



Reconsidering the Innovations in the Meiji Cotton Spinners' Growth Strategy for Global Competition

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From the beginning of the 1890s, cotton spinning stood out as the most competitive sector in the Meiji economy. It was the first industry in Japanese business history to adopt full-scale mechanization and, more significantly, it was also in the forefront of international corporate formation. Success was a result of the outstanding entrepreneurial leadership of the top echelon of the Meiji industrial elite, which developed the early conceptualization of a pan-industrial growth strategy. The essence of this concept was the industrialists' determination to succeed in the upcoming global competition, a perspective that led to continuous innovation in a wide array of business practices. Innovation was not always technological; this essay focuses on the Meiji Japanese paradigm breakthrough as the quintessential innovation, derived from their clear business vision and evolving shared understanding of industrial competitiveness.

In spring 1926, Sir Kenneth Stewart, the British representative to the Special Conference on the Chinese Customs Tariff held in Beijing in 1925, described Osaka as the nucleus of the Japanese cotton industry. After visiting several cotton mills, he gave a lecture at Tokyo Shoka Daigaku (Tokyo University of Commerce, present-day Hitotsubashi University) to discuss his comparative review of the business models in Manchester and Osaka. He correctly described the virtually complete model of well-organized mass production in the Japanese mills of the time:

The great difference between Manchester and Osaka lies less in the cheap labour and lengthy working hours of Japanese labour than in the simple fact that Osaka has carried into practice the value and the economies of mass production. . . . I inspected the factory in Osaka

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URL: <http://www.thebhc.org/publications/BEHonline/2010/choi.pdf>

recently where I saw only 6 types of cotton fabrics being woven. The machinery was being operated at continuously unchanging tempo, weaving the same products throughout, and the mill workers were engaged in the same type of work, making for extreme savings in labour and economy of operations. . . . Cotton fabrics being exported from Japan are shipped in quantities under the label of the manufacturing company; thus, products of the same trademark can be obtained in every corner of the world.¹

A Japanese Model in the Era of Mass Production

Stewart's comments indicate that, by the second half of the 1920s, the Japanese cotton industry employed not only vertically integrated but also highly focused systems of manufacture. The Osaka model was certainly committed to faster and more efficient production of a small variety of strategically selected products.² This focus on strategic goods enabled the industry to realize a high level of standardization across every process of manufacture, which bolstered the flow not only of production but also of distribution. Arno S. Pearse's detailed report in 1929 for the International Federation of Master Cotton Spinners' and Manufacturers' Associations in Manchester also highlighted this distinct achievement.³ By the first half of the 1930s, the Japanese model had surpassed the British in both production and exportation in global competition by dominating the source of the largest demand for cotton goods, the markets of China and India.⁴

¹ Quoted in Keizo Seki, *The Cotton Industry of Japan* (Tokyo, 1956), 70-71. Information from another British investigator (from the Foreign Office) on the Japanese spinning mills (in Osaka in November 1898) can be found in *Noshomusho* [The Meiji Ministry of Agriculture and Commerce], *Nippon Menshi Bosekigyo Enkaku Kiji* [Historical Records of the Japanese Cotton Spinning Sector] (Tokyo, 1901), 172-73.

² Takeshi Abe, "Organizational changes in the Japanese cotton industry during the inter-war period: From inter-firm-based organization to cross-sector-based organization," in *The Fibre That Changed the World: The Cotton Industry in International Perspective, 1600-1990s*, ed. Douglas A. Farnie and David J. Jeremy (Oxford, England, 2004), 461-93; Etsuo Abe, "The Development of Modern Business in Japan," *Business History Review* 71 (Spring 1997): 299-308; and for Zaibatsu-level organizational innovation in the same period, see Seiichiro Yonekura and Hiroshi Shimizu, "Entrepreneurship in Pre-World War II Japan: The Role and Logic of the Zaibatsu," in *The Invention of Enterprise: Entrepreneurship from Ancient Mesopotamia to Modern Times*, ed. David S. Landes, Joel Mokyr, and William J. Baumol (Princeton, N.J., 2010), 501-26.

³ Arno S. Pearse, *The Cotton Industry of Japan and China: Being the Report of the Journey to Japan and China* (Manchester, England, 1929), 25-29, 34, 38-42.

