

THE EMERGENCE OF MANAGERIAL CAPITALISM

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INTRODUCTION

This case reviews the emergence of a new type of capitalism in the late 19th and early 20th centuries. What differentiated this new managerial capitalism from traditional personal capitalism was that basic decisions concerning the production and distribution of goods and services were made by teams, or hierarchies, of salaried managers who had little or no equity ownership in the enterprises they operated. Today the major sectors of market economies where the means of production are still privately, rather than state, owned, are operated through such managerial hierarchies. This has not always been the case.

Indeed such managerial hierarchies are entirely modern. As late as the 1840s, with very few exceptions owners managed and managers owned. There were salaried managers before the 19th century, primarily on plantations and estates, but they worked directly with owners. There were no hierarchies of managers comparable to that depicted on Figure 24.1. By the 1840s personally managed enterprises—those that carried out the processes of production and distribution in market economies—had become specialized, usually handling a single function and a single product. They operated a factory, mine, bank, or trading office. Where the volume of activity was not yet large enough to bring such specialization,

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This case was prepared by Alfred Chandler, Jr., as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

merchants often remained involved in manufacturing and banking as they had in the early years of capitalism. Some had partnerships in distant lands. But even the largest and most powerful of early capitalist enterprises were tiny by modern standards.

For example, the Medici Bank of the 15th century and that of the Fuggers in the 16th were far more powerful financial institutions in their day than any of today's giant non-state banks in America, Europe, and Japan are in ours. Yet the Medici Bank in 1470 operated only seven branches. The total number of individuals working in the branches and the home office in Florence was 57. Of these a dozen were considered managers. They, however, were not salaried employees. They were partners, albeit junior ones, who shared in the profits and who had "joint and unlimited liability" for losses.¹ Today's middling-size state banks have as many as 200 branches, 5,000 employees, 300 salaried managers (who have no liability at all); and such banks handle over a million transactions a day. That is, they process more transactions in a week than the Medici Bank processed in the century of its existence. Today, too, small industrial enterprises handle a far greater volume of transactions than did those giants of an earlier capitalism—the Hudson's Bay, the Royal African, or even the East India Company.

What made the difference was, of course, the technological revolution of modern times—an even more profound discontinuity in the history of civilized man than the urban revolution of the 11th to 13th centuries that created the first modern market economies and with them modern capitalism. The enormous increase in the volume of output and transactions was not so much the result of the First Industrial Revolution that began in Britain at the end of the 18th century; that is, it was not the result of the initial application of the new sources of energy—fossil fuel, coal—to the processes of production. It resulted much more from the coming of modern transportation and communication. The railroad, telegraph, steamship, and cable made possible modern mass production and distribution that were the hallmarks of the Second Industrial Revolution of the late 19th and early 20th centuries. These new high-volume technologies could not be

effectively exploited unless the massive flows of materials were guided through the process of both production and distribution by teams of salaried managers.

Thus the first such managerial hierarchies appeared during the 1850s and 1860s to coordinate the movements of trains and flow of goods over the new railroad networks and messages over the new telegraph system.² They, then, quickly came into use to manage the new mass retailing establishments—the department stores, mail order houses, and chains or multiple shops—whose existence the railroad and the telegraph made possible. For example, by 1905, such an organization permitted Sears, Roebuck in Chicago to fill 100,000 mail orders in a single day—more than the average earlier American merchant filled in a lifetime. These administrative hierarchies grew to still much greater size in industrial enterprises that, again on the basis of modern transportation and communication, integrated mass production and mass distribution within a single business enterprise.

One way to review the emergence of managerial capitalism is, then, to focus on the evolution of this largest and most complex of managerial institutions—the integrated industrial enterprise. These integrated enterprises have had much in common whether they were American, European, or Japanese. They appeared at almost exactly the same moment in history in the United States and Europe and a little later in Japan, only because Japan was later to industrialize. They clustered in much the same types of industries; and finally, they grew in much the same manner. In nearly all cases they became large, first, by integrating forward, that is, investing in marketing and distribution facilities and personnel, by moving backwards into purchasing and control of raw and semi-finished materials, then, though much less often, by investing in research and development. In this way they created the multifunctional organization that is depicted in Figure 24.1. They soon became multinational by investing abroad, first in marketing and then in production. Finally they continued to expand their activities by investing in product lines related to their existing businesses, thus creating the organization depicted in Figure 24.2.

