THE SOCIAL IMPLICATIONS OF TECHNOLOGICAL DEVELOPMENT: INDUSTRIALIZATION AND INNOVATION AS A COLLECTIVE PROCESS

Árni Sverrisson
Department of Sociology, Stockholm University, Sweden

Keywords: Technological development, private sector, technology and culture, gender and technology.

Contents

UNESCO – EOLSS SAMPLE CHAPTERS

Summary

This contribution summarizes recent work on technological development, and considers in particular the local forces and circumstances that shape it in the South. Main types of technological cultures are identified, and it is argued that succesful development depends on the balance among them. Particular attention is paid to the issue of private sector development and the role it can play in industrialization processes. Options for flexible types of technological development are discussed and the possibility for gradual technical change among the poorer sections of the population. However, as pointed out in the contribution, private sector development needs active government support and laissez faire prescriptions are unlikely to achieve their goals. A minimum of democracy and general education, particularly among women, are also likely to enhance information flows that support development.

1. Introduction

Prevailing conceptions of technological development are to a large extent simplified abstractions, derived from interpretations of industrial development in Europe. However, recent historical research has revealed that European industrialization was a good deal more complex than was previously assumed. The emerging picture is one of false starts, conflicts, a variety of possible development paths, multiple centers of invention and diffusion of technologies and of contradictory political intervention. Indeed, it looked very much like current industrialization efforts in the South.

Simultaneously, the assumptions which were obvious to development theorists a quarter-century ago and the conceptual frameworks founded on them have increasingly been criticized for their inadequate consideration of the role of indigenous social forces in the third world. Concurrently, interest in development paths which are alternative or complementary to those promoted by abstract theorists are growing within the development research community.

In Western science, reconstructions of and comparisons with other societies have often served the purpose of highlighting essential aspects of contemporary Western society. Third world societies have accordingly been characterized by the absence or 'lack' of this or that 'modern' property. The *transition* from pre-industrial to industrial society, and its roots in pre-industrial societies themselves has, by comparison, received little *systematic* attention, particularly the internal but transcendent *technological dynamics* of non-industrial social formations, and the elements of continuity which influence the development of social constellations.

However, it is not enough to narrate illuminating parallels between European, Japanese and other industrialization experiences in an anecdotal manner. Indeed, such parallels may turn out to be directly misleading, if used for prescriptive purposes. On the other hand, abstract theorizing is only helpful to the extent that it can be related to actual realities and used in empirical studies. In order to draw on the critical currents outlined above, it is necessary to develop a conceptual framework for the systematic study of technology and social change in developing countries. Below, such a framework is outlined on three levels:

- macro level, where *aggregate* social categories are employed to analyze technological change
- meso level, where *networked* relations among individuals and organizations are in focus
- micro level, where *individual* organizations and enterprises are seen as the loci of change

In the following these different levels will be considered in turn, starting with the macro level.

-
-
-

TO ACCESS ALL THE **17 PAGES** OF THIS CHAPTER,
Visit: http://www.eolss.net/Eolss-sampleAllChapter.aspx

UNESCO – EOLSS SAMPLE CHAPTERS

Bibliography

Baark, Erik and Uno Swedin: *Man, Nature and Technology: Essays on the Role of Ideological Perceptions*, Macmillan, London, 1988

Basalla, George: *The Evolution of Technology*, Cambridge University Press, 1988

Berg, Maxine, Pat Hudson and Michael Sonenscher: *Manufacture in Town and Country Before the Factory*, Cambridge University Press, 1983

Hughes, Thomas P.: 'The Evolution of Large Technological Systems' in Wiebe E. Bijker, Thomas P. Hughes and Trevor Pinch (eds.): *The Social Construction of Technology: New Directions in the Sociology and History of Technology*, The MIT Press, Cambridge Massachusetts and London 1987.

