-edge pistol factory in the United Kingdom to fend off British and European imitators,¹⁶ but British demand fell short of expectations, and British workers resisted the company's approach to manufacturing.¹⁷ Several factors created other barriers to successful foreign investment. At the time, automation of production processes led to higher unemployment levels, which fomented anti-automation protests and union opposition. In 1859, for example, one European labor union tried to prevent sewing machines from use in shoe manufacturing.¹⁸ In addition, the U.K. courts placed many patents for American products in the public domain, opening markets to new competitors. British imitators flocked to the sewing machine market, taking advantage of court rulings that effectively voided (U.S.) patent protections for two essential components of the sewing machine — the eye-pointed needle and the shuttle.¹⁹

For Singer, the British market posed specific problems beyond those facing its European competitors. High freight charges, a function of importing Singer's heavy cast-iron sewing machine stands, and lower prices in the British market (Singer's British prices were 50% below its U.S. prices) limited profitability. By 1864, Clark was impatiently declaring, "At this period, the extension of foreign trade is extremely important."²⁰ However, Singer's British operations were off to a slow start.

Singer in Britain (1864–1885)

In 1864, Singer transferred 31-year-old George Woodruff, who had been in charge of the Boston sales office, to revamp the floundering British operations.²¹ To circumvent the freight charges, Woodruff contracted with local foundries to build the weighty stands. Woodruff weeded out lazy agents and offered those who remained a uniform discount of 25% on all machines, with greater discounts for volume sales. Refusing to compete on price — competitors were selling machines near Singer's wholesale prices — Woodruff offered free sewing machine lessons, free sewing machine instruction manuals, and illustrated catalogues describing the company's line of family and commercial sewing machines. Singer's market position improved, albeit only at the margins.

In the years immediately following the Civil War, domestic U.S. demand soared, the dollar appreciated, and Singer could not export enough sewing machines to meet European demand.²² If and when the machines did arrive, they suffered from poor workmanship. Woodruff complained to New York headquarters about the "exceedingly bad workmanship in all the machines;" even the shipping crates were poorly constructed, "made of wet green lumber."²³ Woodruff was so concerned he went unbidden to New York to plead his case for adequate inventory. He had little choice. Customers were canceling orders, and competitors were stealing away his agents.²⁴ In 1867, Singer's British sales organization lost \$48,000.²⁵

Building the Largest Sewing Machine Factory in the U.K., U.S., and Europe

In 1867, Singer made two significant moves to remedy its supply problems. First, Singer established its first overseas factory, in Bridgeton, Scotland (in Glasgow's East End). Clark chose Glasgow for its renowned shipping facilities and its "cheap and docile labor force."²⁶ Initially, the Bridgeton factory was intended to bolster flagging U.K. sales, but it soon became an export platform to the rest of Europe and, according to one observer, "the largest [factory] in the United Kingdom."²⁷ Within two years, Singer doubled Bridgeton's capacity to meet growing demand rather than to gain economies of scale; that is, the enlarged facility assembled more sewing machines but not more efficiently. Even so, churning out almost 2,000 machines a week was not enough to meet demand in both the U.K. and the European market.

Singer's second significant move was to construct the largest sewing machine factory in the United States, with production capacity of 1,000 units a day, in Elizabethport, New Jersey. The Elizabethport facility became operational in 1873, just as the financial panic of that year resulted in a major economic downturn in the United States. The U.S. market for sewing machines tumbled to 409,158 unit sales in 1874, and was still only 570,000 in 1879.²⁸ However Elizabethport was able to supply Woodruff with a steady stream of well-made supplies.

In 1875, I.M. Singer died in Torquay, England, a small resort town in Devon. Dignitaries from around the world came to pay tribute at his funeral. His estate, worth upwards of \$14 million, was divided evenly among his many offspring and mistresses. Ms. Sponsler, however, received nothing. Within the year, Clark had assumed the formal title of president and urged the company to look for a

way to recoup the losses that came from selling machines through installment plans. Clark told the senior staff, "A large proportion of what we sell we don't get paid for and never will."²⁹

Woodruff developed a marketing initiative for the U.K. market that helped salvage the installment plan strategy. Woodruff's initiative would improve unit sales in the United Kingdom from 30,000 in 1875 to 60,000 in 1880 (see **Exhibit 2a** for unit sales in selected foreign markets and **Exhibit 2b** for revenue growth in selected regions). In fact, Woodruff's initiative created so much demand all over Europe that Singer was forced to build a second plant in the United Kingdom. When this factory, located in Kilbowie, Scotland, opened in 1883 (a year after Clark's death), it immediately became the largest sewing machine factory in Europe, capable of producing 10,000 machines a week.³⁰

What did Woodruff do that had such an impact on demand for Singer sewing machines in the United Kingdom and eventually the rest of the world?

Pioneering the Modern Sales Organization

In the mid-1870s, Woodruff introduced the concept of door-to-door salesmen, or canvassers and collectors. These well-dressed and carefully trained agents went from home to home demonstrating sewing machines and selling installment plans, providing after-sales service, and collecting payments.³¹ Woodruff separated the canvasser/collector roles in the most populous urban centers in an effort to minimize opportunistic behavior. Woodruff called the canvassers and collectors "the backbone" of Singer's branch office system. Clark agreed and ordered all branch offices to standardize its practice.³²

Canvassers were paid a fixed salary plus a 15% commission on the money received from initial sales and a 10% commission on money collected on installment payments. This was the first time fixed salaries were combined with variable pay on a wide scale. Canvassers were assigned to specific routes in given districts of a branch office's territory. Successful canvassers were transferred to districts with higher sales and collection rates. The incentive pay was intended to motivate canvassers to work harder for assignment to the better districts. Each day, canvassers were given a lease card for each customer on their given route. Canvassers noted customer payments and whether the machine was serviced on the card. At the end of the day, the canvasser would turn in the lease card and payments received. Canvassers were urged to solicit business on their routes and received additional compensation for extra business.