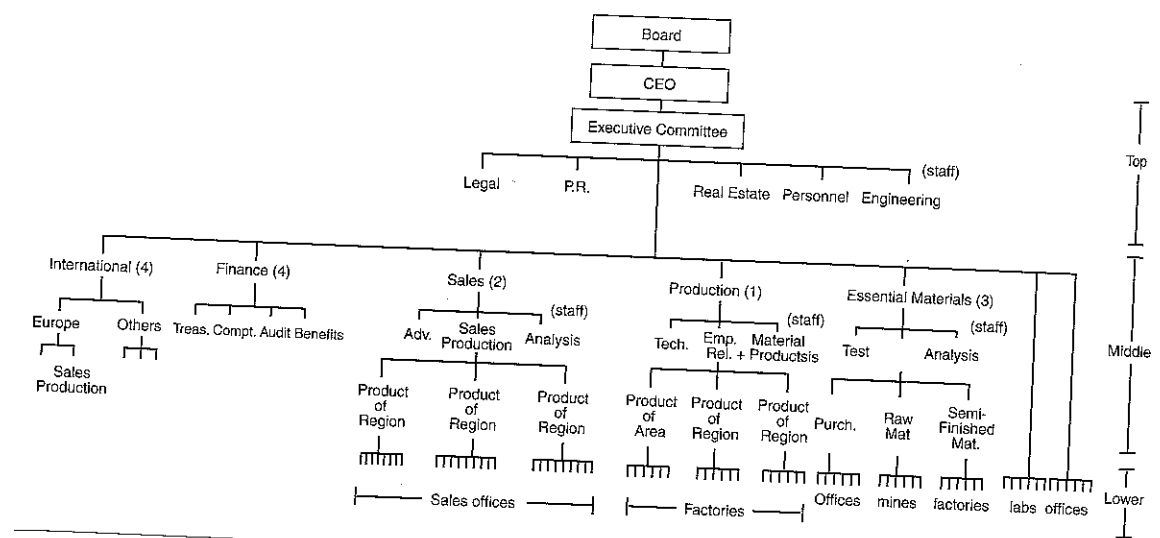


Figure 24.1. Multiunit, Multifunctional Enterprise

THE SIMILARITIES

Let us briefly examine these similarities in the location, timing, and processes of growth of this institution. The similarities in the location [...] are particularly striking. Table 24.1 indicates the location by country and by industries of all industrial corporations in the world which in 1973 employed more than 20,000 workers. (The industries are those defined as 2-digit industrial groups by the U.S. Census Standard Industrial Classification [SIC].) In 1973, 263 (65 percent) of the 401 companies were clustered in food, chemicals, oil, machinery, and primary metals. Just under 30 percent more were in 3-digit categories of other 2-digit groups—subcategories which had the same industrial characteristics as those in which the 65 percent clustered, such as cigarettes in tobacco; tires in rubber; newsprint in paper; plate glass in stone, glass, and clay; cans and razor blades in fabricated metals; and mass-produced cameras in instruments. Only 21 companies (5.2 percent) were in remaining 2-digit categories: apparel, lumber, furniture, leather, publishing and printing, instruments, and miscellaneous.

A second point that Table 24.1 makes—one that is central to an understanding of the evolution of this

institution—is the predominance of American firms among the world's largest industrial corporations. Of the total of 401 companies employing more than 20,000 persons, over a half (212 or 52.6 percent) were American. The United Kingdom followed with 50 (12.5 percent), Germany with 29 (7.29 percent), Japan with 28 and France with 24. Only in chemicals, metals, and electrical machinery were there as many as four or five more firms outside of the United States than there were within it.

Table 24.2 shows that large industrial corporations have clustered throughout the 20th century in the United States in the same industries in which they were concentrated in 1973. The pattern [...] is much the same for Britain, Germany, and Japan. Other data document what is indicated here, that the American firms were larger, as well as more numerous, than those in other countries. For example, in 1948, only 50 to 55 of the British firms had assets comparable to those of the top 200 in the United States. In 1930, the number was about the same. For Germany and Japan it was smaller. Well before World War II, the United States had many more and many larger managerial hierarchies than did other nations—underlining the fact that managerial capitalism first emerged in that nation.

[...]

