BOOK REVIEWS

Globalization, Technology, and Competition: The Fusion of Computers and Telecommunications in the 1990s

Edited by Stephen P. Bradley, Jerry A. Hausman and Richard L. Nolan (Boston: Harvard Business School Press, 1993), 392 pages.

This book was spawned by a Harvard Business School colloquium and was edited by three distinguished academics. Jerry Hausman, for example, received the John Bates Clark Award from the American Economics Association and is currently Director of the Telecommunications Economics Research Program at the Massachusetts Institute of Technology. Six of the twenty contributors are company executives. George Hayter, who lead the electronic information and trading services group at the London Stock Exchange at the time of the "big bang", is representative of the quality of this group. The academic contributors, likewise, bring high credentials with respect to research and consulting reputations. The product of spawning of this calibre is such that it is a "must read" for both executives of transnational corporations and the policy makers concerned with those firms.

A major conclusion of this book is the occurrence of "a new fusion of information technology and telecommunications". This fusion involves two of the factors that caused, in Raymond Vernon's (1977) words, "the spectacular shrinkage of space". By shrinking the world, telecommunications and information technologies have significantly contributed to globalization, while globalization itself creates a greater need for those two technologies.

Technology is thus seen both as driving and being driven by globalization. This technology fusion will enable firms who are adroit with information technology innovations to capture economies of scale and scope by going global with a network organization and competitive strategies that reflect an appropriate local-global balance.

Richard Nolan hypothesizes that organizations have learned, aided by computer-based technologies to include telecommunications in their functions in three distinct stages. Each of these stages is approximately fifteen to twenty years in length. The first, the *data processing era*, starting around 1960, focused on making the organization more efficient at the clerical and factory levels through the use of mainframe computing. Commencing in 1975, the second stage, the *micro era*, was viewed as leveraging the work of mid-level managers and professionals through the use of such microcomputers innovations as spreadsheets, computer-aided design and manufacturing, and the use of microcomputers themselves in the final products, such as automobiles and consumer electronics. The third stage, the *network era*, is seen as taking off now. Through the use of networks, the editors point out in the introduction, that:

> "Products, such as automobiles and airplanes, are designed, by globally networked groups that collaborate daily, passing "blueprints" back and forth around the world and talking about them over the telephone or via video conferencing or electronic blackboards." (p. 11).

One could point to the new Boeing 777, that firms's first paperless designed aircraft, as another fresh example. Although these experiences lent credence to the network era, the chapter contributors do not concern themselves too much with the existing state of knowledge, but rather with the future. The contributors' chapters are harnessed around the effects that the networking of global information technology will have on four areas:

- *Changes necessitated in the organizational structure of the firm.* A global network organization is envisioned as a series of core infrastructures, designed by senior management, that provide the basis for shared resources and utilities. Markers and customers are served by self-designed, project oriented teams who perform their functions within the core infrastructures.
- *Changes in industry structure.* Global industries have been and will continue to be restructured by such information-intensive strategies as outsourcing, just-in-time lean production and strategic alliance. All these approaches cause a firm to network outside its traditional boundaries and share its information with suppliers, customers and, in some cases, competitors. Firms, either through attempts to gain competitive advantages or through sheer strategic necessity to avoid competitive disadvantages, will continue to invest in information networking technology, thus reshaping the boundaries of the firms and hence the very structure of the industry.
- *Changes in a firm's strategies.* Because of such changes as cell manufacturing that can lower minimum efficient scale economies and data-based marketing that can allow for individualized marketing customization, the information-technology-rich firm will be better positioned to achieve the local-global balancing necessitated by a global market. Various contributors pointed out that technology, while enabling firms to respond to local needs with global economies, does not ensure that the mind-set of the firm and its people will allow it. This

is exactly the problem so richly addressed by Christopher Bartlett and Sumantra Ghoshal (1989) in their seminal work on the transnational firm.