Woodruff also successfully developed a fidelity fund, to which managers and sales personnel contributed one pound as "a special assurance against dishonesty and embezzlement" by the sales force.³³ The contributions were refundable, depending on embezzlement levels. By 1873, embezzlement levels had dropped so much that the London office considered eliminating the fidelity fund. This practice was adopted at Singer offices around the world. Woodruff's third innovation was the guarantee fund, which required that every canvasser produce his own fund of £50. This sum was created from small weekly payments withheld from a canvasser's commissions. When the full amount had been collected it was invested and the employee received the interest. Woodruff believed that the interest would encourage employees to identify coworkers who were "going wrong."³⁴ Woodruff believed that staff discipline required having "perfect knowledge of their work, and the power to direct them."³⁵

Singer's Branch Office System

By the mid-1880s, Singer had branch offices in nearly all of the industrialized and many of the developing countries. Expansion of the branch office system across the globe followed a single basic

pattern. First, branch offices were opened in a country's largest cities on prominent streets. In these cities, dedicated agents were hired to sell door-to-door, and exclusive agents such as Bassett & Co. were relied upon to develop nearby secondary markets.³⁶ When demand in the secondary markets reached sufficiently high levels, branch offices were opened. Through this method, Singer agents became "a familiar sight in towns, in cities, and in the country with their horse and wagon loaded with a few sample sewing machines."³⁷ This sales organization was expensive and risky. When relying on independent agents, Singer lost potential sales only if the agents ran short. But a disciplined, company-employed sales organization generated expenses of 25% to 40% of retail prices, whether or not machines were available for sale.

The branch office hierarchy

Clark created a centralized, hierarchical management bureaucracy under central management in New York (see **Exhibit 3** for an organization chart). Below that were three controlling offices: New York supervised the North American organization, and the London and Hamburg offices supervised operations in all other parts of Europe and the East.³⁸

Canvassers and collectors turned their sales reports, sales proceeds, and collections into the district office daily. The office manager compiled a weekly statement of sales and collections then calculated the rate of collection per sale, the average amount of each collection, expenses as a percentage of the value of sales, and other relevant performance indices. He sent these reports and the accumulated monies, net of local expenses, to the central office. Its manager checked the separate district office reports for indications of substandard performance and summarized the weekly reports of sales, collections, and expenses to generate the various indices of performance for the entire central area. Each month these accounts were forwarded to the appropriate controlling office, which repeated the process of evaluating performance and preparing summary accounts. These reports then went to New York.

Regional central offices were divided by function. Each regional office had a chief clerk, bookkeeper, lease account clerk, bills receivable clerk, shipping clerk, machinist, collector, and traveler. Each central office managed several territories or districts, each with branch offices staffed with a manager, bookkeeper, mechanic, salesman, and instructor. The manager was in charge of all field sales personnel and made frequent inspection trips to monitor the work of canvassers and collectors, sending regular reports to the regional central office, which would in turn send someone to each branch office to inspect the accounts and procedures and to acquaint himself with the work quality.³⁹

"Commercial Safety Valve"

By the early 1880s, management was beginning to worry about commercial stagnation in a maturing European market in which new retailers, especially hardware merchants, were narrowing margins and reducing demand for post-sales services, such as sewing lessons. When customers needed lessons or service, they could turn to independent shops that specialized in lessons and service. A worldwide recession exacerbated these concerns. In 1884–1885, Kilbowie shipments were down. In 1885, Elizabethport shipments dropped nearly 25% from 1884 levels. In 1887, Britain began to tax profits of foreign companies operating in Britain. All profits passing through Singer's London office, not just those earned on business within the United Kingdom, were subject to these tariffs.⁴⁰ Singer started to look for a "commercial safety valve," a new market to maintain growth and absorb the full production of its factories. Singer's highly westernized company looked east for its next stage of growth.

The Russian Market

Singer first sought a foothold in eastern markets in the 1860s, but its initial strategy — to pursue Asian markets — was unsuccessful. Russia was not Singer's first choice for several reasons. Its per capita income was so low that Singer would have to sell virtually all of its machines via installment plans. Unlike that of the United Kingdom and other European countries, Russia's populace was spread across vast rural distances making supply, oversight, and marketing difficult. Russia's labor force did not present a ready supply of skilled machinists or demonstrators, who were the core of Singer's service. Russia had yet to join the industrial revolution. Its capital markets, legal system, and credit institutions were underdeveloped. And its political and social structures were unlike any other in Western Europe.

Singer in Russia

Singer gained a sales presence in Russia in 1859,⁴¹ becoming the first American sewing machine, and perhaps the first functional sewing machine, ever seen in Russia. In the early 1860s, Singer developed a nominal retail presence after signing a nonexclusive contract with an independent agent to represent the company's product line. By the end of 1867, Singer's main competitors had arrived, but their representatives were selling a variety of consumer products. A few firms sold only sewing machines, but these tended to be local shops in large cities. Sales growth was slow during the 1860s and 1870s, as Singer's main resources were tied up in supplying other markets. Singer's Russian agent had no access to Singer personnel to demonstrate or conduct after-sales service. Lacking such retail basics, the agent promoted the Singer brand through independent retailers and entered Singer machines in exhibitions, where they earned prizes and a solid reputation.

Throughout this period, Russia experienced political and economic upheaval. In 1861, Russia emancipated its serfs, who soon controlled the agriculture sector, the most important part of Russia's underdeveloped economy. During the early 1870s, a succession of poor crops triggered an economic recession that worsened during the worldwide depression of 1873–1879. Although the sewing machine market contracted within this period, Singer was able to expand its share as many of its competitors began to lose their enthusiasm for the Russian market, limiting deliveries to retailers and tightening terms with their agents. Advertisements for other sewing machines dwindled as retailers focused on promoting only Singer machines.