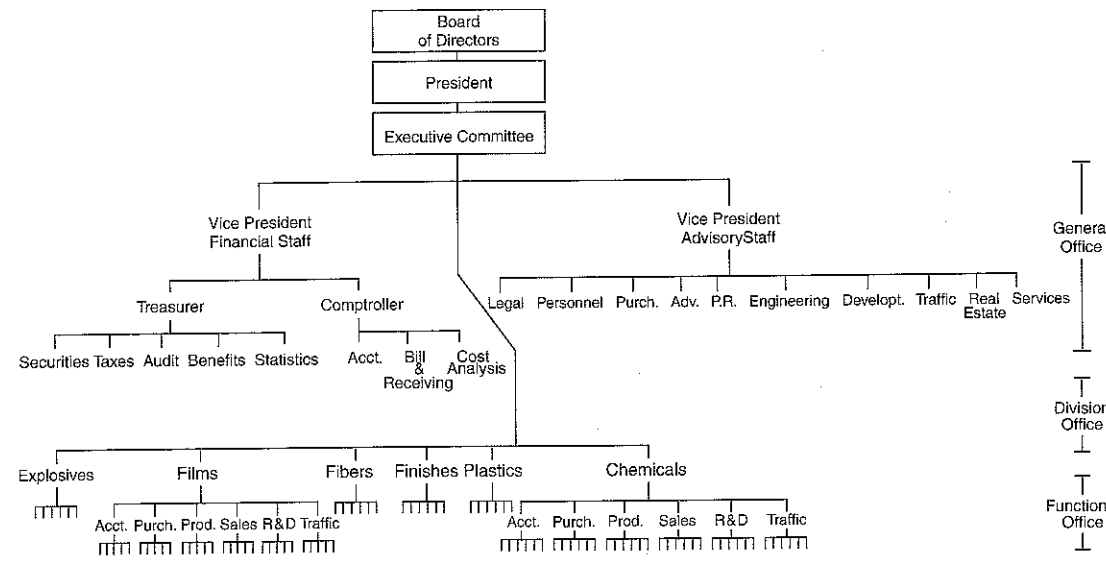


Figure 24.2. The Multidivisional Structure

EXPLANATION OF THE EVOLUTIONARY PROCESS

Why have these large integrated hierarchial enterprises appeared in some industries but rarely in others? And why did they appear at almost the same historical moment in the United States and Europe? Why did these industrial enterprises in advanced economies grow in the same manner, first, by integrating forward into volume distribution, then taking on other functions, and then becoming multinational and finally multiproduct?

Because these enterprises initially grew larger by integrating mass production with volume distribution, answers to these critical questions require a careful look at both these processes. Mass production is an attribute of specific technologies. In some industries the primary way to increase output was to add more workers and machines; in others it was by improving and rearranging the inputs, by improving the machinery, furnaces, stills and other equipment, by reorienting the process of production within the plant, by placing several intermediate processes of production required for a finished product within a

single works, and by increasing the application of energy (particularly fossil fuel energy). The first set of industries remained "labor intensive"; the second set became "capital intensive." In this second set of industries, the technology of production permitted much larger economies of scale than were possible in the first. That is, it permitted much greater reduction in cost per unit of output as volume increased. So in these capital-intensive industries with large batch or continuous process technologies, large works operating at minimum efficient scale (scale of operation that brought the lowest unit costs) had a much greater cost advantage over small works than was true with labor-intensive technologies. Conversely, cost per unit rose much more rapidly when volume of production fell below minimum efficient scale (of, say, 80 to 90 percent of rated capacity), than was true in labor-intensive industries.

What is of basic importance for an understanding of the coming of the modern managerial industrial enterprise is that the cost advantage of the larger plants cannot be fully realized unless a constant flow of materials through the plant or factory is maintained to assure effective capacity utilization. The decisive figure in determining costs and profits is,

Table 24.1. The Distribution of the Largest Manufacturing Enterprises with More than 20,000 Employees, by Industry and Nationality, 1973

S.I.C.	Outside of							Grand Total	
	U.S.	the U.S.	U.K.	Germany	Japan	France	Others		
20	Food	22	17	13	0	1	1	2	39
21	Tobacco	3	4	3	1	0	0	0	7
22	Textile	7	6	3	0	2	1	0	13
23	Apparel	6	0	0	0	0	0	0	6
24	Lumber	4	2	0	0	0	0	2	6
25	Furniture	0	0	0	0	0	0	0	0
26	Paper	7	3	3	0	0	0	0	10
27	Printing and Publishing	0	0	0	0	0	0	0	0
28	Chemical	24	28	4	5	3	6	10	52
29	Petroleum	14	12	2	0	0	2	8	26
30	Rubber	5	5	1	1	1	1	1	10
31	Leather	2	0	0	0	0	0	0	2
32	Stone, Clay, and Glass	7	8	3	0	0	3	2	15
33	Primary Metal	13	35	2	9	5	4	15	48
34	Fabricated Metal	8	6	5	1	0	0	0	14
35	Machinery	22	12	2	3	2	0	5	34
36	Electrical Machinery	20	25	4	5	7	2	7	45
37	Transportation Equipment	22	23	3	3	7	4	6	45
38	Measuring Instrument	4	1	0	0	0	0	0	5
39	Miscellaneous	2	0	0	0	0	0	0	2
	Diversified/Conglomerate	19	3	2	1	0	0	0	22
Total		211	190	50	29	28	24	59	401

NOTE: In 1970, the 100 largest industrial accounted for more than a third of a net manufacturing output in the United States and over 45 percent in the United Kingdom. In 1930, they accounted for about 25 percent of total net output in both countries.

