Global Telecommunications Services: Strategies of Major Carriers

Jerry McCreary
William Boulton
Chetan Sankar
Auburn University

The globalization of telecommunications markets is of primary concern for today’s large telecommunication carriers. International business telecommunications is growing at a rate twice that of domestic traffic. Multi-national customers with offices around the world are demanding integrated solutions to their telecommunications needs. As telecommunication carriers respond to these customers’ needs, the carriers are beginning to expand outside their national boundaries. This paper identifies the dominant telecommunications carriers and the major markets. Then, it describes the regulatory environment in the major markets of Japan, the United States and Western Europe and analyzes how the dominant carriers are implementing their globalization strategies. Based on the analysis, AT&T and British Telecom emerge as having the highest potential for continued globalization.

The globalization of markets is a primary concern for the large telecommunications carriers (British Telecom, 1990; AT&T, 1991). These carriers are seeing their domestic profit growth slow or decline because of increased local competition (“Called Together,” 1991). Meanwhile, international business telecommunications is growing at twice the rate of domestic traffic (Keller, 1991). The carriers are further driven by the globalization of their major customers. As customers expand, so does the need for rapid, reliable international telecommunications. While existing standards for telecommunications services support international calling, the outmoded, overworked phone systems in many countries make international telecommunications services expensive and often unreliable. The solution for many firms has been to implement private networks (Eckerson, 1991; Freeman, 1991; Lalich, 1989). This has often been successful, but these firms have had to build large, highly skilled telecommunications staffs to deal with both the basic technology and the different technical standards and regulatory environments found throughout the world. Many other firms, not wanting to develop this expertise, are looking to the carriers for the management of their international networks (Crockett, 1991; Gantz, 1992; Horwitt, 1992). This paper looks at competition and strategies of telecommunications carriers in providing global services. First, the components of the telecommunications industry are presented. The major markets and the dominant players in those markets are then identified. The markets analyzed are Japan, the United States and the Western European countries of Great Britain, France and Germany. The regulatory environment in these markets and the international market
penetration strategies of the dominant carriers are then presented. These discussions lead to a model that combines the degree of deregulation in major markets with the globalization progress of the dominant carriers. We conclude with a discussion of the challenges facing carriers in global telecommunications services and areas for future research.

The Telecommunications Industry

The telecommunications industry is composed of carriers, equipment manufacturers, and network facility providers.

The telecommunications carriers offer services to multi-national corporations, businesses, individuals, and government. These services are of three types: POTS (plain old telephone service), enhanced services and substitutes. POTS include local wire access and national and international long distance service. Enhanced services or VANS (value added network services) include private data networks, video conferencing services, special telephone calling features (e.g., call forwarding and speed dialing), integrated services digital network (ISDN) and Broadband-ISDN. Substitutes are those technologies that can supplant all or a portion of POTS as the supplier of residential and business telecommunications. Examples are CATV (cable television), cellular telephone systems, paging systems, private satellite and microwave systems and CT2, an extension to the cordless telephone concept.

Telecommunications equipment manufacturers produce customer premise equipment (CPE), switching equipment and transmission equipment. Customer premise equipment could be telephones, private branch exchanges, data terminals, or other equipment. Switching equipment are the digital and analog switches that are installed in the carriers’ central and loop offices. Transmission equipment includes repeaters, digital access cross connects, multiplexers, and other equipment that are used to send traffic across the network facilities.

Network facility providers produce the transmission medium. These include copper wires, coaxial wires, fiber optic cables, satellite links, or microwave radios. These facilities are interconnected using the telecommunications equipment to produce a telecommunications network.

The telecommunications carriers integrate the facilities and equipment with appropriate software and hardware to produce services that satisfy the demands of the end-users. Examples of services are: 800 services, T-1 service, Digital Data Service, International Call Direct Service, or cellular telephones.

Often, a company, may be involved in more than one of the three businesses of telecommunications services, equipment manufacture, and network facility manufacture. An example is AT&T which does all three.

Competition in Global Telecommunications Services

Deregulation in the major markets has changed the features of international telecommunications services (Woodrow, 1989). These services were offered originally as a result of cooperative technical and administrative arrangements among carriers. Now, these services are being subject to increasingly fierce competition among the carriers.

The structure of competition for global telecommunications services can be viewed in the context of Porter’s five forces (Porter, 1990). The existing competitors are the large carriers and those firms offering the more complete range of enhanced services. It could also be argued that in “global” telecommunications services, there are no existing competitors and all are new entrants. Suppliers are the manufacturers of telecommunications equipment and buyers are the residences and businesses using the services. Both the suppliers and the buyers in the case of multi-national firms are potential sources of competition; however, there is little evidence that either is rushing to become a service provider. Finally, competition from known substitutes exists, with the range of competitors expanding to include the existing carriers themselves. This view of competition has to be augmented to account for the significant influence of each government. The governments dictate the rules foreign firms must follow to compete in their market and the rules their local carrier must follow to compete both at home and abroad. Government influence is discussed later; the major carriers and markets for telecommunications services are introduced below.