Singer inched closer to changing its view of the Russian market. Its evident success in Russia prompted Singer's Germany manager, George Neidlinger, to take over direct control of Russian sales. Neidlinger, who was responsible for all sales in southern Europe, Turkey, and Russia, had started with the company as a water boy in one of Singer's first U.S. factories.

Managing from his Germany office, Neidlinger coordinated the opening of branch offices in Russia's major cities, including St. Petersburg and Moscow. Despite growth in the Russian market, senior management was not yet ready to make a large commitment. Perhaps the 1881 assassination of Alexander II, which precipitated pogroms against Russian Jewry, produced doubts about the political stability of the country. When worldwide sales began to flag in the mid-1880s, senior management invested optimistically but unsuccessfully in the Chinese market. Singer closed its Shanghai office in 1888. At the same time, Singer was the only brand name to appear regularly in Russian newspaper advertisements for sewing machines.

In 1891, a devastating famine claimed the lives of 500,000 Russians,⁴² spurred additional pogroms, and crushed the economy. In response to the famine, Russia pursued an aggressive and costly modernization program, which tripled production of coal, iron, steel, and oil, and doubled the size of

its railroad system, creating the second-largest rail system in the world (next to that of the United States). Although the industrialization effort created abysmal living and working conditions and high personal and corporate taxes, it also stimulated an economic recovery. Singer's Russian sales grew, but the company lost share as competitors swarmed the sewing machine market and exposed a major weakness in Singer's management of its Russian operations.

Unlike many of its other regional operations, most of Singer's agents in Russia were not local; many were Austrians and Germans. All of the report forms were in German and had to be translated into Russian and then back again into German. According to Neidlinger, "Half of all employees [in the German office] were occupied with nothing else but the transcription of the German arrears lists and reports and with translating and correcting for Hamburg the answers received from the subordinate branches."⁴³ The sheer scale of Singer's Russian operations made this type of arrangement untenable over the long run. One observer said:

The requirement to conduct business in two languages from central office level up created staff and space bottlenecks. Singer could neither hire sufficient numbers of qualified clerks nor find more than a few suitably large locations to house its central offices with their staffs. Neidlinger's control also meant that this Hamburg office transmitted all machine and parts orders to Kilbowie and Elizabethport; it kept the arrears list and monthly sales and collections reports; it even made decisions on such local matters as repossessions. But because of its distance from Russia, such decisions were never made as quickly as they should have been.⁴⁴

Committing to Russia

In the mid-1890s, Russia began increasing its already high tariffs to finance its industrialization. At the time, Singer was already paying import duties on its heavy stands equal to the entire cost of manufacturing the stands.⁴⁵ The post-famine economic reforms brought new and more onerous taxes that specifically targeted foreign investments in the country. First came a commercial licensing tariff, which required Singer to buy a separate license for every office, depot, and individual salesman. Russian companies also had to pay licensing fees, with the least expensive license being for the sale of Russian goods.⁴⁶ In 1898, another round of tariffs imposed a progressive tax on corporate profits. Instead of a flat profit tax rate of 5%, the new law based the tax rate on profit as a percent of nominal capital. Companies with profits less than 3% of nominal capital paid no tax. Companies with profits between 3% and 10% of nominal capital paid rates from 3% to 6%. On any profit over 10%, a 5% surcharge was levied. In response, Singer incorporated a Russian subsidiary, *Kompaniya Singer*, so it could obtain the least expensive commercial licenses for its offices and salesmen. To minimize the impact of the taxes on corporate profits, Singer tripled its nominal capital to 20 million rubles (about \$10 million).

In the mid-to-late 1890s, as the Russian industrial revolution moved into high gear and the rest of the world began recovering from a global recession, Singer's top management recognized that the Russian market could drive growth in the years to come. In Russia alone, Singer sales had grown 35% between 1895 and 1898. The Kilbowie factory was running near full capacity, and shipping machines from Elizabethport was costly. The Russian market became the obvious road away from commercial stagnation.

Yet it was just as obvious that significant hurdles stood in the way. First, Singer would have to build and maintain a large new factory, similar in size to its plants in Kilbowie and Elizabethport, without benefit of the skilled labor force that existed in Glasgow and New Jersey, respectively. Second, the canvasser/collector system that had worked so well in densely populated areas, such as Britain, might

not be as effective in the Russian market, as customer populations and collection rates would not support dual personnel. Merging the two positions would be risky, placing a great deal of money into “many unsupervised hands.”⁴⁷

It was skillful management by two supervisors, however, that guided Singer past these formidable challenges and transformed Singer’s Russian operations into the company’s most successful national organization.

Singer’s Sales Organization in Russia

As Neidlinger neared retirement he appointed Alfred Flohr, who had more than 20 years experience in Singer’s Russian sales operations, to manage sales for Singer’s Russian subsidiary. An “energetic, creative, and tough administrator,” Flohr developed “the most impressive record for growth of any national Singer organization.”⁴⁸ Flohr started with 13 central offices and 400 retail stores. Within 12 years, the Flohr-led Singer operation had become Russia’s largest commercial enterprise with 27,000 staff, 50 centrals, and thousands of stores. (See **Exhibit 4** for organization chart of Singer’s Russian sales organization in 1914.)

Administrative discipline and access to company resources were both keys to Flohr’s success. Flohr abandoned Singer’s traditional division between canvassers and collectors and combined the two jobs into one. Flohr carefully monitored these agents through the use of “hire books.” Each customer received a coupon book when he purchased a machine. Whenever an agent received a payment, he stuck the appropriate number of coupons in the hire book and canceled them with a numbered stamp and his own signature. The coupons served as receipts for customers and a check on the agent, who had to account for all his coupons when submitting collections and his weekly report.⁴⁹

Flohr created incentives that both motivated and controlled his sales team. The cost of becoming a Singer sales representative in Russia was steep. Joining Singer required a 300 ruble deposit, more than four times the average per capita annual income in Russia. If an agent was unable to afford this price, he (or she, but likely not) paid off the deposit through the agent’s sales commissions. Even after the deposit was paid off, the company withheld 20% of every sales commission until the account was closed.