- *Changes wrought on the suppliers of the computer and telecommunication technologies*. Historically, technology and its suppliers have led the market; during the micro era the customers are seen to drive the technology. The customers are increasingly asking for specific solutions to specific network problems, in contrast to the historical situation, where a technological solution would be first introduced and would then search for a problem to solve. Sophisticated networks increasingly are demanding seamless and transparent solutions to evolving network needs. In partial response, telecommunications and computer industries are increasingly globalizing themselves; and, in developing their own global networks, they are attempting to assess and serve the evolving information needs of their customers. The role of Government policies is particularly examined in this section. Policy makers who have examined Michael Porter's (1990) diamond concept for possible competitive advantage should find this particularly interesting, since the editors clearly and unequivocally reject Porter's imperative for a strong home base in the case of software and network integrating industries. The prospective nature of the book under review occasions a retrospective look at Alfred Chandler (1962, 1977, 1990), the doyen of business economic historians. Chandler explicated the importance of increased speed and decreased costs in communications, transportation and large-scale manufacturing and distribution systems to the creation of the modern transnational enterprise. He further explained the necessity for the development of a management structure not only to administer the daily function of these organizations but, even more importantly, to also allocate resources for the future growth. Chandler pointed out that the natural avenue for growth was through international expansion. The factors emphasized by Chandler for the historic evolution of the transnational enterprise are the exact same factors utilized by the contributors of this book for the future evolution of the global network enterprise. Even if some or most of this volume's projected scenarios do not materialize, the reader will have been richly rewarded for the exposure to the volume's core concepts.

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Financial Strategies and Public Policies Banking, Insurance and Industry
Zuhayr Mikdashi
(New York: St. Martin's Press, 1993), 210 pages.

In a concise and well documented book, Zuhayr Mikdashi has edited the presentations made at the Third International Banking Colloquium at the University of Lausanne in late 1991. Twenty-one chapters cover most salient features of transnational corporations' (TNCs) financial strategies and related public policies. In the twenty-second chapter, the editor presents a number of reflections and opinions on public policies concerning uncertainty in the financial services industry and related TNC strategies, as well as an overview of the main recommendations made by the contributors. Their conclusion is clear: "a further global harmonization of rules is deemed necessary in order to attain in the not too distant future a 'level playing field' in major markets or industries. The challenge for authorities concerned is to guard against the imposition of rules susceptible to stifle private initiative on the creativity of competitors seeking to serve customers' needs" (p. 194).

This conclusion derives from an accurate analysis of financial strategies of TNCs. It appears that not only large TNCs with experienced management pursue the opportunity of global expansion, but smaller entrepreneurial TNCs also seek functional and/or geographical diversification, aimed at achieving greater stability in an uncertain and turbulent World. Other firms prefer to avoid spreading their financial resources too thinly in areas which they do not master and to retrench into select markets where they have a better knowledge of risks and opportunities. Therefore, actors in the global market are likely to be bigger and fewer, largely through mergers, acquisitions and consolidations. Such developments do not exclude small enterprises whose competitive advantage lies in their highly specialized products and in their creditworthiness. A very informative study is made of TNC strategies in the automotive industry, while another highlights British Petroleum's new distribution of functions.

Some contributors advocated a strategy of forming alliances or cooperative arrangements among TNCs. For example, banks, especially in Germany and Japan, are becoming increasingly large shareholders in manufacturing firms. In the United States, despite strict regulations, several industrial or commercial groups, e.g., General Electric, General Motors and American Telephone and Telegraph, have financial affiliates that offer certain banking services. Other contributors, on the contrary, emphasized the usefulness to TNCs of adopting "focused strategy" and, at a minimum of having different functions handled separately within the same group of companies, in terms of both legal and management structures. Some relationships between the banking industry and TNCs in the insurance industry have been scrutinized closely, notably, cooperation in the form of coinsurance. Related issues, such as conflicts of interest within "universal" or "one-stop" banking/financial groups, styles of investment, banking in mergers and acquisitions, capital markets, brokerage and so forth, were also considered. The relationships between the banking sector and securities issued by TNCs were also examined. The views expressed were different, sometimes antagonistic, especially regarding the risks involved and the savings protection schemes. The merits of the book include excellent presentations on the Japanese and the United States banking and financial sectors, the position of Switzerland *vis-à-vis* the European financial area, the financial needs of major TNCs and the regulation of financial conglomerates.

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* The views expressed herein are personal and are not those of the United Nations.

The World Competitiveness Report 1993
The Institute for International Management Development
and The World Economic Forum
(Lausanne and Geneva: IMD and The World Economic Forum, 1993),
730 pages.

It is an ambitious undertaking to measure and analyze competitiveness. Over the years, there has been little agreement as to the meaning of the term in the economic profession. It is used in a variety of contexts, mainly in relation to companies and economies. In relation to economies, most observers agree that competitiveness represents a means to an end, namely, long-term economic growth and rising standards of living. How to reach these objectives is a question essentially as broad as that of what determines economic growth. It is against this background that the *World Competitiveness Report 1993* should be reviewed.

The *Report* is the latest in an annual series published since 1980 by the International Institute for Management Development (IMD) and the World Economic Forum. The main focus of the *Report* is the competitiveness of national economies as seen from a business perspective. Specifically, the report is a ". . . multi-dimensional analysis of how national environments are conducive or detrimental to the domestic and global competitiveness of enterprises operating in those countries" (p. 30). As such, the *Report* is an appraisal of the relative locational advantages and disadvantages of economies or, in other words, of the determinants of the location of economic activity, including activities by transnational corporations (TNCs).

