The Growing Dependence on Transborder Data Flows

Karl P. Sauvant, Columbia University
Recent studies confirm the increasing importance of transborder data flows for transnational corporations. Foremost among the economic concerns is the fear that TDF hinder the establishment of domestic information resources.

The growing dependence on transborder data flows

By Karl P. Sauvant

Corporate transborder data flows (TDF) account for the bulk of international data traffic. A recent study prepared by the National Telecommunications and Information Administration for the U.S. Senate observed: "International data communications have become crucial to the operation of U.S. multinational companies." This observation is echoed in a recent report by Business International, which concluded that transnational corporations "are dependent on the computerized flows of information to conduct their business today — and will be more so tomorrow."

Few publicly available studies, however, survey the use of TDF by these corporations. The principal ones have been undertaken by the Organisation for Economic Co-operation and Development (OECD), the Intergovernmental Bureau for Informatics (IBI) and Business International (BI). The primary objective of all three studies was to ascertain the uses and corporate effects of transborder data flow. They differed, however, in their samples and methods of implementation and are not necessarily representative. Nonetheless, they are indicative of corporate

rate experience with transborder data flows in a large number of firms, and they are consistent in terms of their findings regarding the importance of TDF, the principal uses of these flows and the benefits that they provide for the firms that utilize them.

Eighty-eight percent of the companies participating in the BI survey stated that TDF were important or very important for at least one corporate function, a percentage that increased to more than 90 when managers were asked to predict importance for 1988. The principal obstacle to the growing use of TDF appeared to arise from inadequacies of the telecommunications network, particularly in developing countries. The IBI survey found, for instance, that 38% of the responding corporations planned to establish computer communications systems as soon as local conditions permitted; 29% indicated that such systems had already been established.

Laws and regulations, on the other hand, appeared to have little influence on the growth of TDF at the present time. 44 of 62 companies that evaluated this matter in the BI study did not believe that such actions affected functional decisions. This finding is corroborated by the OECD study — according to which, on a scale of 0 (no obstacles) to 2 (severe obstacles), laws and regulations scored 0.6 on the average — and by
the expansion of transnational computer communications systems in Brazil.

The three surveys also agreed on the relative importance TDF have for various functional areas of corporate activities, allowing, of course, for variations by sector. Financial management was far the corporate function in which TDF were mostly used (see table on ID/21). In the OECD study, financial management accounted for 45% of total TDF use, reaching, however, 64% in services. In the case of the BI study, 60% of all transnational corporations surveyed rated these flows as important or very important in 1985, and 73% gave them those ratings for 1988.

That evaluation did not differ substantially between U.S. and Western European firms, although the latter reached a rating of more than 80% for the future importance of TDF in this area. Financial management was followed relatively closely by marketing and distribution (including ordering, inventory control and invoicing) as far as its perceived importance to users was concerned, although the volume of flows involved was smaller.

TDF were also considered quite important for production (especially in extractive industries), management (including strategic planning) and research and development (especially in some manufacturing and extractive industries), but less so for personnel and payroll management. Noteworthy are the relatively high ratings for manufacturing, strategic planning and computer-aided design, manufacturing and engineering (CAD/CAM/CAD). The last function, in fact, had the highest growth rate in the BI study; almost twice as many companies as in 1983 expected TDF to be important in this corporate activity within five years. However, TDF were also expected to grow in importance virtually all other activities in most industries.

The benefits these corporations derive from the use of TDF, first of all, are in the area of increased corporate efficiency. In the BI study, 40% of the firms that adopted TDF in the last few years stated that corporate efficiency had increased as a result of the use of TDF; 55% did not attribute the higher efficiency directly, but felt that their companies had used TDF since these flows had become a necessary tool to do business internationally; only one firm indicated no increase in efficiency.

For one-third of the responding firms, TDF opened new business opportunities — for example, in the area of foreign exchange management and the creation and sale of data bases — and 18 used these flows to introduce new technologies in production.

**Technological edge**

Put into a broader context, TDF are a major element in the process by which transnational corporations take advantage of new technological possibilities and adjust to the changing economic environment. More specifically, the OECD study suggests that the use of TDF has had three major efficiency implications. First, it has encouraged greater integration within corporations, increasing the specialization gains ensuing from closer international interdependence. Second, it has expanded the international supply of new services, such as access to computerized data bases and on-line software maintenance, accelerating the diffusion of technological advances. Third, it has improved financial management in transnational corporations.

The picture that emerges from all three studies is that these corporations rely considerably — and increasingly — on transnational computer communications systems. They do this not only to send messages faster (for example, for ordering, marketing, distribution, invoicing, sourcing), but also to improve management information (which cuts, of course, across all areas) but in particular, importance in such corporate functions as financial control, production planning, inventory control).

Another result is to change the manner in which corporations actually engage in production activities (for example, in manufacturing, research and development and CAM/CAD).