Flohr’s incentives also ensured that agents focused on collections rather than sales. In Russia, unlike in the United Kingdom, collection commissions were higher than sales commissions because Russian buyers paid so few rubles at the point of sale — most customers found the 10 ruble down payment as well as the 1 ruble weekly installment onerous, if not impossible to meet. Flohr, therefore, focused agents on their collection commissions. Agents were allowed to make sales anywhere but could collect only in their assigned districts and were limited to 100 accounts. New accounts could be added only after old accounts were closed. Flohr was well aware that limiting agents to 100 accounts would limit their income. For Flohr that was precisely the point; he did not want his men becoming “accustomed to a too large number of customers and in consequence thereof to a large income.”⁵⁰ Limiting accounts also made his sales personnel more sensitive to the people to whom they were selling:

The salesmen/collectors knew at the time that they made the sale that they would be obliged to collect periodic payments from the customers they selected if they were to receive their own commissions. Hence, not only did they sell to customers whose credit standing they considered satisfactory, but they had high incentive to insure collection of the accounts or, if all else failed, to repossess the sewing machine.⁵¹

Repossession was a last resort, and Singer took measures to provide its customers with gentle treatment. Flohr eliminated the traditional Singer categories of good and bad accounts, in an effort to motivate agents to salvage all accounts and minimize paperwork associated with closing accounts. He extended credit periods from two to four years. He also invented (or permitted) barter installment payments. In the often cash-strapped Siberian economy, it was not uncommon for agents to accept animal pelts, fish, or cattle as payment. In one instance, a Siberian agent collected (and then sold at market) 14 head of cattle. Flohr also eliminated contracts with agents to avoid paying stamp and income taxes. Terminating agent contracts allowed Flohr to adapt the guarantee fund to local conditions: "A smaller part of the selling commission was paid to the agent immediately, but the larger part was kept by the company until the customer had completed payment. This was not a formal reserve. When a man left Singer's employment, all accounts with him were settled at once."⁵² These changes eliminated controversy over what was owed to departing employees and made it easier to take legal action against corrupt agents.

Flohr overcame several other staffing issues. The most basic and unrelenting problem was a lack of local talent. Flohr relied on foreign nationals, mostly Germans and Austrians. Of the 50 central offices, only one Russian ever succeeded as a primary manager. Flohr's dependence on foreign nationals was unprecedented within the Singer branch office system. Flohr also hired Jews to run operations in Kiev, Odessa, and Kozlo, a policy that brought harassment from local authorities, especially in Odessa. Strikes in many of the largest cities, most notably Warsaw and St. Petersburg, presented another problem. Flohr's final problem was of his own making. Flohr grew the sales business so fast that it created intolerable production pressures. In 1905, workers at Singer's Russian factory went on strike.

Managing the Podolsk Factory (or Creating the Best Factory in Europe)

Before Neidlinger retired, he hired Englishman Walter F. Dixon to build and manage Singer's new Russian factory. Dixon had recently finished designing and supervising the construction of a locomotive factory in Russia and was familiar with managing a Russian factory, training Russian workers, and dealing with the Russian industrial environment. In 1897, Neidlinger managed the purchase of a large plot of land in Podolsk, 26 miles south of Moscow along the Moscow-Kursk railroad. Three years later, Singer completed the facility without benefit of any special relationship with Russia's political establishment.

When the Podolsk factory opened, Dixon had to address several challenges. Russian workers had no experience working in modern production facilities. Those with factory experience were also accustomed to a shortened labor year. Russia was plagued by "holiday evil," which reduced the working year to 233 days, or only 19 days a month. When at work, the Russian workers were noted for lacking "energy and snap" and "pride in their product." Unable to pay for experienced foreign workers, Dixon relied on automated machinery and hired unskilled, inexperienced men and boys and trained them to do one specific job well. European and American workmen were brought in to teach the new recruits.⁵³ Dixon also used more foremen and assistant foremen than were used with American workers to watch over his inexperienced workers.

Dixon's approach to developing his factory's workforce meant that production grew slowly, even though Singer paid on average 75% more than other Russian manufacturers and its factory work calendar (10-hour workday, 58.5-hour workweeks, and 288-day work year) was comparable with those of other Singer factories. Dixon's success in creating an efficient production system was recognized by outside observers: "The Russian plant is [...] unexcelled in Europe in point of equipment and shop efficiency. This statement is made advisedly and after having inspected several hundred of the best European shops."⁵⁴

Coordinating Demand with Supply

However, inside the company, Flohr repeatedly challenged Dixon to expand production beyond expectations. Flohr's ambitious sales agenda, which pushed sales of newer machines Podolsk was not built to produce, created inventory shortfalls. One observer noted that Podolsk "never supplied more than three-quarters of the needs of the Russian sales organization and often seemed one step behind the sales organization in changing its product mix."⁵⁵ When Podolsk workers went on strike, the factory was behind in orders by 100,000 units, even though monthly shipments were four times greater than expected.

Dixon warned Flohr about opening more stores without enough machines "to make enough sales to justify their existence."⁵⁶ Flohr in turn was openly critical of Podolsk and other Singer factories, complaining to headquarters about the quality and volume of Podolsk's production and warning the Kilbowie manager to remember such basics as the distinction between shipping and selling seasons. Tensions between Singer's Russian sales and manufacturing divisions became so severe that the company president had to intervene on Dixon's side, telling Flohr, "It would be better to limit the sales [...] to a comparatively small percentage of advance."⁵⁷

For Flohr, growing sales in advance of inventory created greater access to company funds, which were allocated based on sales history and related projections. The strategy had two obvious disadvantages. First, outracing Podolsk's capacity increased Flohr's dependence on other Singer factories, which put Singer's Russian operation in direct competition with other Singer national sales organizations for supplies. This was especially risky given the remarkable and ongoing worldwide rise in real wages, which was placing extra income into the hands of other potential Singer customers. Second, talent was necessary to support high levels of sales growth, both in the field and in management, talent that was noticeably scarce in Russia.