The Carriers

Carriers that rank among Business Week’s Global 1000 are listed in Table 1 along with their 1990 market value and revenue. Included also is their ranking against other global corporations and their ranking among all corporations within their own country. These carriers are the dominant forces in the largest telecommunications markets in the world.
Over 75% of all international telecommunications traffic is among the USA, Japan, and Western Europe (Heywood and Mantelman, 1989). Within Western Europe, the countries of France, Germany and the UK represent the largest telecommunications markets and home to Europe’s largest telecommunications service providers. The largest markets and dominant carriers are shown in Table 2. This paper limits the analysis to these markets and carriers.

### Deregulation in Major Markets

Carriers’ strategies are constrained by regulations both in their home country and the countries in which they compete. Many government and business leaders consider their telecommunications carrier a champion of national interests in the competition for international economic dominance (Gutestam, 1990; Keller, 1991). In almost all countries, the provision of POTS is or has until recently been a monopoly operation with the vast majority of the telecommunications infrastructure government owned and operated. To understand the limits imposed by governments, the regulatory environments for telecommunications services in major markets are reviewed. A general discussion of the European Community is made. This is followed by discussions of the regulatory environments in France, Germany, U.K., U.S.A. and Japan. Finally, the five countries are compared on degree of deregulation.

### European Community

As European unity progresses, the impact of bringing the European Community (EC) telecommunications industry under common standards is visible. In 1987, the EC Commission published its plan, called the Green Paper, for opening their telecommunications market (Heywood and Mantelman, 1989). The 10 positions in the Green Paper were:

<table>
<thead>
<tr>
<th>Carrier</th>
<th>1990 Market Value ($ Billion)</th>
<th>1990 Rev ($ Billion)</th>
<th>National Market Value Ranking **</th>
<th>Global Market Value Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT&amp;T</td>
<td>40.4</td>
<td>37.3</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>Bell Canada</td>
<td>11.2</td>
<td>16.0</td>
<td>1</td>
<td>123</td>
</tr>
<tr>
<td>British Telecom</td>
<td>40.0</td>
<td>22.5</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>France Telecom</td>
<td>*</td>
<td>18.9</td>
<td>*=</td>
<td>*=</td>
</tr>
<tr>
<td>German’s TELEKOM</td>
<td>*</td>
<td>22.8</td>
<td>*=</td>
<td>*=</td>
</tr>
<tr>
<td>Hong Kong Telecomm</td>
<td>9.8</td>
<td>2.1</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Nippon T&amp;T</td>
<td>103.0</td>
<td>45.2</td>
<td>1</td>
<td>156</td>
</tr>
<tr>
<td>STET (Italy)</td>
<td>8.1</td>
<td>15.6</td>
<td>3</td>
<td>210</td>
</tr>
<tr>
<td>Telefonica de Espana</td>
<td>8.8</td>
<td>7.8</td>
<td>1</td>
<td>186</td>
</tr>
</tbody>
</table>

* 100% government owned and not appearing in the Global 1000; these firms are roughly equivalent in size to British Telecom.

** These rankings are based on the market value within the country where the carrier has headquarters.

1. continue monopolies over the network infrastructure,
2. continue (for a time) monopolies in basic voice services,
3. allow unrestricted competition for all other services,
4. enforce pan-European network and equipment standards,
5. establish open provisions to ensure access to monopoly networks,
6. allow unrestricted competition for terminal equipment,
7. create regulatory bodies,
8. provide for review of monopolies to ensure fair competition,
9. provide for review of private service providers to avoid abuse, and
10. require notification of alliances that would restrict competition.

While agreed to by each EC country, the implementation of these principles is progressing inconsistently. However, these 10 positions are indicative of rules seen by telecommunications firms facing deregulation not only in Europe but throughout the world.

**France**

France is one of the slowest of the major markets to open to competition (Owen, 1991). France’s major carrier, France Telecom is still 100% owned by the government. As late as November 1991, type certification for telecommunications equipment in France was still the responsibility of France Telecom (Kerleowendt, 1991). Until December 1991, no firm was authorized to compete with France Telecom for two-way VSAT services (“Firm Expects,” 1991). Even in current literature there is little attempt to distinguish telecommunications firms facing deregulation not only in Europe but throughout the world.

**Germany**

Costs for telecommunications services in Germany are typically several times higher than those in other developed countries (Dowling, 1991). Much of this is blamed on Germany’s regulatory environment that requires the national carrier, Telekom, to pay a significant portion of its revenue into the general government fund. The German constitution states that telephone services are a function of the federal government; therefore, a constitutional amendment is required for privatization (Trautman, 1991). While thought impossible a few years ago, indications are that both major political parties are willing to consider it (“German Telecom,” 1992). The Reform of 1989 started Germany on the road to implementing the Green Paper positions by opening competition in enhanced services and the retail sale of customer equipment. This reform separated Telekom from the Post and Telecommunications Ministry (PTM) while allowing it to maintain its monopoly of all voice services and all telecommunications services on the public network (Dowling, 1991).