SOURCE: Fortune, May 1974 and August 1974.

then, not rated capacity for a specified time period but rather throughput—that is amount actually processed in that time period. Throughput is thus the proper economic measure of capacity utilization. In the capital-intensive industries, the throughput needed to maintain minimum efficient scale requires not only careful coordination of flow through the processes of production but also the flows of inputs from the suppliers and the flow of outputs to the retailers and final consumers. Such coordination cannot happen automatically. It demands the constant attention of a managerial team, or hierarchy. Thus scale is only a technological characteristic. The economies of scale, measured by throughput, are organizational. Such economies depend on knowledge, skills, and

teamwork—on the human organization essential to exploit the potential of technological processes.

A well-known example illustrates these generalizations. In 1882, the Standard Oil "alliance" formed the Standard Oil Trust. The purpose was not to obtain control over the industry's output. That alliance, a loose federation of 40 companies each with its own legal and administrative identity but tied to John D. Rockefeller's Standard Oil Company through interchange of stock and other financial devices, already controlled close to 90 percent of the American output of kerosene. Instead, the Trust was formed to provide a legal instrument to rationalize the industry and to exploit more fully economies of scale. The Trust provided the essential legal means

Table 24.2. The Distribution of the 200 Largest Manufacturing Firms in the United States by Industry*

S.I.C.	1917	1930	1948	1973
20 Food	39	32	26	22
21 Tobacco	6	5	5	3
22 Textiles	5	3	6	3
23 Apparel	3	0	0	0
24 Lumber	3	4	1	4
25 Furniture	0	1	1	0
26 Paper	5	7	6	9
27 Printing and Publishing	2	3	2	1
28 Chemical	20	18	24	27
29 Petroleum	22	26	24	22
30 Rubber	5	5	5	5
31 Leather	4	2	2	0
32 Stone, Clay, and Glass	5	9	5	7
33 Primary Metal	29	25	24	19
34 Fabricated Metal	8	10	7	5
35 Machinery	20	22	24	17
36 Electrical Machinery	5	5	8	13
37 Transportation Equipment	26	21	26	19
38 Instruments	1	2	3	4
39 Miscellaneous	1	1	1	1
Diversified/Conglomerate	0	0	0	19
Total	200	200	200	200

* Ranked by assets.

to create a corporate or central office that could, first, reorganize the processes of production by shutting down some refineries, reshaping others, and building new ones and, second, coordinate the flow of materials, not only through the several refineries, but from the oil fields to the refineries and from the refineries to the consumers. The resulting rationalization made it possible to concentrate close to a quarter of the world's production of kerosene in three refineries, each with an average daily charging capacity of 6,500 barrels with two thirds of their product going to overseas markets. (At this time the refined petroleum products were by far the nation's largest nonagricultural export.) Imagine the diseconomies of scale—the great increase in unit costs—that would result from placing close to one fourth of the world's production of shoes, or textiles, or lumber into three factories or mills!

This reorganization of the Trust's refining facilities brought a sharp reduction in average cost of

production of a gallon of kerosene. It dropped from 1.5 cents a gallon before reorganization to 0.54 cents in 1884 and 0.45 in 1885 (and profits rose from 0.53 cents a gallon to 1.003 cents), with costs at the giant refineries being still lower—costs far below those of any competitor. However, to maintain this cost advantage required that these large refineries have a continuing daily throughput of from 5,000 to 6,500 barrels or a three- to four-fold increase over earlier 1,500 to 2,000 barrels daily flow with concomitant increases in transactions handled and in the complexity of coordinating the flow of materials through the process of production and distribution.

The Standard Oil story was by no means unique. In the 1880s and 1890s, new mass production technologies—those of the Second Industrial Revolution—brought sharp reduction in costs as plants reached minimum efficient scale. In many industries the level of output was so high at that

scale that a small number of plants were able to meet existing national and even global demand. The structure of these industries quickly became oligopolistic. Their few large enterprises competed worldwide. In many instances the first enterprises to build a plant with a high minimum efficient scale and to recruit the essential management team have remained until this day leaders in their industries. A brief review of the industries . . . in which the large enterprises have always clustered illustrates this close relationship between scale economies, the size of the enterprise, and industrial concentration.