Dierkes, Meinolf and Ute Hoffmann (eds.): *New Technology at the Outset: Social Forces in the Shaping of Innovations*, Campus Verlag, Frankfurt, 1992

Evans, Peter and John D. Stephens: 'Development and the World Economy,' in Neil J. Smelser (ed.): *Handbook of Sociology*, SAGE Publications, London, 1988 (b)

Gamser, Matthew S., Helen Appleton and Nicola Carter (eds.): *Tinker, Tiller, Technical Change*, Intermediate Technology Publications, London 1990

Gereffi, Gary and Miguel Korzeniewicz (eds.) *Commodity Chains and Global Capitalism*, Preaeger, London, 1994

Hamilton, Clive: *Capitalist Industrialization in Korea*, Westview Press, London, 1986

Headrick, Daniel R.: *The Tentacles of Progress: Technology Transfer in the Age of Imperialism*, 1850-1940, Oxford University Press, 1988

Isacson, Mats and Lars Magnusson: *Proto-industrialisation in Scandinavia: Craft Skills in the Industrial Revolution*, Berg Publishers, Lemington Spa, 1987

Kriedte, Peter, Hans Medick and Jürgen Schlumbohm: *Industrialization before Industrialization*, Cambridge University Press & Editions de la Maison des Sciences de l'Homme, Paris, 1981

Lindberg, Staffan and Árni Sverrisson (eds): *Social Movements in Development: The Challenge of Globalization and Democratization*, Macmillan, London 1997

McCormick, Dorothy and Poul Ove Pedersen (eds.): *Small Enterprises: Flexibility and Networking in an African Context*, Longhorn Kenya, Nairobi, 1996

Mytelka, Lynn Krieger: 'The Unfulfilled Promise of African Industrialisation,' in *African Studies Review*, Volume 32, Number 3, 1989, pp. 77-137

Nohria, Nitin and Robert G. Eccles (eds.): *Networks and Organizations: Structure, Form and Action*, Harvard Business School Press, Boston, 1992

Pacey, Arnold: *Technology in World Civilization*, Basil Blackwell, Oxford, 1990

Pedersen, Poul Ove, Árni Sverrisson and Meine Pieter van Dijk (eds.): *Flexible Specialization: The Dynamics of Small-Scale Industries in the South*, Intermediate Technology Publications, London, 1994,

Pedersen, Poul Ove: *Small African Towns: Between Rural Networks and Urban Hierarchies*, Avebury, Aldershot, 1997

Sabel, Charles and Jonathan Zeitlin: *World of Possibilities: Flexibility and Mass Production in Western Industrialisation*, Cambridge University Press, London, 1997

Scranton, Philip: *Endless Novelty: Specialty Production and American Industrialization, 1865-1925*, Princeton, Princeton University Press, 1997

Schmitz, Hubert and Khalid Nadvi (eds.): *Industrial Clusters in Developing Countries* pp1503 -1514, special issue, *World Development*, Vol. 27, No. 9, 1999

UNESCO – EOLSS SAMPLE CHAPTERS

Smillie, Ian: *Mastering the Machine: Poverty, Aid and Technology*, Intermediate Technology Publications, London, 1991

Stewart, Frances, Henk Thomas and Ton de Wilde(eds.): *The Other Policy: The Influence of Policies on Technology Choice and Small Enterprise Development*, IT publications in association with Appropriate Technology International, London 1990

Sverrisson, Árni and Meine Pieter van Dijk (eds.): *Local Economies in Turmoil: The Effects of Globalisation and Deregulation*, Macmillan, Basingstoke, 2000

Takeuchi, Johzen: *The Role of Labour-Intensive Sectors in Japanese Industrialization*, United Nations University Press, Tokyo, 1991

Wallerstein, Immanuel: *Historical Capitalism*, Verso Editions, London, 1983

van Dijk, Meine Pieter and Roberta Rabellotti (eds): *Enterprise Clusters and Networks in Developing Countries*, Frank Cass, London, 1997

Biographical Sketch

Árni Sverrisson is an Associate Professor of Sociology at Stockholm University. He is the author of *Evolutionary Technical Change and Flexible Mechanisation* (Lund University Press, Lund,1993). He edited *Flexible Specialization: The Dynamics of Small-Scale Industries in the South*, IT-publications, London, 1994 (with M.P. van Dijk and P.O. Pedersen), *Social Movements in Development: The Challenge of Globalisation and Democratisation*, Macmillan, London, 1997 (with Staffan Lindberg) and *Local Economies in Turmoil: The Effects of Deregulation and Globalization*, Macmillan, Basingstoke, 2000 (with Meine Pieter van Dijk). He has also contributed a large number of chapters and articles to anthologies and international journals such as Acta Sociologica, Visual Sociology, Contemporary Sociology and Technology and Culture, on the sociological aspects of appropriate technology, information technology and environmental technology.

UNESCO – EOLSS SAMPLE CHAPTERS