**The United Kingdom (UK)**

The UK is considered by some the most deregulated major telecommunications market in the world; not only cellular firms but also CATV firms can offer telephone services (Dowling, 1991; Neher, 1991). Deregulation began in 1981, when the national telephone monopoly, British Telecom (BT), became a public corporation, separate from the British PTT. In 1982, Mercury Communications, a subsidiary of Cable & Wireless (C&W), was licensed to provide telephone services as part of the UK’s “duopoly” policy. The duopoly concept was to offer protection to allow development of a competing telephone company. In 1984, BT was privatized with 49% government ownership. In the Spring of 1991 the duopoly policy was officially ended. Non-traditional telephone services (data transmission, CATV, cellular phone and private networks) are controlled by few government regulations. Deregulation has gone as far as to allow CATV franchisers to offer local and long distance POTS. It is unusual, given this openness, that a single carrier, British Telecom, still maintains 95% of the British telecommunications market (Skeel, 1992).

**The United States**

It terms of expenditures for telecommunications equipment, the U.S.A. provides the world’s largest market (Daut, 1991). Prior to divestiture, POTS was considered a natural monopoly with private phone companies allowed to operate under government regulation. Then, there were over 1200 phone companies in the USA; many were very small and serviced areas too remote or sparsely populated for AT&T to bother with. The breakup of the Bell System in 1984 created regional monopolies for local POTS and opened competition for long distance service. The major US firms are listed in Table 3 along with their 1990 market value, revenue and their ranking among companies within the US and internationally (“The Global 1000,” 1991).

Most of these are either AT&T spinoffs, a direct
result of the competition for long distance service, or a result of the development of mobile communications. The US has a complex and evolving set of telecommunications regulations. Due to the involvement of three separate regulatory bodies (the FCC, state public utilities commissions and the US District Court), legislation can be contradictory. While local access is still a monopoly, cellular services are being offered by firms other than local exchange carriers (LECs). In fact, LECs are currently barred from offering services which compete with cable TV firms. Entry by foreign firms into the US is hampered because the FCC regards a foreign firm servicing the international marketplace from a US location to be a dominant carrier and a foreign firm classified as a dominant carrier is limited in the investment it can make in a US telecommunications firm (Keller, 1991).

Japan

Japan has taken a well-coordinated approach to telecommunications deregulation. In contrast to the US where adversarial relationships among the major carriers are common, the opening of Japan’s telecommunications market is being done without significant involvement of the courts (Harris, 1989). The Telecommunications Business Law and the Nippon Telephone and Telegraph (NTT) Corporation Law, enacted simultaneously in April 1985, are Japan’s most important deregulation legislation. The NTT Corporation Law established NTT as a private Corporation and imposed limitations on its activities outside Japan. The Telecommunications Business Law set the ground rules for competition in Japan. The Japanese define three types of telecommunications businesses, each with different regulatory requirements (“Ministry of Posts,” 1991):

- Type I - Those providing services on their own facilities. They require the permission of the MPT (Ministry of Posts and Telecommunications) before conducting operations and can be no more than 1/3 foreign-owned.
- Type II (special) - Those providing services on leased facilities but are large or have international connectivity. They must register with the MPT; however, there are no restrictions on foreign ownership.
- Type II (general) - All other telecommunications businesses. They only need notify the MPT of intent to do business. No restrictions are placed on foreign ownership.

NTT is the dominant carrier in national telecommunications and Kokusai Denshin Denwa (KDD) is domi-

<table>
<thead>
<tr>
<th>Carrier</th>
<th>1990 Market Value ($ Billion)</th>
<th>1990 Rev ($ Billion)</th>
<th>National Market Value Ranking **</th>
<th>Global Market Value Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT&amp;T</td>
<td>40.4</td>
<td>37.3</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>GTE</td>
<td>25.9</td>
<td>21.4</td>
<td>17</td>
<td>36</td>
</tr>
<tr>
<td>Bellsouth</td>
<td>24.0</td>
<td>14.3</td>
<td>19</td>
<td>40</td>
</tr>
<tr>
<td>Bell Atlantic</td>
<td>18.5</td>
<td>12.3</td>
<td>28</td>
<td>56</td>
</tr>
<tr>
<td>Pacific Telesis</td>
<td>16.3</td>
<td>9.7</td>
<td>32</td>
<td>70</td>
</tr>
<tr>
<td>Ameritech</td>
<td>16.0</td>
<td>10.7</td>
<td>33</td>
<td>71</td>
</tr>
<tr>
<td>Southwest Bell</td>
<td>15.5</td>
<td>9.1</td>
<td>34</td>
<td>76</td>
</tr>
<tr>
<td>US West</td>
<td>14.5</td>
<td>10.0</td>
<td>39</td>
<td>87</td>
</tr>
<tr>
<td>Nynex</td>
<td>14.4</td>
<td>13.6</td>
<td>40</td>
<td>89</td>
</tr>
<tr>
<td>MCI Communications</td>
<td>8.1</td>
<td>7.7</td>
<td>79</td>
<td>211</td>
</tr>
<tr>
<td>Sprint Corporation *</td>
<td>6.0</td>
<td>8.3</td>
<td>108</td>
<td>291</td>
</tr>
<tr>
<td>McCaw Cellular</td>
<td>4.4</td>
<td>1.0</td>
<td>166</td>
<td>434</td>
</tr>
<tr>
<td>Alltel</td>
<td>3.3</td>
<td>1.6</td>
<td>217</td>
<td>585</td>
</tr>
<tr>
<td>Centel</td>
<td>2.6</td>
<td>1.1</td>
<td>266</td>
<td>740</td>
</tr>
<tr>
<td>Contel Cellular</td>
<td>2.1</td>
<td>0.3</td>
<td>326</td>
<td>909</td>
</tr>
<tr>
<td>USW New Vector Grp</td>
<td>2.1</td>
<td>0.3</td>
<td>328</td>
<td>929</td>
</tr>
<tr>
<td>SNET</td>
<td>2.0</td>
<td>1.6</td>
<td>354</td>
<td>974</td>
</tr>
</tbody>
</table>

