

History of Policy, Organization, and Innovation

Policy, Organization, and Innovation in American Pulp and Paper since 1914: Historical Perspectives on Contemporary Problems

Summary

Significant transition is currently occurring within the pulp and paper industry in response to further consolidation of firms through mergers, increased foreign competition, and a need to develop new products and manufacturing technologies in order to stimulate growth in a moribund industrial sector. This challenge and change must be accomplished at a time when the industry is operating in a complex regulatory environment characterized by acute environmental awareness and often complex and overlapping political jurisdictions. Historical analysis of previous, parallel moments of transition can provide invaluable perspective on the current situation. A macro-level study of the pulp and paper industry over time, coupled with detailed case studies of particular firms during key moments of innovative response to changing regulatory regimes and competitive conditions, can inform both business strategists and policy makers as they attempt to revitalize the current industry. This research meshes with ongoing scholarship and policy debate regarding the impact of regulation upon innovation and industrial competitiveness across many sectors. This project is approximately 70% complete.

Key Questions

- ▶ How has public policy – especially antitrust and environmental regulation – historically influenced the course of technical innovation in the industry?

Value Proposition

Insights from history reveal how various government policies and business strategies have promoted or impeded innovation in pulp and paper. Lessons learned from the past can inform contemporary managers and policy-makers as they seek to create conditions that will foster technical change and competitiveness.

- ▶ What strategies of innovation (e.g., process or product; cooperative or proprietary) have proven most effective for firms in the industry?

Key Results to Date

Research in archives of several firms and individuals, combined with thorough reading of the trade literature and government documents (including a thorough search of patent data), has generated an overview of policy, innovation, and competitive structure in the twentieth century paper industry and several case studies of innovation at particular firms. Though results are still being processed, this research has already generated four working papers (three formal presentations at national meetings; one a working paper given locally), two ongoing doctoral dissertations (one fairly well along; one in its early stages), and one submitted paper.

Specific preliminary research findings thus far include: 1) proprietary technologies have played a much larger role in shaping industry organization than is generally appreciated; 2) though much effort has gone

toward process innovation, product innovation has often played a larger role in key moments of reorganization; 3) successful innovation, including both new products and methods of environmental remediation, has typically involved high levels of collaboration among firms; 4) environmental policy has influenced innovation for more than half a century, and it has done so most effectively when it has promoted thorough changes in process and product rather than mere reduction of end wastes.

Implications for Industry

Our findings point to the complex relationship between innovation and organization. Preliminary results suggest that proprietary technologies have consistently played a larger role in strategic competition than many observers have appreciated. This has been especially true in the lower capital intensive converting sectors, where specialty manufacturers built distinct competitive strategies by carefully patenting products such as paper boxes, cups, bottles, and bags (e.g. Hinde and Dauch, Union Paper and Bag, Scott, Kimberly-Clark). Innovation and learning have themselves frequently involved high levels of collaboration among firms. Certain antitrust policies, such as those aimed at banning patent trusts, may potentially have undermined an essential element of strategic competition and industry enhancement. Environmental policies have also worked most effectively when they have left room both for collaboration and for a differentiated approach.

Anticipated Results and Implications

Further work on such issues as past cycles of antitrust investigation and prosecution, wartime economic controls, the blending of differing traditions of industry practice

through merger, and the ways in which various environmental challenges have been addressed, particularly since World War II, will have a valuable resonance with current industry analysts and leaders.

The compilation of an integrated history of the pulp and paper industry focusing on changes in competitive structure which link those changes to the course of innovation will provide a valuable tool to the industry. Industry leaders may use this information, for example, to create a matrix of decision-making tools that will allow it to be more responsive in the future to changes in product and product innovation and the regulatory environment. More specifically, a greater understanding of change over time will provide insights into enterprise pressures emanating from the antitrust or regulatory quarters (e.g. issues related to environmental compliance).

Industry Involvement and Impact

We are laying plans to utilize private archives at Weyerhaeuser and to conduct interviews with individuals who have worked in the industry. Our industry liaison and members of the CPBIS Industry Advisory Board have been helpful in this.

We have presented highlights of our results to the IAB and to the Executives Conference of the Institute of Paper Science and Technology. This fall we presented results at the TAPPI conference.

Publications

- ▶ Toivanen, Hannes, "Policy, Organization and Innovation in the U.S. Pulp and Paper Industry, 1900-1950," annual meeting of the Business History Conference, April 19-21, 2002, Wilmington, Delaware

- ▶ Toivanen, Hannes, “Shaping Markets: The Political Economy of Paper Standardization, 1880-1940,” annual meeting of the Society for the History of Technology, October 17-20, 2002, Toronto, Canada
- ▶ Toivanen, Hannes, “‘Visual Harvest:’ Ambiguity in U.S. Forestry Science at Home and in the Tropics, 1890-1925,” annual meeting of the History of Science Society, November 7-10, 2002, Milwaukee, Wisconsin
- ▶ Unger, Phillip, “EPA’s ‘Cluster Rule’ and the U.S. Bleached Kraft Pulp Industry: A Potential Case Study of Environmental Regulations on Technological Innovation and Diffusion,” School of History, Technology, and Society Graduate Student Forum, April, 18, 2003, Georgia Institute of Technology, Atlanta

- ▶ Toivanen, Hannes, “Historical Perspectives on Contemporary Problems: Organizational Capabilities and Strategy and Structure of Large Pulp and Paper Firms, 1950-1980,” TAPPI 2003 Fall Technical Conference, October 27-30, 2003, Chicago, Illinois.

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