⁴ Foreign Office, Memorandum on Japanese competition, copy 1: Japanese competition, "Notes on particular industries"; copy 2: Doc. 7883/583/23 No. 521, Japanese trade competition, 17 Jan. 1934 (British Embassy, Tokyo, 1934).

In search of Japan's comparative advantage, Lars Sandberg pinpointed the successful "supply of entrepreneurship and management skill together with the adaptability of the workforce to factory conditions."⁵ If the mass production system required merely masses of cheap and unskilled labor, the most abundant supply resided not in Japan but in either China or India (or even tropical Africa). Sandberg's comparative perspective thus brings up the issue of the essential managerial impact on industrial competitiveness. Mira Wilkins' focus on understanding different levels of industrial performance fell on the caliber of management as well. Her investigation of Japanese multinational enterprise before World War I examined the endeavor to establish an international business infrastructure; her study showed that the textile industry—intensively engaged in global trade to secure raw cotton and to send value-added goods back to overseas markets—had been at the entrepreneurial forefront of corporate internationalization since the Meiji period.⁶

The research of William Mass and William Lazonick also introduced a significant developmental perspective regarding the Japanese advantage. Their work highlighted the essential role of "planned co-ordination of economic activity, not only within dominant enterprises but also within the industry as a whole" in securing Japan's leadership in international competition. Their discussion also suggested that "planned co-ordination" could be achieved through the "leadership of the dominant spinning and trading companies."⁷ A crucial implication of these studies is that the competitive underpinning of Japanese mass production resided in efficient coordination across firms. Much broader organizational coordination was realized in tandem with the development of a leadership core within the industry, evidence that the Japanese model of cotton spinning was neither the British style nor the American in the era of mass production.

The key finding of this essay is that the origins of Japan's attention-grabbing industrial competitiveness can be traced back to the historical context of the burgeoning industry in the middle of the Meiji era (1868-1912). The cotton business model of the interwar period had already been masterminded in the 1880s through elite industrialists' vision of industrial growth.⁸ The purpose of this essay is thus twofold. First, if industry-wide planned coordination and the influential leadership behind it are to be considered the basis of Japanese comparative advantage, they must be

⁵ Lars G. Sandberg, *Lancashire in Decline: A Study in Entrepreneurship, Technology, and International Trade* (Columbus, Ohio, 1974), 217.

⁶ Mira Wilkins, "Japanese Multinational Enterprise before 1914," *Business History Review* 60 (Summer 1986): 227-29.

⁷ William Mass and William Lazonick, "The British Cotton Industry and International Competitive Advantage," *Business History* 32 (Nov. 1990): 48.

⁸ Eugene K. Choi, "Entrepreneurial leadership in the Meiji cotton spinners' early conceptualisation of global competition," *Business History* 51 (Nov. 2009): 927-58.

examined and placed in context. Doing so will further the significant progress made by earlier studies. Second, we will reconsider the unprecedented change in the Japanese business vision and approach it from the perspective of paradigm innovation.

The Source of Planned Coordination

More than the costs of business transactions, information costs reduced managerial confidence in decision making.⁹ Located in a country of late industrialization, after nearly three centuries under a feudal policy of isolation, the newly emerging community of modern cotton masters of Meiji Japan was placed at the frontier in their pursuit of new combinations of information for industrialization. Along with the desperate attempt to adopt British-style mechanization in cotton spinning, a different endeavor of industrialization also occurred in particular rural regions, based on sensible combinations of native sources.¹⁰ The latter had an apparent advantage in its locality of information as well as of technological sources; however, adopting British-style mechanization necessitated a striking array of inexperienced decisions concerning technology transfer, and, even more important, systematic sets of managerial skills and scientific knowledge.

The modernization of the local system of cotton manufacture from its primitive stage of mechanization could never have been accomplished in the manner of a mere “transplantation of Lancastrian oak trees on the soil of the Japanese home islands.” Technology transfer demanded far more complex bodies of knowledge, skill, and experience than grafting the state-of-the-art British textile technologies onto a newly built local mill. Despite the high national literacy rate since the late Tokugawa era, domestic cotton masters faced a massive roadblock in acquiring sufficient sets of information, especially industrial, technical, and cultural (and they were also impeded by the inevitable language barrier). Obviously, the complexity of knowledge mattered considerably.¹¹ Nonetheless, since the

⁹ *Noshomu-sho* [The Meiji Ministry of Agriculture and Commerce], *Noshomusho Aichi Bosekisho Naikoku Bosekisho Renkogai Giji Hikki* [The proceedings of the conference of the Cotton Spinners' Association at the Aichi Mill, owned by *Noshomu-Sho*, 17-20 October in the 15th Meiji Year] (Osaka, 1882).