In Groups 20 and 21—food, drink and tobacco—brand-new production processes in the refining of sugar and vegetable oils, in the milling of wheat and oats, and in the making of cigarettes brought rapid reductions in costs. In cigarettes for example, the invention of the Bonsack machine in the early 1880s permitted the first entrepreneurs to adopt the machine—James B. Duke in the United States and the Wills brothers in Britain—to reduce labor costs sharply—in Wills's case from 4 shillings per 1,000 to 0.3 pence per thousand.³ Understandably Duke and Wills soon dominated and then divided the world market. In addition, most companies in Group 20, and also those producing consumer chemicals, such as soap, cosmetics, paints, and pills, pioneered in the use of new high-volume techniques for packing their products in small units that could be placed directly on retailers' shelves. The most important of these was the "automatic-line" canning process which, invented in the mid-1880s, permitted the filling of 4,000 cans an hour. The names of these pioneers—Campbell Soup, Heinz, Borden, Carnation, Nestlé, Cadbury, Cross and Blackwell, Lever, Procter & Gamble, Colgate, and others—are still well known today.

In chemicals—Group 28—the new technologies brought even sharper cost reductions in industrial than in packaged consumer products. The mass production of synthetic dyes and synthetic alkalies began in the 1880s. It came a little later in synthetic nitrates, synthetic fibers, plastics, and film. The first three firms to produce the new synthetic blue dye—alizarine—dropped production costs from 200 marks per kilo in the 1870s to 9 marks by 1886; and those three firms—Bayer, BASF and Hoechst—are still today, a century later, the three largest German chemical companies.⁴

Rubber production (Group 30), like oil, benefited from scale economies, even more in the production of tires than rubber footwear and clothing. Of the 10 rubber companies listed on the 1973 Table, nine built their first large factory between 1900 and 1908.⁵ Since then, the Japanese company, Bridgestone, has been the only major new entrant into the global oligopoly.

In metals (Group 34), the scale economies made possible by maintaining a high volume throughput were also striking. Andrew Carnegie was able to reduce the cost of making steel rails by the new Bessemer steel process from close to \$100 a ton in the early 1870s to \$12 by the late 1890s.⁶ In the refining of nonferrous metals, the electrolytic refining process invented in the 1880s brought even more impressive cost reductions, permitting the price of a kilo of aluminum to fall from 87.50 francs in 1888 to 47.50 francs in 1889, with the adoption of the new process, to 19 francs at the end of 1890 to 3.75 francs in 1895.⁷

In the machinery making industries (Groups 35–37), new technologies based on the fabricating and assembling of interchangeable metal parts were perfected in the 1880s. By 1886, for example, Singer Sewing Machine had two plants—one in New Jersey and the other in Glasgow, each producing 8,000 machines a week.⁸ To maintain their output, which satisfied three fourths of the world demand, required an even more tightly scheduled coordination of flows of materials into, through, and out of the plant than did the mass production of packaged goods, chemicals, and metals. By the 1890s, a tiny number of enterprises using comparable plants supplied the world demand for typewriters, cash registers, adding machines, and other office equipment, for harvesters, reapers, and other agricultural machinery, and for the newly invented electrical and other volume-produced industrial machinery. The culmination of these processes came with the mass production of the automobile. By installing the moving assembly line in his Highland Park plant in 1913, Henry Ford reduced the labor time used in putting together a Model T chassis from 12 hours and 28 minutes man hours to one hour and 33 minutes.⁹ This dramatic increase in throughput permitted Ford to drop the price of the touring car from over \$600 in 1913 to \$490 in 1914 and to \$290

in the 1920s, to pay the highest wages, and to acquire one of the world's largest fortunes in an astonishingly short time.

On the other hand, in the SIC categories . . . where few large firms appear, that is in the older, technologically simple, labor-intensive industries such as apparel, textiles, leather, lumber, and publishing and printing, neither technological nor organizational innovation substantially increase minimum efficient scale. In these industries large plants do not offer significant cost advantages over small ones. In these industries the opportunities for cost reduction through material coordination of high-volume throughput by managerial teams remains limited.

The differentials in potential scale economies of different production technologies indicate not only why the large hierarchical firms appeared in some industries and not in others but also why they appeared suddenly in the last decades of the 19th century. Only with the completion of the modern transportation and communication networks—those of the railroad, telegraph, steamship, and cable—could materials flow into a factory or processing plant and the finished goods move out at a rate of speed and volume required to achieve substantial economies of throughput. Transportation that depended on the power of animals, wind, and current was too slow, too irregular, and too uncertain to maintain a level of throughput necessary to achieve modern economies of scale.

However, such scale and throughput economies do not in themselves explain why the new technologies made possible by the new transportation and communication systems caused the new mass producers to integrate forward into mass distribution. Coordination might have been achieved through contractual agreement with intermediaries—both buyers and sellers. Such an explanation requires a more precise understanding of the process of volume distribution, particularly why the wholesaler, retailer, or other commercial intermediaries lost their cost advantage vis-à-vis the volume producer.