Despite these internal problems, 1905 was a spectacular year for Singer in Russia. Singer's success was particularly surprising given that, in the same year, Russia suffered a humiliating defeat in the Russo-Japanese War (1904–1905), the Russian Revolution began, and Russia's central bank sharply reduced its credit and liquidity.⁵⁸ Singer flourished in part because it was able to draw on the company's cash reserves, a legacy of Clark's conservative monetary policy, which was to invest profits in low-risk, interest-bearing securities. As competitors withered and Singer purchased its chief competitor, Wheeler and Wilson, Singer's expansion in Russia drove much of the company's overall growth. In 1913, the company achieved global sales of 2.5 million machines, a virtual monopoly in one of the most significant commercial markets of the early twentieth century.

Conclusion

Although I.M. Singer invented the first Singer sewing machines, Edward Clark was the person most responsible for making Singer Sewing Machine Company into a global success. Clark's legacy consisted of numerous business innovations and effective practices, including, but not limited to installment buying, product upgrades or trade-ins, standardizing best practices, developing a responsive and resourceful corporate chain of command, creating fully equipped and autonomous local dealerships, cultivating dedicated company personnel, and building cash reserves to ride out economic downturns, stave off robber barons, and finance expansions or diversification projects. For example, the company financed the entire \$4 million cost of the original Elizabethport facility.

For Clark, Singer's success was personally rewarding. When he died in 1882, Clark left an estate worth \$40 million. However, the promise of the sewing machine as the Great Civilizer was upheld

unevenly across the globe. Although Singer machines expanded labor markets wherever they were sold, in many industrialized and developing countries the sewing machine gave rise to sweatshops, in which some families found financial reward but many others experienced dismal returns.

Nonetheless, Singer was an exemplary corporate citizen that looked to hire local talent and indisputably enhanced the lives of millions of people in both developed and developing countries. By 1914, one out of every four households in the world owned a Singer machine. However, the onset of World War I threatened the survival of the entire Singer Company — stretched, as it was, across the entire world. Would Singer's global financial commitments, which had lifted the company to new heights, become its downfall in war?

Exhibit 1 Timeline

Date	Event
1850	I.M. Singer invents first practical sewing machine.
1851	I.M. Singer partners with Edward Clark to form "I.M. Singer & Company."
1853	Corporate offices and manufacturing facility established in New York City. Company renamed "Singer Manufacturing Company." First Singer machines sell for \$100.
1855	Singer opens branch office in Paris, France.
1856	Signs Albany Agreement—first patent pool. Introduces first sewing machine for family use. Introduces hire-purchase or installment plan purchasing. Opens branch office in Glasgow, Scotland.
1857	Singer obtains 12 new patents for sewing machine components.
1858	Singer's unit sales hit 3,000.
1860	I.M. Singer divorces first wife on grounds that she committed adultery; arrested on domestic violence charges; flees to Europe with sister of another mistress.
1861	Start of U.S. Civil War. Foreign sales pass U.S. sales for first time. In Russia, emancipation of serfs.
1863	Singer's sale of home sewing machine reach 20,000 units; branch office opens in Hamburg, Germany.
1865–1866	"New Family" sewing machine introduced.
1867	Bridgeton, Scotland factory opens in Glasgow.
1875	I.M. Singer dies in United Kingdom; leaves estate worth \$14 million; huge funeral in Torquay, England. Large factory opens in Elizabethport, New Jersey.
1876	Clark becomes president of Singer.
1877	Albany Agreement expires—last patent forming basis of agreement expires. Singer cuts U.S. retail price of New Family machine in half, to \$30.
1879	Wheeler and Wilson Manufacturing Company withdraw from Britain
1880	Singer's global unit sales exceed 500,000.
1881	Russian pogroms against Jews.
1882	Edward Clark dies in Cooperstown, New York. Leaves estate valued at \$40 million. Singer introduces very popular "High Arm" family machine.
1882–1883	Factories open in Montreal, Canada; Floridsdorf, Austria; and Kilbowie, Scotland.
1885	Installment sales reach 85% of overall sales; 25% of installment sales go to insolvent buyers. Singer repossesses 20% of units sold through installment plans.
1889	Singer introduces the first practical electric sewing machine.
1891	Russian famine kills 500,000. More pogroms against Jews.
1902	Podolsk factory opens near Moscow, Russia.
1904–1905	Russo-Japanese War, Bloody Sunday, Russian Revolution begins.
1905	Singer acquires Wheeler and Wilson Manufacturing Company, main competitor.
1908	Singer Building opens in Manhattan, New York, at the time the world's tallest building.
1913	Singer sets all-time record for annual sales—2.5 million sewing machines.

Source: Adapted from Andrew Godley, "Selling the Sewing Machine around the World: Singer's International Marketing strategies: 1851–1914," University of Reading, working paper; Andrew Godley, "The Global Diffusion of the Sewing Machine, 1850–1914," *Research in Economic History*, volume 20, 2001; Robert Bruce Davies, *Peacefully Working to Conquer the World: Singer Sewing Machines in Foreign Markets, 1854–1920* (New York: Arno Press, 1976); Don Bissell, *The First Conglomerate: 145 Years of the Singer Sewing Machine Company* (Brunswick, ME: Audenreed Press, 1999); Fred Carstensen, *American Enterprise in Foreign Markets: Studies of Singer and International Harvester in Imperial Russia* (Chapel Hill, NC and London: University of North Carolina Press, 1984). Also, <<http://www.singershop.com/history.html>>, accessed August 29, 2003.