* Formerly United Telecommunications
** These rankings are based on comparison against all U.S. firms

nant in international telecommunications. Foreign ownership of these carriers has only been allowed since March 1992. While appearing open, Japanese industry has been slow in developing competitors to NTT. Competition for long distance services was only permitted in 1990 (Neher, 1991). In October 1991, there were only three private sector competitors to NTT for POTS ("Politics," 1991) with a combined market share of less than 3% (Boulton, 1991). Saito writes (1990) that Japan’s deregulation “is more akin to the U.S. situation in the early 1980s right before divestiture”; i.e., effectively, a monopoly situation. There are many competitors to NTT for cellular phone services and the government is actively seeking more; however, they generally must operate as Type II businesses leasing their facilities from NTT. In contrast, NTT offers free network use to its own cellular subsidiary ("Tomorrow’s," 1991). Japan’s Telecommunications Business Law was reviewed in 1990, when a recommendation was made to break NTT into separate local and long distance corporations. While having some support within Japan, the issue was postponed until the next review in 1995 (Saito, 1990).

Deregulation Comparison

A simple ranking based on degree of competition allowed in a country ("Politics," 1991), listed the U.K. as most open, followed by U.S.A., Germany and France. While some would claim that U.S.A. is the most open market (Cole, 1991), objective quantification of the “extent of deregulation” does not exist for the telecommunications services industry. The gap between USA/UK and Germany deregulation is significantly larger than the gap between the UK and the USA or the gap between Germany and France. Japan, not in the referenced ranking, appears to fit between the USA and Germany. This ranking is graphically presented in Figure 1.

Having reviewed the state of government regulation, the telecommunications services industry in these countries can be viewed in terms of Porter’s determinants of national advantage (Porter, 1990). According to Porter, four attributes of a nation create the national environment in which companies are created and learn how to compete globally. The attributes are:

1. Factor conditions - The nations’ position in factors of production, such as skilled labor and infrastructure, necessary to compete in a given industry.
2. Demand conditions - The nature of home-market demand for the industry’s product or service.
3. Related and supporting industries - The presence or absence in the nation of supplier industries and other related industries that are internationally competitive.
4. Firm strategy, structure and rivalry - The conditions in the nation governing how companies are created, organized, and managed, as well as the nature of domestic rivalry.

Being major industrialized nations, the countries under study are on a near-equal footing in the first three attributes. The major determinant of national advantage appears to derive from business strategies, structures and rivalries of companies in each country. Hence, we review the global penetration strategies of the major competitors in these markets.

Strategies of Major Carriers

Until deregulation, all major carriers had monopolistic control over their home markets. Today, they are being subjected to varying degrees of competition within different segments of their business. This competition is coming not only from firms within their home markets but also from each other and smaller telecommunications firms seeking international business. To combat this competition for their home customers and to meet the needs of the growing number of international cus-

### Figure 1: Major Telecommunications Market Deregulation

<table>
<thead>
<tr>
<th>Germany/France</th>
<th>Japan</th>
<th>USA/UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Least</td>
<td>Extent of Deregulation</td>
<td>Most</td>
</tr>
</tbody>
</table>
tomers, the major carriers are implementing strategies aimed at globalization. Two types of actions have been taken by the major telecommunications carriers to implement their globalization strategies: joint arrangements and acquisitions. Joint arrangements take the form of joint ventures (two or more firms spawning a new entity), strategic alliances (two or more firms agreeing to work together on a specific or general category of endeavors), teaming and subcontracting. Acquisitions involve owning stocks in a foreign firm or setting up a wholly-owned subsidiary in a foreign country. These competitive actions have been based on offering either enhanced services and/or substitutes. Recent actions taken by carriers are described below:

**AT&T**

At divestiture in 1984, AT&T lost its monopoly over local access, but kept its equipment and R&D divisions. Thus, AT&T is the only major carrier with significant equipment manufacturing revenues (almost 33% in 1990 (“AT&T 1990”)). Competition for long distance services in the USA is fierce, with MCI, Sprint and many smaller carriers taking a substantial portion of that market. A big part of AT&T’s overall strategy appears to be a move away from telecommunications: expansion of its computer industry business with purchase of NCR and entrance into the credit card business with the introduction of the AT&T Universal Card. NCR more than doubled AT&T’s overseas employees and added $3 billion annually to their overseas revenue (Keller, 1991). Practically every page of AT&T’s 1990 and 1991 annual reports stresses some aspect of international business or the international reach of AT&T’s services. Among other services, their Global SDN (Software Defined Network) will expand to 15 countries in two years; their International 800 Service reaches 50 countries; USA Direct Service is available in over 80 countries. AT&T’s recent strategic actions are listed in Appendix A.

AT&T intends to become the market leader in wireless and personal communications services; however, besides manufacturing equipment, their strategies for capturing that market have yet to unfold. In 1991, AT&T received 24% of their revenue from international sources and they are targeting that number to grow to 50% by early in the next decade.

**British Telecom**

British Telecom (BT) is a private corporation partly owned by the government (Dowling, 1991). The British government is on a course to sell all of its remaining interest by the end of 1992 (Neher, 1991). BT has undergone a reorganization aimed at implementing a strategy based on (1) customer focus, (2) providing global service, and (3) offering a complete line of services. BT’s chairman, Iain Vallance, believes much of their new income will come from the international market (Skeel, 1992). His three themes for BT’s international ambitions are: have viable presence in the major markets, concentrate on services with growth potential and be in control of the ventures. This latter theme has appeared to hamper their progress in making joint arrangements. Their much-touted Syncordia Project has failed to attract the major partners that some feel are necessary for its success. Appendix A lists strategic actions of British Telecom. In 1990, BT received approximately 19.3% of its revenue from international operations (“British Telecom,” 1990).

**France Telecom**

In January 1992, France Telecom (FT) became an autonomous, state-owned entity; no longer an arm of the French Government (“France Telecom,” 1992). This change will give FT more freedom to address the needs of the marketplace (Budwey, 1990). Appendix A lists recent strategic actions of France Telecom. In 1990, FT received about 12.5% of their revenue from international services (“France Telecom,” 1992). Most of this revenue was from international calls originating and terminating in France. By 1999, FT plans to raise its revenues from strictly overseas operations to 10% from its current level of 0.5%. Recent requests by the French government for FT to provide financial support to several of that nation’s ailing industrial giants (Williamson, 1992) has delayed FT’s globalization efforts.

**Germany’s Telekom**

Telekom’s strategy is to provide total systems solutions and specialized services such as managed networks, electronic and voice mail and transaction processing (Dowling, 1991). They have reorganized into a structure characterized by an artificial separation of voice and data with a technology orientation as opposed to a customer focus. The artificial separation possibly reflects the monopoly control still maintained over voice services while the technology orientation might simply be the result of a management corps entrenched in its traditional monopoly control. Telekom’s technology is ahead of many firms in that it has had a fairly widespread offering of basic and primary rate ISDN and is now
implementing Broadband-ISDN. It wants to develop an intelligent network to serve as a platform for their strategy. Appendix A lists strategic actions of Germany’s Telekom.

Because of reunification, Telekom is in the unique position of belonging to both Intelsat and Intersputnik. However, reunification’s costs have appeared to hinder Telekom’s ability to make major investments abroad. They have committed $30 billion over the next five years to rebuild the former East Germany’s telephone system. Their only reported investments are equity positions in two UK personal communication network providers. There is little in the way of published accounts of Telekom’s revenues from international operations. Because of the approximately equal state of industrialization of the two host countries and the nearly equal size, we estimate international revenue at German Telekom to equal that at French Telecom (12.5%).

**Nippon Telephone and Telegraph (NTT)**

The deregulation of Japan’s telecommunications industry has placed restrictions on NTT’s ability to compete for international business (Crockett, 1991). These restrictions on international activities appear to have restrained NTT from developing a global strategy. This supports the contention that NTT is primarily a domestic carrier with little prospect of international dominance (“Choosing your,” 1991). Of its nearly $50 billion in FY91 operating revenues, only about 0.8% was from NTT’s international endeavors (“NTT, 1991”). As part of its domestic strategy, NTT has plans to have fiber optics to all of the homes in Japan by 2015 (Neher, 1991). NTT has a complementary business (NTT Data Comm Systems Corp.,) that sells global communication services (using satellites) to Japanese corporations operating in Manhattan and New Jersey (Keller, 1991). This appears to be an attempt to service their indigenous customers. Their strategy revolves around implementation of VI&P (visual, intelligent and personal communications) based on widespread use of Broadband-ISDN.