The intermediaries' cost advantage lay in exploiting both the economies of scale and what has been termed "the economies of scope." Because they handled the products of many manufacturers, they achieved a greater volume and lower per unit cost

(i.e., *scale*) than any one manufacturer in the marking and distribution of a *single* line of products. Moreover, they increased this advantage by the broader *scope* of their operation, that is by handling a number of *related* product lines through a single set of facilities. This was true of the new volume wholesalers in apparel, dry goods, groceries, hardware, and the like and even more true of the new mass retailers—the department store, the mail order house, and the chain or multiple shop enterprise.

The commercial intermediaries lost their cost advantages when manufacturers' output reached a comparable scale. As one economist has pointed out, "The intermediary will have a cost advantage over its customers and suppliers only as long as the volume of transactions in which he engages comes closer to that [minimum efficient] scale than do the transactions volumes of his customers or suppliers."¹⁰ This rarely happened in retailing, except in heavily concentrated urban markets, but it often occurred in wholesaling. In addition, the advantages of scope were sharply reduced when marketing and distribution required specialized, costly product-specific facilities and skills that could not be used to handle other product lines. By investing in such product-specific personnel and facilities, the intermediary not only lost the advantages of scope but also became dependent on what were usually a small number of producers to provide those suppliers.

All these new volume-producing enterprises created their own sales organization to advertise and market their products nationally and often internationally. From the start they preferred to have a sales force of their own to advertise and market their goods. Salesmen of wholesalers and other intermediaries who sold the products of many manufacturers, including those of their competitors, could not be relied upon to concentrate on the single product of a single manufacturer with the intensity needed to attain and maintain market share necessary to keep throughput at minimum efficient scale.

Equally important, mass distribution of these products—many of them quite new—often required extensive investment in specialized product-specific facilities and personnel. Because the existing wholesalers and mass retailers made their profits from handling related products of many manufacturers, they had little incentive to make large investments in

facilities and personnel that could only be useful for a handful of specialized products processed by a handful of producers on whom they would become dependent for the supplies essential to make this investment pay.

[. . .]

The mass marketing of new machines which were mass produced through the fabricating and assembling of interchangeable parts required a greater investment in personnel to provide the specialized marketing services than in product-specific plant and equipment.¹¹ The mass distribution of sewing machines for households and for the production of apparel, typewriters, cash registers, adding machines, mimeograph machines, and other office equipment, harvesters, reapers, and other agricultural machines, and, after 1900, automobiles and the more complex electrical appliances all called for demonstration, after-sales service, and consumer credit. As these machines had been only recently invented, few existing distributors had the necessary training and experience to provide the services or financial resources to provide extensive consumer credit.

On the other hand, the manufacturer had every incentive to do both. The provision of repair and service to help to assure that the product performed as advertised and control of the wholesale organization assured inventory as well as quality control. However, as a great many retailers were needed to cover the national and international markets, the manufacturers preferred to rely, as did the oil and tire companies, on franchised dealers. These retail dealers, who sold their products exclusively, were supported by a branch office network that assured the provision of services, credit, and supplies on schedule. Only the makers of sewing machines, typewriters, and cash registers went so far as to invest in retail stores. They did so primarily in concentrated urban areas where, before the coming of the automobile, only such stores were able to provide the necessary services and credit on a neighborhood basis.

[. . .]

In these ways and for these reasons, the large industrial firm that integrated mass production and mass distribution appeared in industries with two characteristics. The first and most essential was a technology of production in which the realization of potential scale economies and maintenance of quality

control demanded close and constant coordination and supervision of materials flows by trained managerial teams. The second was that volume marketing and distribution of their products required investment in specialized product-specific human and physical capital.

Where this was *not* the case, that is in industries where technology did *not* have a potentially high minimum efficient scale, where coordination was *not* technically complex, and where mass distribution did *not* require specialized skills and facilities, there was little incentive for the manufacturer to integrate forward into distribution. In such industries as publishing and printing, lumber, furniture, leather, and apparel and textiles, and specialized instruments and machines, the large integrated firm had few competitive advantages. In these industries, the small single-function firm continued to prosper and to compete vigorously.

Significantly, however, it was in just these industries that the new mass retailers—the department stores, the mail-order houses, and the chain or multiple stores—began to coordinate the flow of goods from the manufacturer to their consumer. In those industries where substantial scale economies did not exist in production, both the economies of scale and those of scope gave the mass retailers their economic advantage. In coordinating these flows, the mass retailers, like the mass producers, reduced unit costs of distribution by increasing the daily flow or throughput within the distribution network. Such efficiency, in turn, further reduced the economic need for the wholesaler as a middleman between the retailer and manufacturer.