The particular findings of the *Report* will not be discussed here. Instead, the structure, methodology and a few of the results contained in the *Report* will be evaluated. Since the overall results of the *Report* are used quite frequently by Government agencies (to promote inward foreign direct investment (FDI) for example), private and public researchers and news media, it is important to understand how those results have been generated.

The *Report* is divided into four main parts. The first part contains the introduction and a discussion of overall results and general methodology. The second part provides national competitiveness profiles, based on the statistical tables in the fourth part, for 38 economies (23 members of the Organisation for Economic Co-operation and Development (OECD) and 15 newly industrializing economies.[1] The third part is a collection of articles on each of the eight factors of competitiveness (see below), as well as two articles on European

[1]The OECD economies included are Australia, Austria, Belgium/Luxembourg, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand,

management systems and on competitiveness of economies and the globalization of the world economy, respectively. The fourth part contains statistical tables, ranking each economy according to individual criteria (see below) and a short description of the data processing methodology used. The appendix gives notes, sources and an index to the tables.

The analysis and ranking of economies is carried out at three levels: the *overall* level, the *factor* level and the *criteria* level. Economies are ranked at the overall level based on a framework consisting of eight *factors* of competitiveness (domestic economy, internationalization (see below), Government, finance, infrastructure, management, science and technology, people), each of which is measured by a multitude of *criteria* (in total, 371 criteria are contained in the *Report*, some of which are not included in the overall or factor ranking of countries). In the *Report*, Japan is in first place, followed by the United States, Denmark and Switzerland.

Countries are ranked for each of the eight factors (for example, infrastructure), based on an, apparently, unweighted ranking of each criterion (for example, availability of telecommunications). To calculate the overall index, all eight factors are then weighted according to the number of criteria in each particular factor (for example, the internationalization factor is measured by 29 different criteria and the finance factor by 27 criteria). This approach seems quite arbitrary. Although it would be very hard to identify more appropriate weights for each criterion and factor in ranking the economies, it is not at all clear from the discussion in the *Report* regarding approach and methodology what the rationale for the weighting system is.

With the growing recognition in the literature that TNCs can play a significant role in influencing the competitiveness of home and host economies (e.g., Dunning, 1992), it is very encouraging that the *Report* includes several measures directly related to TNC activity. In particular, the internationalization factor's influence on country competitiveness is measured by ranking countries (using "hard" data obtained mainly from international organizations) by 4 FDI-related criteria, along with 17 trade-related and 3 exchange-rate-related criteria; and (using "soft" data based on questionnaire survey responses from more than 2000 business executives and "economic leaders" (see below) world-wide)[2] by the following criteria (pp. 355-414):

Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom and the United States. The newly industrializing economies included are Brazil, Chile, Hong Kong, Hungary, India, Indonesia, Republic of Korea, Malaysia, Mexico, Pakistan, Singapore, South Africa, Taiwan Province of China, Thailand and Venezuela.

[2]All eight factors of competitiveness are analysed using both "hard" and "soft" data.

Trade policies	Cross border ventures
Export credits and insurance	Investment protection schemes
Exchange rate stability	Overseas postings
Protectionism	History of other cultures
International distribution	Nationalism
Foreign investors	International influence
Foreigners	National culture
Immigration laws	Image of home country abroad
International alliances	

The *Report* ranks economies for the internationalization factor by these criteria. Absolute levels of outward and inward stocks and flows of FDI are used as positive indicators of the competitiveness of economies. For example, the United States has the world's largest outward FDI stock. However, the United States is also the largest economy in the world, which may explain in part the high absolute level of its FDI outward stock. A more relevant measure may have been to use FDI position relative to the size of the economy. Actually, in the *Report*, outward and inward flows of FDI are measured as a percentage of gross fixed capital formation of the home economy (tables 2.50 and 2.52), but the results are excluded from the factor and overall ranking. Furthermore, it has sometimes been argued that outward FDI may, to some degree, represent a relocation of productive capacity abroad, a possible indication of deteriorating competitiveness of the home economy. The debate on the North American Free Trade Agreement (NAFTA) focused on that issue. Thus, it is not always clear what the criteria chosen in the *Report* say about the relative competitiveness of a particular economy.