**Kokusai Denshin Denwa (KDD)**

While KDD is significantly smaller than the other major carriers discussed (it is 303 in the Global 1000, 12 places behind Sprint), it is Japan’s largest international carrier. Its FY90 revenue was only 3.27% of NTT (“NTT 1991”; “KDD 1991”). With competition eroding its market share, KDD showed a decline in revenue from FY90 to FY91. Lower rates are a fundamental part of their strategy with the claim in their annual report that they are one of the lowest cost international carriers. They have focused their R&D in satellite and optical communication (“Japan Business,” 1991) and are actively developing the visual phone. The latter activity supports NTT’s visual, intelligent, and personal communications (VI&P) strategy. KDD is Japan’s signatory to INTELSAT and INMARSAT, international organizations involved in satellite communications. They are supporters of international standards organizations with the president of the Pacific Telecommunications Council being a KDD employee. KDD, like NTT, seems to avoid activities not involving communications into or out of Japan and uses global contracts as loss leaders for domestic marketing purposes (“Choosing,” 1991). Most of their international ventures are centered on satellite and fiber optic connectivity among the countries of the Pacific Rim.

**Comparison of Major Carriers’ Globalization Strategies**

Having reviewed the individual strategies of carriers, we compare the activities and offerings of them first. Then, we combine the carriers’ strategies with the deregulation policies of the countries in order to place each carrier in the global telecommunications market. The activities and offerings of the major carriers are summarized in Table 4. The table lists their strategic actions (joint arrangements and acquisitions) and offerings (enhanced services and substitutes).

AT&T, FT and TK are very active in joint arrangements while only AT&T and BT are acquiring companies. BT’s lack of joint arrangements can be explained by their previously stated goal of wanting to be in control of their ventures. The other European carriers’ shortage of acquisitions could be a result of their government ownership, the lack of freedom given to management in pursuing competitive actions and the “higher need” a government might place on how they may use their revenues.

The European carriers are using the Eastern European countries as proving grounds for expanding their cellular technologies beyond their home borders. AT&T’s lack of activity in cellular might be attributed to that technology being most naturally applied in providing local access services. AT&T has not provided local access since divestiture and it disbanded its cellular division earlier. AT&T has recently moved to resume leadership in this technology through its purchase of part of McCaw Cellular from BT.
The Japanese companies are doing little to become major international players, concentrating mainly on maintaining their existing markets and customers. The language barrier might also be a factor in their lack of penetration of foreign telecommunications markets.

A comparison of revenue generated from overseas operations is presented in Figure 2 for the major carriers. The figure shows the international revenue as a percentage of a particular carrier’s total revenue for 1990. Porter suggests that a firm’s ability to compete internationally is correlated to the competitiveness of that firm’s industry in its home market (Owen, 1991). If one can accept percent of revenue from international operations as a surrogate for success, Figure 2 provides support for Porter’s claim. The order of international revenue percent follows the deregulation rankings presented earlier with the exception of NTT, which shows the lowest percent of revenue from international operations. This anomaly to Porter’s theory can be easily explained by government restrictions on NTT’s foreign activities. Considered together, the combined revenue of NTT and KDD from international operations is still slightly more than 4% of combined total revenue, ranking Japanese carriers below any of the other major carriers. Recent US-Japan negotiations suggest that Japan may not be as open as its deregulation policies imply.

Figure 3 combines the elements of degree of deregulation in a country with the success of that country’s leading telecommunications service provider in international operations. The lower rectangle, showing the markets ranked according to extent of deregulation, is identical to Figure 1. The upper rectangle, showing the relative extent of globalization of the major carriers, is based on the data from Figure 2. The carriers are positioned on the upper rectangle directly above their countries of operation. AT&T and British Telecom are in the upper right quadrant of the model because of the high degree of deregulation in their home markets and the high per cent of their revenue derived from international operations and services. They have the highest potential for continued globalization. Besides their vast financial and technical resources, their aggressive over-