In industries where this was the case, that is in those that had the two critical characteristics, the most important entrepreneurial act of the founders of an enterprise was the creation of an administrative organization. That is, it was, first, the recruitment of a team to supervise the process of production, then the building of a national and very often international sales network, and finally the setting up of a corporate office of middle and top managers to integrate and coordinate the two. Only then did the enterprise become multinational. Investment in production abroad followed, almost never preceded, the building of an overseas marketing network. So, too, in the technologically advanced

industries, the investment in research and development followed the creation of a marketing network. In these firms, this linkage between trained sales engineers, production engineers, product designers, and the research laboratory became a major impetus to continuing innovation in the industries in which they operated. The result of such growth was an enterprise whose organization is depicted in [Figures 24.1 and 24.2]. The continuing growth of the firm rested on the ability of its managers to transfer resources in marketing, research and development, and production (usually those that were not fully utilized) into new and more profitable related product lines, a move that carried the organization shown on [Figure 24.1] to that illustrated by [Figure 24.2]. If the first step—that of integrating production and distribution—was not taken, the rest did not follow. The firms remained small, personally managed producing enterprises buying their materials and selling their products through intermediaries.

[...]

In the United States, the completion of the nation's basic railroad and telegraph network and the perfection of its operating methods in the 1870s and 1880s opened up the largest and fastest growing market in the world. Its population, which already enjoyed the highest per capita income in the world, was equal to that of Britain in 1850, twice that in 1900, and three times that in 1920.¹² American entrepreneurs quickly recruited the managerial teams in production necessary to exploit scale economies and made the investment in distribution necessary to market their volume-produced goods at home and abroad and did so in all the industries in which large industrial firms would cluster for the following century. Most of these firms quickly extended their marketing organizations overseas and then became multinational by investing in production facilities abroad, playing an influential role in a global oligopoly. (See Table 24.3.) Indeed, in some cases, particularly in mass-produced light machinery, the Americans enjoyed close to global monopoly well before the outbreak of World War I. By that time too, those in the more technologically advanced industries had begun to invest personnel and facilities in research and development.

These large manufacturing enterprises grew by direct investment in nonmanufacturing personnel

and facilities. They also expanded by merger and acquisition.¹³ Here they began by making the standard response of manufacturers, both the European and American, to excess capacity to which, because of the high minimum efficient scale of their capital-intensive production processes, they were particularly sensitive. American manufacturers first attempted to control competition by forming trade associations to control output and prices and allocating marketing territories. However, because of the existing common law prohibition against combinations in restraint of trade, these associations were unable to enforce their rulings in courts of law. So manufacturers turned to the holding company device. Members of their association exchanged their stock for that of a holding company thus giving a central office legal power to determine output, prices, and marketing areas for the subsidiary firms.

For most American enterprises, the initial incorporation as a holding company took place to control competition. However, for some, like John D. Rockefeller, it became the first step for rationalizing the resources of an enterprise or even an industry in order to exploit fully the potential of scale economies. Even before the enforcement of the Sherman Antitrust Law in the early 20th century made contractual cooperation by means of a holding company legally suspect, a number of American enterprises had been transformed from holding companies to operating ones by consolidating the many factories of their subsidiaries into a single production department, unifying the several sales forces into a single sales department (including an international division) and then, though less often, investing in research and development. In a word, these enterprises were transformed from a loose federation of small operating concerns into a single centralized enterprise as depicted in Figure 24.1. These firms competed for market share and profits, rarely on price—the largest (and usually the oldest) remained the price leader—but on productive efficiency, on advertising, on the proficiency of their marketing and distribution services, and on product performance and product improvement.

In such large, complex organizations, decisions both as to current production and distribution and the allocation of resources for future production and distribution came to be made by full-time salaried

Table 24.3. Multinational Companies in 1914 (American companies with two or more plants abroad or one plant and raw material-producing facilities)

<i>Groups 20 & 21: Food and Tobacco</i>	<i>Groups 35, 36 & 37: Machinery and Transportation Equipment</i>
American Chiclé	American Bicycle
American Cotton Oil	American Gramophone
Armour	American Radiator
Coca-Cola	Crown Cork & Seal
H. J. Heinz	Chicago Pneumatic Tool
Quaker Oats	Ford
Swift	General Electric
American Tobacco	International Harvester
British American Tobacco	International Steam Pump (Worthington)
	Mergenthaler Linotype
	National Cash Register
	Norton
	Otis Elevator
	Singer
	Torrington
	United Shoe Machinery
	Western Electric
	Westinghouse Air Brake
	Westinghouse Electric
	<i>Others</i>
	Alcoa (33)
	Gillette (34)
	Eastman Kodak (38)
	Diamond Match (39)