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Globalizing Consumer Durables: Singer Sewing Machine before 1914

Exhibit 2a Singer Sewing Machine Sales in Selected Countries, 1875–1914 (unit sales per annum)

Year	UK	F	CH	US	ITA	RUS	SCA	AUS	IND	PHI
1875	30,300	11,000		410,631						
1876	35,800	12,000							20	
1877	41,300	15,000	500		3,000	6,800	900	2,000	30	
1878	46,800	15,000	500		5,000	12,500	1,200	3,000	70	
1879	52,300	17,500	1,000	570,000	7,000	18,800	1,500	4,000	130	
1880	62,252	22,500	2,102		7,500	22,300	1,800	4,550	250	
1884	91,411	25,695	3,087		12,920	36,200	8,900	17,801	1,607	674
1890	150,008	40,091	3,328		18,010	42,000	12,700	13,200	3,763	1,195
1895	143,334	52,595	5,271		22,755	68,788	17,700	13,420	7,670	1,380
1900	164,980	72,349	7,430		37,041	110,316	19,850	23,340	12,420	2,080
1905	142,659	93,528	8,373	395,811	51,894	310,881	29,799	26,066	18,075	1,612
1910	130,726	112,303	8,522	421,971	78,182	505,066	45,675	31,546	24,855	4,120
1913	142,026	126,320	7,832		110,665	675,174	47,815	29,458	44,819	27,266
1914	138,703	114,000	7,050		97,817	678,986	43,000	26,582	41,437	16,520

Source: Adapted from Andrew Godley 2000, Tables 2–4; Andrew Godley, “Global Diffusion of the Sewing Machine, 1850–1914,” *Research in Economic History*, pp. 1–45; Andrew Godley, “Selling the Sewing Machine Around the World: Singer’s International Marketing Strategies, 1850–1920,” Unpublished manuscript, 2004.

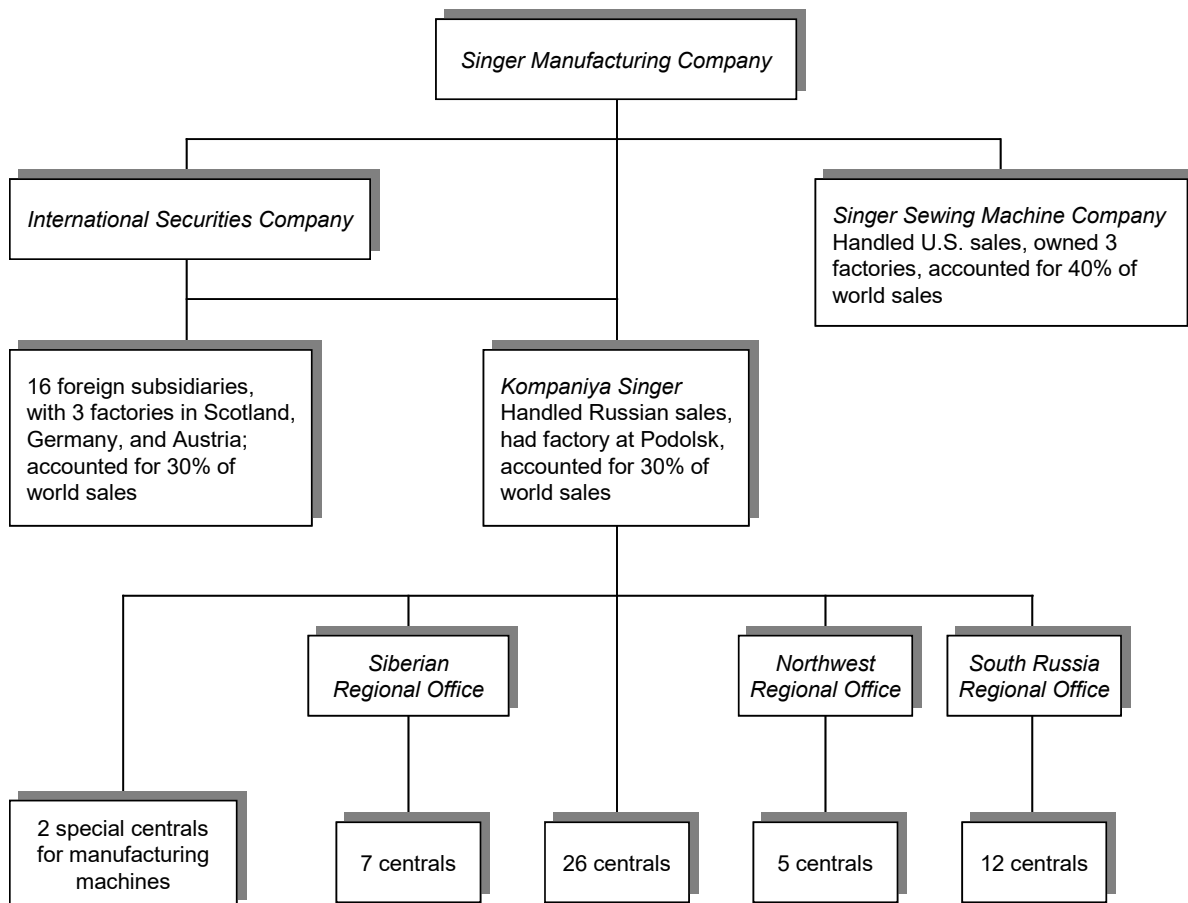
Note: UK=United Kingdom; F=France; CH=Switzerland; ITA=Italy; RUS=Russia; SCA=Scandinavia; AUS=Australia; IND=India; PHI=Philippines.