<table>
<thead>
<tr>
<th>Carrier</th>
<th>Joint Arrangements</th>
<th>Acquisitions</th>
<th>Enhanced Services</th>
<th>Substitutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Telephone &amp; Telegraph (AT&amp;T)</td>
<td>Transoceanic cables&lt;br&gt;With Hutchinson for International Messaging&lt;br&gt;With Belgian PTT in the Ukraine</td>
<td>ISTEL (UK)&lt;br&gt;ITALTEL (IT)&lt;br&gt;CIR (IT)&lt;br&gt;NCR (various overseas)&lt;br&gt;JENS (Japan)&lt;br&gt;CANTV (Venezuela)</td>
<td>International messaging&lt;br&gt;Software Defined Network</td>
<td></td>
</tr>
<tr>
<td>British Telecom (BT)</td>
<td>With FT &amp; TK for cellular (Hungary)</td>
<td>BT North America&lt;br&gt;Belize PTT&lt;br&gt;Gibraltar PTT</td>
<td>Syncordia&lt;br&gt;Global Network Systems Group&lt;br&gt;ISDN</td>
<td>Cellular in Hungary</td>
</tr>
<tr>
<td>France Telecom (FT)</td>
<td>With BT &amp; TK for cellular (Hungary)&lt;br&gt;With TK for enhanced services (EC)&lt;br&gt;With AMERITECH for cellular (Poland)&lt;br&gt;With US West and Southwest Bell for Minitel</td>
<td>TelMex&lt;br&gt;Entel (Argentina)</td>
<td>Minitel&lt;br&gt;Enhanced services (EC)&lt;br&gt;Data networking (UK)&lt;br&gt;ISDN</td>
<td>Cellular in Hungary&lt;br&gt;Cellular in Poland</td>
</tr>
<tr>
<td>Germany’s Telekom (TK)</td>
<td>With BT and FT for cellular (Hungary)&lt;br&gt;With FT for enhanced services (EC)&lt;br&gt;With Eastern European PTTs for fiber optic network&lt;br&gt;Transoceanic cables</td>
<td>PCN providers (UK)</td>
<td>Data networking (UK)&lt;br&gt;Enhanced services (EC)</td>
<td>Cellular in Hungary&lt;br&gt;Cellular in the Ukraine</td>
</tr>
<tr>
<td>Nippon Telephone &amp; Telegraph (NTT)</td>
<td></td>
<td></td>
<td>Global management for Japanese customers</td>
<td></td>
</tr>
<tr>
<td>Kokusai Denshin Denwa (KDD)</td>
<td>Transoceanic cables</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4: Summary of Carrier’s Strategic Activity**
Figure 2: International Revenue

Figure 3: Globalization and Deregulation
seas tactics are unfettered by home government restrictions and/or policies. AT&T appears particularly positioned for international success. AT&T’s global telecommunications equipment and computer manufacturing facilities give them a greater international presence than any other major (or minor) carrier. The Japanese carriers, while apparently operating in a fairly deregulated market, have had little success in globalization. This can be attributed to both the favorable conditions they operate under in their home market (in spite of relaxing regulations) and the apparent inability of these carriers to pursue international business that reaches beyond the needs of their home country customers. France and Germany have had limited success in the international market but, in spite of the potential of a unified Europe, may be hampered in their expansion plans by greater needs in their home markets. Lack of pressure for deregulation may also limit the global operations of the carriers from France and Germany.

**Summary and Future Research**

This study presents a qualitative evaluation of the markets and major competitors in international telecommunications services. The regulatory environments (which define the ground rules for competition) in the world’s largest markets have been summarized as have the actions of the world’s major carriers.

Being exploratory, this research raises some important questions for future research. Does deregulation have a direct correlation to increased global presence of telecommunications carriers? Is higher extent of deregulation in U.S.A. and U.K. the causes for AT&T and BT leading the other carriers in global telecommunications competition? How does one measure deregulation in a country and/or how can one rank countries in terms of their extent of deregulation? Does extent of deregulation in a country imply an advantage to foreign carriers seeking a location for a telecommunications and/or data processing center? These global issues merit further study.

Why do the carriers follow these globalization strategies? Are the major carriers discussed in this study the “incumbents” and how solid is their hold on this growth industry? How well are the Bell Operating Companies and AT&T’s major domestic long distance competitors (MCI and Sprint) positioning themselves in this market? Are there other firms, such as GE Information Systems, in a position to become major players in this market? In general, are firms with one type of background (e.g., monopoly) or organizational structure more suited to compete for dominance in global telecommunications services than others? These questions need to be researched further.

The market for global telecommunications is expected to continue to grow at 10 to 15 percent annually. The major carriers will continue to cooperate with one another on the one hand while feverishly seeking weaknesses in one another’s home market on the other. It will be important to update this study periodically to observe the evolution of the global strategies of telecommunications carriers. Effective formulation and implementation of these global strategies will be a critical task for the top management of telecommunications carriers.

**Acknowledgements**

We thank the editor-in-chief and the anonymous reviewers for suggesting excellent revisions to the paper. We also thank Dr. Dowling for sharing his insights on the telecommunications carriers in Europe.

**Appendix A List of Strategic Actions of Carriers**

**AT&T:**

*In the area of joint arrangements some recent activities are:*

1. a joint venture with Hutchinson Telecommunications, Ltd., of Hong Kong on international messaging and services (Stine, 1991),
2. joined Germany’s Telekom in transatlantic cable (Dowling, 1991),
3. part owner of both trans-Atlantic and trans-Pacific cables (“AT&T 1990”), and
4. a joint venture with the Belgian PTT and the State Committee of Communications of the Ukraine to build, own, operate and modernize much of Ukraine’s telecommunications network (“AT&T 1991”).

**Activities involving equity investment and subsidiaries are (Keller, 1990):**

1. acquired an interest (20%) in Italtel, an Italian telecommunications manufacturer and in CIR (17.3%), an Italian holding company (“AT&T 1990”),
2. acquired ISTEK, a UK information technology services company (“AT&T 1990”),
3. acquired Western Union’s Business Services Group, a provider of telex (international & domestic), packet
networks and electronic messaging (“AT&T 1990”),
4. entered Japan as a Type II (Special) business with a majority interest in AT&T JENS (Boulton, 1991),
5. currently seeking approval to purchase DatAid, a French software design and facilities management firm (“AT&T,” 1992),
6. bought an interest in CANTV, Venezuela’s telephone company (“AT&T,” 1992), and
7. bought an equity position in McCaw Ceullular.