¹⁰ Eugene K. Choi, “Another Spinning Innovation: The case of the rattling spindle, *Garabo*, in the development of the Japanese spinning industry,” *Australian Economic History Review* 50 (forthcoming, 2010).

¹¹ Franco Amatori and Andrea Colli, “Models of entrepreneurship in a latecomer industry: Italy,” in *Country Studies in Entrepreneurship: A Historical Perspective*, ed. Youseff Cassis and Ioanna P. Minoglou (London, 2006), 129-48; David J. Jeremy ed., *International Technology Transfer: Europe, Japan, and the USA, 1700-1914* (Aldershot, England, 1991); Tetsuro Nakaoka, “The transfer of cotton manufacturing technology from Britain to Japan,” in *International Technology Transfer*, 181-98; Clive Trebilcock, *The Industrialization of Continental Powers, 1780-1914* (Harlow, England, 1981).

swift establishment of a British-style cotton industry was a national priority to stop the incoming tide of competitive British and Indian products, the problems had to be tackled by all means available.¹²

Putting aside the long debate on the impact of state enterprise, it is certain that a small group of industrial elites steered the industrial “vector” of development in its early stage. The essential actor was the Osaka Cotton Spinning Company (OCSC) (1882-1914), directed by Takeo Yamanobe (1851-1920).¹³ As the first private company to achieve groundbreaking success in both corporate performance and technology transfer, the OCSC provided a new business model, sustaining its trailblazer position within the industry until the first half of the 1890s.¹⁴ More important, Yamanobe presented a new managerial blueprint through the first industrial journal of the *Boseki Rengo Kai* (Association of Cotton Spinners), *Rengo Boseki Geppo*. His crisp voice confidently introduced not only a profitable prototype of technology mix but also a strategic plan for mechanized cotton manufacture. By breaking away from the state enterprise obsession with full utilization of native sources such as domestic raw cotton and local power sources, Yamanobe introduced a new combination of accessible business resources. The source of Yamanobe’s confidence lay in the body of his knowledge and practice, based on industrial knowledge derived from his rich field experiences in Britain and Japan.¹⁵

For the domestic cotton entrepreneurs still shouldering the incredible burden of high information costs and uncertainty in working with the alien technologies and business systems, a sensible choice was to take trustworthy guidance (or, more realistically, directions) from the first path breaker and to increase technical unification quickly, enabling the cotton spinners to accelerate industrial standardization. The Association of Cotton Spinners became an essential terminal in creating and sharing “public goods”—that is, in the reduction of information costs and uncertainty. The association’s publication for members, the monthly journal, was the key medium in developing pan-industrial coordination.¹⁶

¹² William D. Wray ed., *Managing Industrial Enterprise: Cases from Japan’s Prewar Experience* (Cambridge, Mass., 1989).

¹³ On 26 June 1914, Osaka Cotton Spinning Company was merged with Mie Cotton Spinning Company to form Toyo Spinning Company (Toyobo).

¹⁴ Naosuke Takamura, “Osaka Boseki Kaisha” [Osaka Cotton Spinning Company], in *Nippon Sangyo Kin’yushi Kenkyu: Boseki Kin’yu Hen* [Financial History of Japanese Industries: Finance of Cotton Industry], ed. Kazuo Yamaguchi (Tokyo, 1970), 325-92; Matao Miyamoto, “The products and market strategies of the Osaka Cotton Spinning Company: 1883-1914,” in *Japanese Yearbook on Business History* 5, ed. Shigeaki Yasuoka and Hidemasa Morikawa (Tokyo, 1988), 117-59.

¹⁵ Choi, “Entrepreneurial leadership,” 936-40.