**The impact of TDF**

The impact of TDF on countries is likely to be profound and multifacetted. However, this impact has neither manifested itself clearly nor been the subject of much empirical research. All that can be done at this stage is, therefore, to identify some issues and...
discuss possible implications for research. In doing this, attention focuses mostly on possible problems associated with TDF, because they could prevent the full realization of the benefits.

These benefits are wide-ranging. For corporations—be they from developed or from developing countries—TDF permits more efficient management in an uncertain and unpredictable environment. But the benefits extend beyond the corporate sphere. The developments in informatics and telecommunications have substantially increased the ability to handle large amounts of data and, therefore, have improved the possibilities for better-informed decision making concerning virtually all matters. Particularly important in this context is access to a rapidly expanding pool of up-to-date knowledge stored in automated data bases. For instance, growing data networks may allow better management of natural resources (through the use of on-line commodity-quote data bases) and facilitate access to information of importance for export and import purposes, technology transfer and the like. Better knowledge in these respects may also have a long-term effect on the bargaining capacity of developing countries.

The use of TDF also may facilitate the transfer of information resources among individuals and corporations and software, but also hardware and information skills—to developing countries, making possible the establishment of new industries, such as data base services, and may help prevent a widening of the gap between the “information rich” and the “information poor.”

A final point that deserves mention is the impact of TDF on the competitive position of enterprises in developing countries. These enterprises may also wish to consider how they can utilize these flows profitably to increase their competitiveness in the world market. This applies also to the phenomenon of closed user-group networks such as Subnet and Sita. It may well be, for instance, that it is a pre-condition for banks from developing countries wishing to play a role in international financial markets to be linked to the closed user-group network of their own industry (or, alternatively, to have their own corporate networks).

The extent that such networks are emerging in other industries as well and that firms from developing countries are not linked to them, their competitive position may suffer. Conversely, to the extent that domestic enterprises use TDF, they may be able to improve their competitiveness with respect to transnational corporations and to world markets.

The potential problems raised by TDF also relate to a wide spectrum of issues. Some of them cut across all groups of countries, some are mostly the concerns of importers of data and data services, while others primarily concern to exporters.

Privacy concerns were among the first to be linked to TDF; in fact, they served to focus attention on that phenomenon. In response to the increased use of automated data bases containing information about individuals, national laws and regulations were adopted to ensure the individual’s right to privacy.

The advent of TDF led to the fear that those flows could be used to circumvent national regulatory actions. International approaches

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If internationally available information resources are more competitive, local users will prefer international to nascent domestic resources, making it difficult for domestic infant industries to grow and to develop forward and backward linkages.

- Technical matters, such as standards and protocols, which are mostly dealt with by the International Telecommunication Union.
- Legal issues, such as intellectual property rights and liability questions and the right to have access to local public telecommunications networks. Some of these issues are dealt with by the United Nations Commission on International Trade Law and OECD.
- Sovereignty issues (the concept of informational sovereignty, especially in relation to remote-sensing data, has been formulated in this regard).
- Cultural identity.
- Vulnerability.
- Barriers to the flow of data and data services, including those arising from telecommunications regulations.

Finally, and perhaps most important, TDF have given rise to a range of economic issues, especially in relation to their development and impact. Underlying the economic concerns are two factors: the structure of the international data market and the importance of information resources. Most information resources are located in the developed market economies. The overwhelming share of the research and development is devoted to information resources, of the infrastructure for TDF (the manufacturing of information hardware and software and the coverage of data networks) and of the commercial application of TDF is located in those countries.

The developing countries are mostly suppliers of raw data and consumers of processed data, that is, information. This uneven distribution of information resources and the TDF associated with them must be viewed against the growing importance of microelectronics and the role of the information sector in all economic activities. Inadequate national information resources and limited participation in TDF are, therefore, regarded as being of strategic economic importance, especially for the future development and competitiveness of the national economy.

As the policies of such countries as France and Brazil indicate, these considerations apply to developed and developing countries alike and can even become part of considerations of national security.

Foremost among the economic issues is the fear that TDF hinder the establishment of domestic information resources. To the extent that some information resources are available elsewhere (including in headquarters of regional centers) and can be accessed easily, market pressures to establish domestic information resources may be reduced. If internationally available information resources are more competitive, local users will prefer international to nascent domestic resources, making it difficult for domestic infant industries to grow and to develop forward and backward linkages.

This situation, in turn, may have implications for a country's employment picture and balance of payments.

Another set of economic concerns relates to the role TDF play in areas other than information resources. Since these flows are devoted to a broad range of economic activities, the lack of domestic information resources may increase the dependence (and vulnerability) of domestic industries in general. This may be particularly accentuated in the area of technology. While TDF certainly permit better access to information resources available worldwide, they may, at the same time, decrease the incentive to develop indigenous technological capacities.

The role of transnational corporations in these processes deserves particular attention because they are the principal actors in international economic relations, are almost entirely headquartered in developed market economies and account for...
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