There are other similar weaknesses in the *Report*. Not all criteria contained in the statistical tables are included in calculating the overall ranking of economies since they do not show anything meaningful regarding competitiveness (p. 308). However, it is not always clear why certain criteria are excluded. For example, gross domestic product (GDP) per capita at current prices and exchange rates is included as a positive measure of competitiveness, while the same measure adjusted for purchasing power parities (PPPs) is excluded. This seems odd since there is a general consensus that this analysis provides a more useful approach to comparing data on GDP per capita across economies than using only market exchange rates.

The ranking by individual criteria shows some inconsistencies. An example is the value-added measures of productivity (tables 6.01, 6.03, 6.04 and 6.05) in current United States dollars at market exchange rates. It seems that those data cannot easily be compared across economies without taking into account the often substantial differences in prices between economies. For example, from the ranking based on overall labour productivity measured by GDP per person employed (table 6.01), Switzerland has the highest labour productivity. But, when taking into account the fact that Swiss prices, as measured by the United Nations International Comparison Project's PPPs (see United Nations, 1993), are generally quite high compared with other economies included in the *Report*, the ranking of Switzerland would be different. Since PPPs are used to measure other criteria in the *Report*, such as GDP per capita (table 1.06), they could usefully — although with some difficulty — be introduced in measuring productivity as well.[3]

In the survey of the chief executives and the undefined "economic leaders", the *Report* contains little information on the distribution of respondents by economy, industry and nationality and whether or not there is a bias in the executives' responses, depending on company size, nationality, internationalization, etc. From the discussion of the methodology it appears that executives were only requested to consider "their country" (p. 30). Assuming that questionnaires were sent to chief executives of parent companies only, the survey may have forgone an important indicator of competitiveness. In today's globalizing world, where much business activity is carried out by foreign affiliates, it would seem that an evaluation by executives of foreign corporations would have been useful as well.[4] Furthermore, with chief executives and "economic leaders" evaluating only their own economy, bias may have been introduced since the *Report* ranks economies based on those evaluations. People of different nationalities, cultures and values are likely to have different perceptions and give different ratings of the same criterion for the same economy.

A general weakness in the *Report* probably stems from its ambitious objectives. Based on theories on and principles of factor endowments, innovation and technology, know-how and education, the *Report* sets out to compare economies according to the same set of factors and criteria. However, if some economies have comparative advantages in producing certain goods and services, then the ranking of these economies by these factors and criteria may not show whether or not one economy is more competitive than another. It is the combination of comparative advantages in factors and criteria (e.g., low cost labour in combination with a good transportation infrastructure and modern communications technology) that jointly constitutes competitiveness in the production of a particular product or service. Thus, the challenge facing local, state and national Governments is to create the optimal mix of comparative advantages ranked by factors and criteria in order to encourage business to locate

[3] For an application of PPPs in measuring productivity in nine manufacturing industries across countries, see McKinsey Global Institute (1993).

[4] For a discussion of the impact of TNCs on home- and host-country competitiveness, see Dunning (1993).

productive activities in their economy. Furthermore, the competitiveness of different economies is likely to benefit from different combinations of comparative advantages by factors and criteria. This suggests that the competitiveness of economies cannot be ranked using the same weights for factors and criteria. If so, the overall ranking in the *Report* is suspect since it is based on the same set of weights for all economies. This problem has been mitigated somewhat by separating OECD economies from the newly industrializing economies in the ranking, thus creating two relatively homogeneous groups of economies. But, of course, even within those groups, economies can be quite dissimilar in terms of comparative advantages. In sum, given the weighing system employed, an economy could be ranked as the most competitive in the world only if it enjoys absolute advantage in all relevant factors and criteria.

The *World Competitiveness Report 1993* is a very useful reference guide. With its numerous tables and graphs, organized both in term of cross-economy comparisons and over time, the *Report* gives an easy overview of multiple indicators of competitiveness for 38 economies. Moreover, through the survey questionnaires, the *Report* provides new data on a variety of questions related to the competitiveness of economies and the choice of location of economic activity in general and FDI in particular. Thus, it is the data on specific criteria that make this *Report* so valuable, not the overall ranking of economies which seems to be fraught with methodological problems. The authors could alleviate some of these drawbacks by paying more attention to methodology in future editions and by specifying the pitfalls in using the overall results *prima facie*. More detail on the data, the methodology used and the survey results would be helpful to researchers using the *Report.*

The *Report*'s coverage leaves out a large part of the developing world. However, starting in 1993, the Institute for International Management Development and The World Economic Forum has been publishing the *Emerging Market Economies Report* covering Central and Eastern Europe, China and India. For the remaining developing economies a similar competitiveness report could be very useful. Although the task of preparing such a report would be difficult, since many or most of those economies lack a sound statistical infrastructure, it could shed some light on reasons behind the success of the newly industrializing economies and the failure of many developing countries' attempts to raise their standards of living.

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