¹⁶ *Boseki Rengo Kai* [Association of Cotton Spinners], *Rengo Boseki Geppo* [Monthly Journal of Cotton Spinners’ Association] (1889-1890); *Rengo Boseki Geppo Oyobi Boshoku Geppo* [Monthly Journal of Cotton Spinners & Weavers’

The original coordination project was a result of the cotton industrialists' efforts to minimize the cost of coping with technical problems and accidents on shop floors by operating identical sets of British textile machinery. The variety of information disseminated in the journals throughout the fast-growing phase of the 1890s and the 1900s, however, created a planned coordination supported by understanding shared within the industry as a whole.¹⁷

A reported problem and the effective countermeasures for the trouble at one spinning mill could be shared by the whole industry, because most of the spinning mills operated the same machinery. Through the pan-industrial practices in the early developmental phase designed to reduce the information costs of technical and institutional backwardness, the Japanese cotton spinners mastered taking advantage of both "voluntarily coordinating" themselves and "being positively coordinated" as one. The voluntary ethos was not based on an abstract concept of altruism; the business leaders were convinced that collaboration would benefit them. The entrepreneurial quest to manage information costs and to secure better corporate performance therefore provided the essential driver for industry-wide cooperation, and it remained the source of the planned coordination that became a pillar of Japanese competitive advantage.¹⁸

Entrepreneurial Leadership and Collaboration

The unification of textile machinery supply initially enabled the Meiji spinners to diminish the information costs of discovering proper sets of British machinery.¹⁹ The other distinct cost-saving effect surfaced in the planned coordination of technical knowledge diffusion and standardization. The outstanding leader, the Osaka Cotton Spinning Company, provided the burgeoning community of cotton masters with an example to

Association] (1891); *Boshoku Geppo Oyobi Dai Nippon Menshi Boseki Rengo Kai Hokoku* [Monthly Journal of Cotton Weavers & Report of Cotton Spinners' Association] (1892); *Dai Nippon Menshi Boseki Dogyo Rengo Kai Hokoku* [Report of All Japan Cotton Spinners' Association] (1893-1902).

¹⁷ *Noshomusho* [The Meiji Ministry of Agriculture and Commerce], *Nippon Menshi Bosekigyo Enkaku Kiji* [Historical records of the Japanese cotton spinning sector] (Tokyo 1901), chap. 1 on "The locations of mills & the increase and decrease of spindles in operation," 24-25.

¹⁸ See Mark Casson, *Entrepreneur: An Economic Theory* (Cheltenham, England, 1982) for the information-cost-based theory of entrepreneurship. Also see Serguey Braguinsky and David C. Rose, "Competition, cooperation, and the neighboring farmer effect," *Journal of Economic Behavior & Organization* 72 (May 2009): 361-76, for the most recent economic analysis of the context and the rationale of voluntary cooperation.

¹⁹ The distinctive identity as well as cyclical repetitiveness in the pattern of the Meiji spinners' orders and procurements of Platt's machinery can be seen in Platt's record of foreign sales. Platt-Saco-Lowell DDPSL 1/78/22-25 (Foreign no.7-10; November 1890 – May 1897).

follow. Nonetheless, the industrial leader was not alone. Throughout Yamanobe's intensive quest for the right textile machinery and closer communication with the British textile engineers of Platt Brothers & Co., Ltd., of Oldham, the London branch of Mitsui Bussan (Mitsui Trading Company) consistently intermediated between the two.²⁰ The tight collaboration among the three paved the road of the Meiji spinners' access to a strategic model of spinning frame during the crucial period of the second half of the 1880s in the following phase of the "industrial rocket-start."²¹

As the pre-eminent Meiji leader in international business development, Mitsui Bussan's distinctive function was to reduce the costs connected with search, negotiation, and transaction, and these activities sharpened its cutting edge in entrepreneurial combinations of business knowledge and global opportunities. But more significantly, the trading agency's strategic role was to supply the most up-to-date overseas information to facilitate its business partners' comprehension of the dynamic nature of global competition. Mitsui Bussan was not merely an agency for the cotton trade of the Meiji and the following era; the efficient importation of advanced and, more specifically, suitable machinery was as strategic as the increase in exporting competitive staple goods such as raw cotton. Thus, Mitsui influenced the early generation of entrepreneurial visions regarding the approaching global market competition. As Ulrich Witt has argued, business conceptions shape entrepreneurial ventures, and a breakthrough in forming a commonality within the shared vision can be accomplished by distinctive cognitive leadership.²² Considering the immature stage of the Meiji spinning sector, especially in the last two decades of the nineteenth century, commonality on the industrial level could be generated by managerial coordination.