**British Telecom (BT):**

*Among its recent actions involving subsidiaries and equity investments are:
1. sold their 22% stake in McCaw Cellular to AT&T,
2. combined its TYMNET (a large US data network vendor) with Syncordia (a new US-based subsidiary set up for managing global corporate networks) into a wholly-owned subsidiary, BT North America (“British Telecom,” 1991),
3. equity interests in telecommunications service providers in Belize and Gibraltar (“British Telecom,” 1991),
4. partners with France Telecom and Germany’s Telekom for a cellular license in Hungary.

**Other strategic actions are:**
1. BT is exiting the equipment manufacturing business by selling Mitel, a Canadian PBX manufacturer, and
2. BT has connected most major UK population centers with international ISDN service to the US, Japan & France.

**France Telecom (FT):**

*In the area of joint arrangements some recent activities are:
1. an arrangement with US West and SW Bell to introduce their Minitel information service into the US (Keller, 1991).
2. a partnership with BT & Germany’s Telekom for a cellular license in Hungary (Williamson, 1991),
3. a joint venture with Germany’s Telekom for enhanced services in Europe, and
4. a partnership with Ameritech to bid for a Polish cellular license.

**Activities involving subsidiaries and equity investment are:**
1. a dedicated data network for a UK customer,
2. part ownership in TelMex (as a joint Venture with SW Bell) (Steiner, 1991), and
3. part ownership in Argentina’s Entel.

**Germany’s Telekom:**

*Joint arrangements, a key part of their global strategy includes:
1. a transatlantic cable venture with AT&T,
2. a joint venture with FT for enhanced services operations in Europe,
3. a joint proposal with BT & FT for a cellular license in Hungary,
4. working arrangements with Eastern European carriers to implement a multinational fiber optic cable system.
5. a joint venture to build and operate a cellular system in the Ukraine (Williamson, 1992).

Jerry D. McCready is a Ph.D. student in Management Information Systems at Auburn University. He has Bachelor’s degrees in math and computer science. He was a naval officer and has worked in a variety of engineering and management positions for the MITRE Corp. and Martin Marietta Corp. His current research interests are telecommunications, technology management and information systems engineering.

William R. Boulton joined Auburn University’s faculty in 1990 as the Olan Mills Professor of Strategic Management. He has a strong interest in global competitive strategies and the management of innovation and technology. Dr. Boulton’s book, Business Policy: the Art of Strategic Management, was published by MacMillan Publishing in 1984. He has published extensively and been heavily involved in developing cases for executive education. In 1986, he was a Fulbright Researcher in Japan where he investigated robotics and factory automation technologies. He has worked with GTE International in Hong Kong and Japan and is founder and Chairman of a biotechnology company. He is also Director of the Center of International Commerce at Auburn where he is conducting research on the pulp and paper industry and developing Japanese management training programs.

Chetan S. Sankar is an Associate Professor of MIS at the Auburn University’s College of Business. He has developed global telecommunications network management programs for multi-national companies while at AT&T Bell Laboratories. He also developed the Masters and Ph.D. programs in MIS at Temple University. His current research interests are global information technology management, career progression of technologists, telecommunications management, standardization of data dictionaries, and user interfaces. He is a senior member of the IEEE and a member of TIMS, DSI, and IRMA. His papers have appeared in Datapro Reports, MIS Quarterly, Information Management Review, Management Science, IEEE Transactions on Professional Communications, IEEE Transactions on Engineering Management, Decision, Journal of Database Administration, Decision Support Systems, and the Naval Logistics Quarterly.
Uncovering the Hidden Issues in E-Government Adoption in a Least Developed Country: The Case of Bangladesh
[www.irma-international.org/article/uncovering-hidden-issues-government-adoption/42088/](http://www.irma-international.org/article/uncovering-hidden-issues-government-adoption/42088/)

Cultural Diversity and Trust in IT Adoption: A Comparison of Potential e-Voters in the USA and South Africa
[www.irma-international.org/chapter/cultural-diversity-trust-adoption/19161/](http://www.irma-international.org/chapter/cultural-diversity-trust-adoption/19161/)

Integration of Global Supply Chain Management with Small to Mid-Size Suppliers
[www.irma-international.org/chapter/integration-global-supply-chain-management/19070/](http://www.irma-international.org/chapter/integration-global-supply-chain-management/19070/)

Information Management As Perceived by CIOs in Three Pacific Rim Countries
[www.irma-international.org/article/information-management-perceived-cios-three/51295/](http://www.irma-international.org/article/information-management-perceived-cios-three/51295/)

The Impact of Open Source Development on the Social Construction of Intellectual Property
[www.irma-international.org/chapter/impact-open-source-development-social/19211/](http://www.irma-international.org/chapter/impact-open-source-development-social/19211/)