Exhibit 2b Singer's Global Sales Revenues (US\$) for Selected Years, 1880–1913

Year	UK	F	CH	ITA	RUS	SCA	AUS	IND	PHI
1880		804,670	52,473	249,653			140,877	7,494	
1884	2,848,558	934,797	90,216	448,704			688,584	44,435	22,769
1890	4,988,638	1,465,541	109,025	615,138				91,509	34,963
1895	5,680,653	1,971,697	174,021	700,268			738,234		
1900	7,025,854	2,851,933		1,210,619	4,203,127				
1905	5,318,562	3,718,423	322,138	1,766,085	11,646,870	926,838	1,673,047	526,499	44,099
1910	5,508,180	4,563,583	335,365	3,039,136	21,640,493	1,476,991	2,080,936	741,400	106,906
1913	5,980,637	5,088,064	323,735	4,129,276	31,360,709	1,615,128	2,034,897	1,469,057	1,259,581

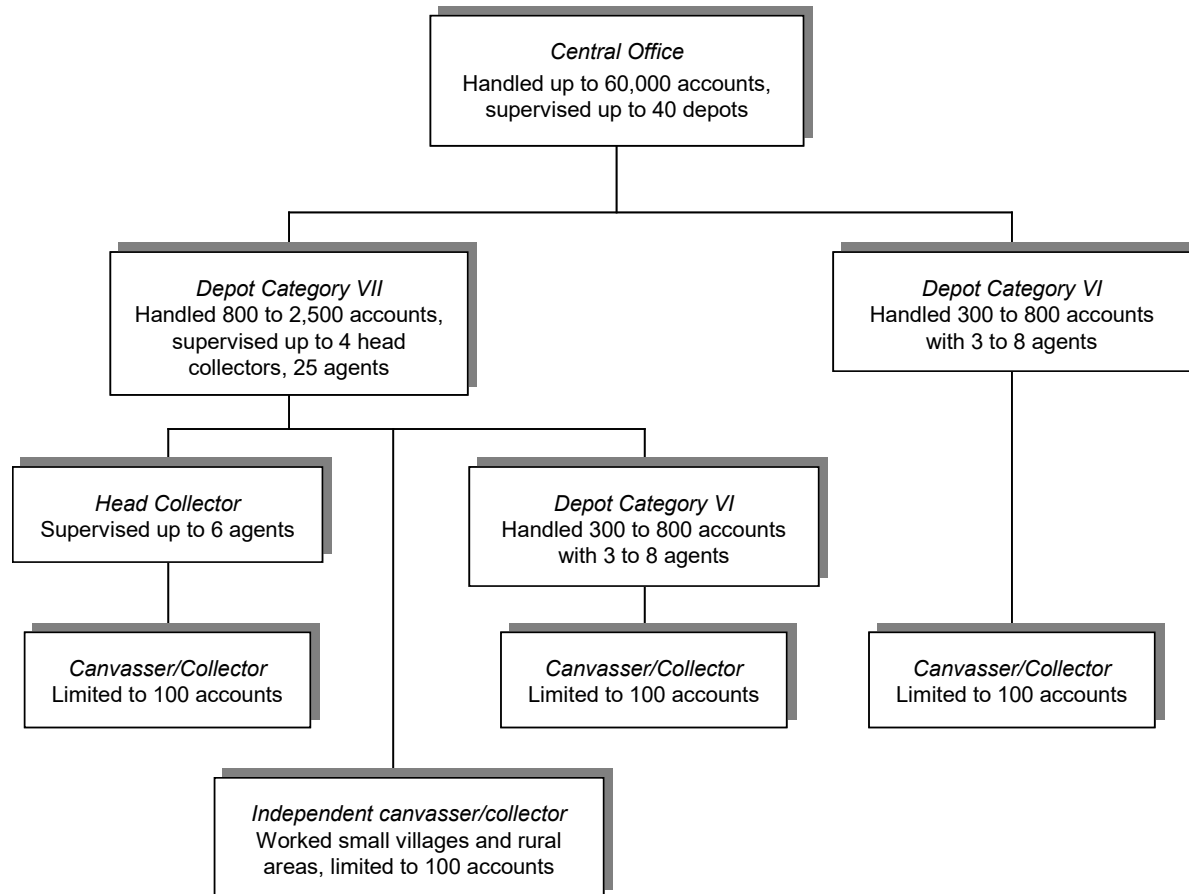
Source: Adapted from Godley 2000, Tables 2–4.

Note: UK=United Kingdom; F=France; CH=Switzerland; ITA=Italy; RUS=Russia; SCA=Scandinavia; AUS=Australia; IND=India; PHI=Philippines.

Exhibit 3 Singer's Corporate Structure, 1914^a

Source: *Poor's Manual of Industrials: 1913*, p. 836; Podolsk Summary of Correspondence, weekly summaries, SHSW: SA; vols. 118-120. Summary balance sheet, Singer subsidiaries, SCA, Box 3533, F: Russian Losses, Moscow, Final Report, January 1914, SCA, Box 3529, F: Russia, Advance Reports. Cited in Carstensen, p. 71.

^a Supervision did not follow the legal structure. It was organized functionally, with the Elizabethport factory supervising all manufacturing worldwide. Neidlinger's old Hamburg office retained a residual supervisory authority over European subsidiaries, but all sales organizations reported directly to the New York offices.

Exhibit 4 Singer's Russian Sales Organization

Source: Adapted from Fred Carstensen, *American Enterprise in Foreign Markets: Studies of Singer and International Harvester in Imperial Russia* (Chapel Hill, NC and London: University of North Carolina Press, 1984), p. 63.

Endnotes

¹ Sixty percent for the American family market. Andrew Godley, "Selling the Sewing Machine around the World: Singer's International Marketing Strategies: 1851–1914," University of Reading, working paper, <<http://www.rdg.ac.uk/Econ/Econ/workingpapers/emdp422.pdf>>, accessed August 28, 2003.