²⁰ Platt Bros. Co., Ltd., of Oldham was the industrial leader not only in the scale of production but also in technological innovation and product development. See Reginald H. Eastham, *Platts Textile Machinery Makers: Civic Leaders in Oldham, Country Squires in North Wales* (Oldham, England, 1994), 50, and chap. 9 on the zenith of Platt Brothers & Co., Ltd; Anna P. Benson, *Textile Machines, Shire Album 103* (Princes Risborough, England, 1983), 21. For the company's changing global strategy in the first half of the twentieth century, see Douglas A. Farnie, "The marketing strategies of Platt Bros & Co. Ltd. of Oldham, 1906-1940," *Textile History* 24 (Nov. 1993): 147-61.

²¹ Yamanobe's "strategic model" was developed through the summer of 1887 (along with Senjiro Watanabe of Mitsui and Henry Ainley of Platt Bros.), and the specification of the particular technology mix can be seen in his orders between September and November 1887. See Platt-Saco-Lowell DDPSL 1/78/19 Foreign No. 4, 134-35 (Osaka Cotton Mill, and Osaka Weaving Mill, 3 Sept. 1887), and DDPSL 1/78.20 Foreign No. 5, 2-3 (Osaka Spinning Co. Ltd., Nov. 1887).

²² Ulrich Witt, "Imagination and leadership—The neglected dimension of an evolutionary theory of the firm," *Journal of Economic Behavior and Organization* 35 (April 1998): 161-77; Witt, "Firms as realizations of entrepreneurial visions," *Journal of Management Studies* 44 (Nov. 2007): 1125-40.

The primary partner for the OCSC's Yamanobe was Senjiro Watanabe (1860-1916), the head of the London Branch of Mitsui Bussan (est. 1877). Together, these two men were at the forefront of the entrepreneurial pursuit of new visions of business opportunities in the cotton trade. Geoffrey Jones's study of British trading companies in Asia singled out information asymmetry, the potential for opportunism, and the quality control necessary for some commodities as the essential forces behind organizational integration.²³ However, for the Meiji cotton spinners in their early stage of takeoff, vertical integration was an incomplete method of mitigating opportunism and confusion from underdeveloped knowledge (due to strikingly high information costs): leadership was necessary to form a lucid entrepreneurial vision for the rapid growth of the infant industry as a whole, to "shepherd the uninformed and confused and even possibly opportunistic fellows into a successful model of planned coordination and collaboration."²⁴

Conceptual Breakthrough and Paradigm Innovation

This study highlights a few primary sources to discuss the invaluable role of Yamanobe and Watanabe in the initial conceptual breakthrough that provided the developing industry with its ground-breaking paradigm innovation. Through the key media of the monthly industrial journals such as *Boseki Geppo*, Yamanobe brought forward a wide array of critical issues in management that called for an unprecedented change in the Meiji business paradigm—more collaborative pursuit of profitable and marketable products, extension of both domestic and international marketing routes, adoption of modern accounting and recording systems, standardization of industrial measurements, technical specifications of boilers for cotton spinning, cost saving in coal consumption and other shop-floor operations, the global quest for new sources of raw cotton such as China and America, and the application of a more global perspective to daily management.²⁵ The content of his every assertion for the industry

²³ Geoffrey Jones, "Diversification Strategies and Corporate Governance in Trading Companies: Anglo-Japanese Comparisons since the Late Nineteenth Century," *Business and Economic History* 25 (1996): 109; Jones, "Multinational trading companies in history and theory," in *The Multinational Traders*, ed. Geoffrey Jones (London, 1887), 1-21.

²⁴ Choi, "Entrepreneurial leadership," 945.

²⁵ Takeo Yamanobe, "*Ronsetsu, bosekigyō no kakowō kaisōshi sono shoraini ronkyū su*" [Leading article: Considering the prospects of the cotton industry by reflecting on its past], *Rengo Boseki Geppo* 1 (May 1889): 1-12; Takeo Yamanobe, "*Ronsetsu, bōsekigyō kochaku shihon shōkyaku oyobi son'eki keisan ni kansuru shisetsu*" [Leading article: My view of effacement of fixed capital and of cost and benefit analysis, Part I], *ibid.* 2 (June 1889): 1-6; Takeo Yamanobe, "*Ronsetsu, bōsekigyō kochaku shihon shōkyaku oyobi son'eki keisan ni kansuru shisetsu*" [Leading article: My view of effacement of fixed capital and of cost and benefit analysis, Part II], *ibid.* 3 (July 1889): 1-7; Takeo Yamanobe, "*Ronsetsu, bōseki*

