

## “Government and Industry in Industrializing Japan”

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That governments play an important role in industrialization and modernization is undisputed. More contentious at the theoretical and historical levels are what those roles could be. This session examines four technologies, ivory, iron, faxing, and transistors, to understand how government-industry interactions evolved and their importance. Among the major themes discussed are the negotiated nature of government involvement, promoting firms to cooperate as well as compete, representing Japanese interests in international arenas, and understanding how government promoted specific types of economic development.

Going Under the Knife - Government Involvement in the Meiji Ivory Industry

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Industrialization, exports and government involvement in that process is one of the overriding themes of the Meiji period. The assumption, however, is that this process only involved Western products produced in large factories. In fact, government involvement was present at every level of production, even the arts.

On one level this included the encouragement of fine arts through art schools and exhibition, but on the other the government also encouraged mass production of export art such as cloisonne in order to reverse, at least some, the unfavorable balance of trade, and promote Japanese cultural identity to the West.

Ivory makes an interesting case study for this process because it was a traditional craft that was radically altered by the process of modernization. Open ports brought an influx of raw material and a flood of exports. As a result, the government worked to increase standards and quality of production. New methods and tools were introduced. This paper will document that process in Meiji Japan using contemporary newspapers, archival documents, memoirs, and oral histories.

“All the Right Choices for All the Wrong Reasons: Technological Choice and Meiji Iron Industrialization”

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The Meiji government’s attempt to create a national ironworks at Kamaishi is often judged a failure, economically and technologically. Contemporary critics of the government’s plan identified material shortages, the ironworks’ location, inexperience, and inappropriate technologies as the problem. Later examinations correctly eliminate

material shortages from the list of the government's plan's short-comings, but fail to recognize that the ironworks' location and technologies were appropriate. To this day, Kamaishi's blast furnaces and ancillary equipment are often the target of criticism; most often being described as technologically inappropriate for Japan.

Through an examination of the state of the nineteenth century iron industry and the government's plans for, and motivations regarding, Kamaishi Ironworks, this paper demonstrates that Kamaishi's technologies were indeed "correct." More importantly, however, it shows that the process of technology selection was guided by factors often considered extraneous. In fact, I will argue that although Meiji officials adopted the "right" technologies, they did so for all the "wrong" reasons.

"Technology Importation, Corporate Strategies, and the Emergence of the Japanese Semiconductor Industry"

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During the 1950s, the Japanese semiconductor industry rose from scrap to a level that was on par with the United States. It is undeniable that this was due in large part to the importation of advanced technology from leading US firms. In the process of technology transfer, scholars have emphasized the importance of the role played by the highly restrictive government technology importation policy during this period. The aim of this paper is to analyze this story from the perspective of Japanese companies. There were divergent strategies for Japanese electronics manufacturers to acquire foreign technology, and they were shaped by the complex calculation involving the firm's organizational capability, US licensing practices, US antitrust policy, as well as the technology importation policy of MITI. In short, I will argue that the Japanese firms were not passive receptors but active agents in shaping the pattern of technology importation.

"Forced faxing: The Japanese government and the fax machine, 1960-1995"

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Faxing seems a "natural" technology for Japan, enabling the easy transmission of that country's ideographic language using well designed electronics. The evolution of facsimile from a promising to a practical technology proved far more tortuous than imagined. Without government prompting and support, formal and informal industry cooperation, and strong industry competition, the domestic and international fax markets would have emerged far more slowly and fractionated.

This paper examines the rise of the fax industry in Japan from the 1960s through the 1990s to understand how it moved from a small industry into the world's leading manufacturer and innovator of fax machines. The Japanese government, specifically the Ministry of Posts and Telecommunications (MPT), played a vital role in pushing manufacturers and

the telephone monopolies, NTT and KDD, to work together to create a national standard, READ, in 1977. MPT then closely worked with these players to make a modified READ the international G3 standard in 1980. This, the world's first truly effective fax standard, established the foundation for the fax boom of the 1980s. Formal and informal Industry cooperation then made the G3 standard truly a standard.