SOURCE: Mira Wilkins, *The Emergence of Multinational Enterprise* (Cambridge: Harvard University Press, 1970), pp. 212-123, 216.

managers. At the time of World War I, owners who still worked on a full-time basis with their hierarchies continued to have an influence on such decisions. By World War II, growth by diversification into new product lines not only greatly increased the size and complexity of the enterprise but still further scattered stock ownership. By then owners rarely participated in managerial decisions. At best they or their representatives were "outside" directors who met with the inside directors, that is the full-time salaried managers, at the most once a month and usually only four times a year. For these meetings the inside directors set the agenda, provided the information on which decisions were made, and of course were responsible for implementing the

decisions. The outside directors still had the veto power, but they had neither the time, the information nor experience, and rarely even the motivation to propose alternate courses of action. By World War I, managerial capitalism had become firmly entrenched in the major sectors of the American economy.

[...]

NOTES

1. Raymond de Roover, *The Rise and Decline of the Medici Bank, 1397-1494* (Cambridge: Harvard University Press, 1963), pp. 87, 91. The earlier Peruzzi bank had branches managed by employees (*fattore*). "However, all

branches of major importance were managed by partners," p. 80.

2. Alfred D. Chandler, Jr., *The Visible Hand* (Cambridge: Harvard University Press, 1977), chaps. 3-6, for the coming of such hierarchies to manage railroad and telegraph systems and chap. 7 for their use in the management of mass distribution. Pages 231 and 232 describe the organization of Sears Roebuck.

3. B. W. E. Alford, W. D. & H. O. Wills and the *Development of the U. K. Tobacco Industry* (London: Methuen, 1973), pp. 143-49. Also Chandler, *Visible Hand*, pp. 249-58.

4. Sachio Kahu, "The Development and Structure of the German Coal-Tar Dyestuffs Firms," Akio Okochi and Hoshimi Uchida, eds., *Development and Diffusion of Technology* (Tokyo: University of Tokyo Press, 1979), p. 78.

5. This statement is based on a review of histories of and internal reports and pamphlets by the leading rubber companies.

6. Harold Livesay, *Andrew Carnegie and the Rise of Big Business* (Boston: Little, Brown, 1975), pp. 102-106,

155. When in 1873 Carnegie opened the first works directed entirely to producing rails by the Bessemer process, the cost dropped to \$56.64 a ton. By 1859, with increase in sales, the cost fell to \$25 a ton.

7. L. F. Haber, *The Chemical Industry During the Nineteenth Century* (Oxford: Oxford University Press, 1958), p. 92.

8. Chandler, *Visible Hand*, pp. 302-14.

9. Allan Nevins, *Ford: The Times, the Man, the Company* (New York: Charles Scribner's Sons, 1954), chaps. 18-20 (especially pages 473, 489, 511). Alfred D. Chandler, Jr., *Giant Enterprise: Ford, General Motors and the Automobile Industry* (New York: Arno Press, 1980), p. 26.

10. Scott J. Moss, *An Economic Theory of Business Strategy* (New York: Wiley, 1981), pp. 110-11.

11. Chandler, *Visible Hand*, pp. 402-11.

12. W. S. and E. S. Woytinsky, *World Population and Production* (New York: Twentieth Century Fund, 1953), pp. 383-85.

13. Chandler, *Visible Hand*, chap. 10.

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NEITHER MARKET NOR HIERARCHY

Network Forms of Organization

WALTER W. POWELL

In recent years, there has been a considerable amount of research on organizational practices and arrangements that are network-like in form. This diverse literature shares a common focus on lateral or horizontal patterns of exchange, interdependent flows of resources, and reciprocal lines of communication.

[...]

MARKETS, HIERARCHIES, AND NETWORKS

I have a good deal of sympathy regarding the view that economic exchange is embedded in a particular social structural context. Yet it is also the case that certain forms of exchange are more social—that is, more dependent on relationships, mutual interests, and reputation—as well as less guided by a formal structure of authority. My aim is to identify a

coherent set of factors that make it meaningful to talk about networks as a distinctive form of coordinating economic activity. We can then employ these ideas to generate arguments about the frequency, durability, and limitations of networks.

When the items exchanged between buyers and sellers possess qualities that are not easily measured, and the relations are so long-term and recurrent that it is difficult to speak of the parties as separate entities, can we still regard this as a market exchange? When the entangling of obligation and reputation reaches a point that the actions of the parties are interdependent, but there is no common ownership or legal framework, do we not need a new conceptual tool kit to describe and analyze this relationship? Surely this patterned exchange looks more like a marriage than a one-night stand, but there is no marriage license, no common household, no pooling of assets. In the language I employ below, such an

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