did not follow the strategy implemented by the previous state enterprise. The crux of Yamanobe's series of debates was crystal clear: successful transfer of the advanced British textile technologies certainly entailed unprecedented technological innovation, but the technological innovation required an equivalent level of managerial innovation. Yamanobe's determined emphasis on the quick assimilation of British and Western-style managerial institutions was made in accordance with his belief in the organic tie between management and technology. Behind all, Yamanobe perceived the urgent need for an industry-wide paradigm change as the most fundamental factor that would induce not only successful industrial take-off but also inimitable industrial competitiveness in global competition.

Since Yamanobe was also a "fellow" himself in the cotton spinners' community, his perspective was from the shop-floor level, which made his voice so vivid and compelling. It is noteworthy that, despite the Schumpeterian breakthrough in their pioneering spirit, Yamanobe's exhortations concerning his fellow spinners' strategic vision for growth and planned coordination were tinged more with the entrepreneurial concepts of Arthur Cole and Israel Kirzner.²⁶ Rather than putting forward a radical "shock therapy," every perspective of his suggestions resided in a down-to-earth approach to accomplish constant technical betterment in daily production. His standpoint involved dynamic combinations of "routine and new" types of entrepreneurial activities.²⁷ His conception had already clarified the long-range plan of pan-industrial coordination to enhance industrial competitiveness, which was eventually realized in the first decades of the twentieth century.

Watanabe was thoroughly involved in Mitsui's early international management activities. Through investigating, assessing, and procuring a wide variety of advanced Western technologies, the London office of Mitsui Bussan performed an essential function in complying with the urgent and sometimes indeterminate demands of rapid industrialization, including those of the infant cotton spinning sector. As an elite graduate of Shoho Koshujyo, the Commercial Training School (the origin of Hitotsubashi University, Tokyo), Watanabe was hired by Mitsui and was soon sent to the London office in 1882.²⁸ Four years later, in 1886,

kojyo yo kiki kikan no gaisetsu" [Leading article: A technical outline of steam engines and boilers for cotton spinning mills], *ibid.* 5 (Sept. 1889): 1-8; Takeo Yamanobe, "*Ronsetsu, bosekigyo no kon'nan no gaisetsu*" [Leading article: The difficulty of our cotton industry], *ibid.* 6 (Oct. 1889): 1-7.

²⁶ Arthur H. Cole, "Entrepreneurship and Entrepreneurial History: The Institutional Setting," in *Change and the Entrepreneur: Postulates and Patterns for Entrepreneurial History*, ed. Arthur H. Cole (Cambridge, Mass., 1949), 85-107; Israel M. Kirzner, *Competition and Entrepreneurship* (Chicago, 1973).

²⁷ Harvey Leibenstein, "Entrepreneurship and Development," *American Economic Review* 58 (July 1968): 72-93.

²⁸ Makoto Ikema et al., eds, *Hitotsubashi University, 1875-2000: A Hundred*

Watanabe became an exclusive agent for Platt Brothers, and this made him one of the most strategic knowledge sources for the Meiji cotton industrialists.²⁹ His close ties with Yamanobe in the years of significant technological choices of new spinning frames and ancillary machinery (in the second half of the 1880s) suggests that the OCSC's decisions in both technology and growth strategy were made together with Mitsui. That is to say, Watanabe could conceptualize Mitsui's new global business opportunities as compatible with Yamanobe's entrepreneurial vision for growth. It was therefore a strategic matter for the two entrepreneurs to collaborate so closely, first for their companies, and later for the Meiji cotton industry.