² Robert Bruce Davies, *Peacefully Working to Conquer the World: Singer Sewing Machines in Foreign Markets, 1854–1920* (New York: Arno Press, 1976), p. 4.

³ Don Bissell, *The First Conglomerate: 145 Years of the Singer Sewing Machine Company* (Brunswick, ME: Audenreed Press, 1999). Quote is from p. 36.

⁴ Bissell, p. 13.

⁵ Zeiber held the other one-third share. Zeiber was tricked into selling this share back to Singer when he was hospitalized for what he believed to be a terminal illness. During one visit, Singer fostered this belief and got Zeiber to agree to sell his share for \$6,000. A year later, the company reported capital assets in excess of \$500,000 (1853 dollars). Zeiber survived and was eventually offered a low-level position in the company. Zeiber remained bitter about the deathbed trickery until his actual death and never forgave Clark or Singer.

⁶ Singer's first machine sold for that price in 1853. Howe's legal victory led to concessions from other manufacturers to pay similar fees.

⁷ Bissell, p. 84.

⁸ Singer signed exclusivity agreements with some commission houses but later found that they were also selling competitor products. Bissell, p. 80.

⁹ From 1867 to 1874, for example, Singer earned nearly \$1.45 million from Albany Agreement-related arrangements (including fees, contracts, and side agreements). This represented a large sum, \$32 million in 2018 dollars.

¹⁰ Bissell, p. 76. In 1807, Cowperthwaite and Sons furniture store became the first store known to offer installment buying. Competitors in furniture retail soon followed Cowperthwaite's example. Singer, however, was the first to introduce the hire-purchase buying plans for a relatively low-cost home appliance.

¹¹ I.M. Singer settled with Ms. Haley for the relatively paltry sum of \$10,000. The divorce was predicated on Ms. Haley's acknowledging that she was an adulterer.

¹² Ms. Sponsler's reaction may have been further incited by I.M. Singer's refusal to marry her after his divorce from Ms. Haley.

¹³ Bissell, p. 95.

¹⁴ <<http://www.singershop.com/history.html>>, accessed August 28, 2003.

¹⁵ Andrew Godley, "The global diffusion of the sewing machine, 1850–1914," *Research in Economic History*, volume 20, 2001, p. 6.

¹⁶ Colt was widely recognized as the preeminent armament maker in the United States. Its English plant represented the cutting-edge manufacturing technologies, such as interchangeable parts, semiautomatic machine tools, accurate measuring devices, and specialized jigs and tooling.

¹⁷ Of the 158 documented foreign entries into British manufacturing prior to WW1, only 18 arrived before 1890. Pioneers were mostly American and German. (Machinery makers often needed to open branch plants to meet demand for customization. Illegal copying through reverse engineering also prompted foreign direct investment in machine manufacturing.) Andrew Godley, "Pioneering Foreign Direct Investment in British Manufacturing," *Business History Review*, 73 (1999): 394–429.

¹⁸ Bissell, p. 79.

¹⁹ Finally, trade with Britain was becoming more uncertain, as talk of war with the U.S. increased, especially after federal authorities commandeered the British ship *Trent*.

²⁰ Davies, p. 39.

²¹ Fred Carstensen, *American Enterprise in Foreign Markets: Studies of Singer and International Harvester in Imperial Russia* (Chapel Hill, NC and London: University of North Carolina Press, 1984), p. 17.

²² Carstensen, p. 24.

²³ Davies, p. 43.

²⁴ Ibid.

²⁵ By comparison, Singer's Hamburg office made a \$500 profit in 1867. Despite its uneven growth in Europe, Singer was already the largest manufacturer of sewing machines in the world by 1867.

²⁶ Davies, p. 45.

²⁷ Andrew Godley, "Pioneering Foreign Direct Investment in British Manufacturing," *Business History Review*, 73 (1999): 394–429. From p. 416.

²⁸ Godley, "The global diffusion," p. 6.

²⁹ Davies, p. 58. This is the first printed evidence of an attempt to gather best practices.

³⁰ Carstensen, pp. 24–25. Kilbowie's share of overall firm output peaked at 57% in 1907. Godley, *Business History Review*, p. 423.

³¹ Canvasser salaries were held low, while commissions on funds actually turned in were generous. During the 1870s the company required a customer to pay a down payment of \$5 on a plain family sewing machine, while one with a polished bentwood cover would require a \$34 down payment. Installment payments varied from \$3 to \$10 per month.

³² One notable exception was the highly successful sales force in Spain, where domiciles tended to be closed to traveling salesmen. The manager of Singer's Spain office adapted, renting small shops and hiring couples to operate them.

³³ Davies, p. 65.

³⁴ Davies, p. 66.

³⁵ Ibid.

³⁶ Carstensen, p. 23.

³⁷ Davies, p. 64.

³⁸ Carstensen, p. 21.

³⁹ This paragraph is adapted from Davies, pp. 59–60.

⁴⁰ Carstensen, p. 33.

⁴¹ Carstensen, p. 27.

⁴² <http://www.workmall.com/wfb2001/russia/russia_history_witte_and_accelerated_industrialization.html>, accessed September 5, 2003.

⁴³ Carstensen, pp. 52–53.

⁴⁴ Carstensen, p. 52.

⁴⁵ Carstensen, p. 37.

⁴⁶ Carstensen, p. 45.

⁴⁷ Carstensen, p. 56.

⁴⁸ Carstensen, p. 54.

⁴⁹ Carstensen, this paragraph adapted from pp. 56–57.

⁵⁰ Carstensen, pp. 58–60.

⁵¹ Cited in Carstensen, p. 58.

⁵² Carstensen, p. 65.

⁵³ Carstensen, p. 71.

⁵⁴ Carstensen, p. 75.

⁵⁵ Carstensen, p. 79.

⁵⁶ Cited in Carstensen, p. 86.

⁵⁷ Ibid.

⁵⁸ Carstensen, p. 55.