Watanabe's conceptual breakthrough was presented in his speech at the annual plenary meeting of the Cotton Spinners' Association after his travels in India in February 1889.³⁰ This report was published on July 31, 1889, in *Kogaku Kaishi*, the journal of the Engineering Society of Meiji Japan.³¹ The essence of his opinion was twofold: the importance of developing pan-industrial awareness of global strategy and the urgency of studying as well as benchmarking the Indian cotton industry (rather than the British) as the important competitor in global competition. Watanabe's analysis of the Bombay spinning sector depicted the details of entrepreneurial management and induced his call for a paradigm change in the Meiji spinning sector. As Mira Wilkins has shown, the cotton industrialists from this moment began to realize a strong need for an international infrastructure that would support their global competition, a demand that was certainly responded to by the rising Meiji trading companies including Mitsui Bussan.³² Even before achieving dominance in the domestic market, the Meiji spinners were aware of the global nature of their business and shared the unprecedented paradigm of challenging multinational enterprise. This paradigm innovation had never been seen in any of the previous state cotton-spinning enterprises, and through their voices and practices, it is clear that Yamanobe and Watanabe pioneered entrepreneurial leadership in the dawn of the Japanese industrial takeoff.

and Twenty-Five Years of Higher Education in Japan (London, 2000).

²⁹ Tsunehiko Yui, "Kenkyu Noh-Toh: Meiji-Ki Mitsui Bussan no Kei'Ei Sha (Jyo), 4 Watanabe Senjiro" [Research note: The managers of the Mitsui trading company in the Meiji period, part I, section 4, Senjiro Watanabe], *Mitsui Bunko Ronso* [The Journal of the Mitsui Research Institute for Social and Economic History, Tokyo] 41 (Dec. 2007): 285-306.

³⁰ *Dai Nippon Boseki Dogyo Rengo Kai* [All Japan Cotton Spinners' Association], *Rengokai Gijiroku* [The minutes & proceedings of the special meeting of the All Japan Association of Cotton Spinners (15 March)] (Osaka, March 1889).

³¹ Senjiro Watanabe, "Indo menshi bosekigyo no jikkyo, honpo dogyo ni kansuru iken" [A report on the Indian cotton-spinning industry of today, and my perspective of our (Japanese) cotton-spinning industry], *Kogakukaishi* [Journal of Engineering Studies] 91 (July 1889): 454-77.

³² Wilkins, "Japanese Multinational Enterprise before 1914," 227-29.

Concluding Remarks

In considering the sources of competitive advantage of the Japanese cotton industry in the interwar period, Mass and Lazonick provided an essential analysis with five cost headings: labor, fixed capital, materials, marketing, and administration.³³ Their explanations of Japanese strength revealed that the nucleus of sustaining distinct cost advantages was formed through constant innovations in organizational structures, managerial procedures, marketing, and production technologies. It deserves our attention that the foremost catalytic source of all these innovative approaches can be found in the early entrepreneurial insight developed by Yamanobe and Watanabe. Using the efficiency of planned coordination within the industry as a whole, the Japanese cotton spinning sector could enhance its organizational capability by reducing information costs and by accomplishing a series of continuous innovations in product, process, and positioning in global competition; more significantly, the industry took advantage of the paradigm innovation in its infant phase of rapid development, supplied by determined industrial leaders of enlightenment and vision. Through the noteworthy developments in the last decade of the nineteenth century, the industry confidently followed its “vector of growth” since then.

This study has presented a new historical view that the essential guidance of the leading entrepreneurs Yamanobe of the OCSC and Watanabe of Mitsui provided the underdeveloped and confused Japanese spinning industry with a new vision to facilitate entrepreneurial management and to optimize information processing in a global perspective. The innovative reduction of information costs is emphasized in Mark Casson's concept of entrepreneurship.³⁴ The successful industrial take-off in the 1890s and the “global take-off” at the turn of the century were substantially owed to this early leadership, which clarified new combinations of strategic information and unprecedented managerial perception in the venture of late industrialization: what they should produce, how they should cooperate, why they must collaborate, how to save both information and production costs along with long-range corporate planning, and more significant, with whom they must compete and where they should go to comply with the potential demand in the global market. All of these entrepreneurial perspectives resulted from an utterly novel and modern industrial mindset of global management. Certainly, it was one of the most groundbreaking paradigm innovations in Japanese business and economic history.

³³ Mass and Lazonick, “The British Cotton Industry and International Competitive Advantage,” 37-45.

³⁴ See works by Mark Casson: *Entrepreneur: An Economic Theory*; “The economic analysis of multinational trading companies,” in *The Multinational Traders*, 22-47; *Entrepreneurship and Leadership* (Cheltenham, England, 2000); “Entrepreneurship and the theory of the firm,” *Journal of Economic Behavior and Organization* 58 (Oct. 2005): 327-48.