

\$4.4 billion from sales of satellite-based communications services, 34 percent of which was in the United States.

The world civilian market for all types of satellite communications (satcom) space-based equipment is forecast at over \$1.5 billion annually, declining slightly in the late 1990s, for an estimated total market (1994-2004) of approximately \$16 billion. Excluding Russia, for which accurate numbers are not available, more than 80 geostationary communications satellites (comsats) are expected to be launched between June 1994 and the year 2000, representing a total market of approximately \$8 billion. Roughly one third of this market remains to be captured under firm contracts. The U.S. market is expected to shrink to less than 20 percent of this, primarily in favour of Asia-Pacific markets. The Asia-Pacific region should dominate the rest of the world market outside of the U.S. and Europe, and is expected to represent 30 percent of the world demand between now and 2004.

The world annual civilian market for satcom ground-segment equipment, currently estimated at \$3.35 billion, is expected to grow to over \$5 billion by 1996 at an annual compound rate of 7 percent. This represents a total estimated world market of over \$70 billion (1992-2004), or close to five times the space-based communications (satellite) equipment markets. The demand for TV receive only (TVRO) equipment represents the largest portion of the ground-segment market, with an additional 3 million to 5 million installations (over \$4 billion) expected to be purchased in the next two years.

The military satellite communications (milsatcom) space and ground-segment market is approximately equal in size, but is heavily protected and dominated by the United States, with \$1.3 billion budgeted for 1994. France's Syracuse on Telecom and the British Skynet 4 are the only other known milsatcom systems scheduled to be launched before the turn of the

century. In addition, several Western countries are pursuing the development of other milsatcom systems for later launches, under co-operative international arrangements such as EUMILSAT, INMILSAT, and BIMILSAT.

Positive trends include rising demand for:

- space-based, mobile, personal communications and direct broadcast or direct-to-home satellite communications, including TVROs;
- Very Small Aperture Terminal (VSAT) networks in North America and in countries where the terrestrial telephony infrastructure does not exist;
- global coverage multisatellite networks such as Hughes' Spaceway.

Both the civilian and military markets for space segment equipment are dominated by the United States. As in the past decade, two thirds of the world's geostationary satellite systems (excluding those of the FSU) are expected to be supplied by three U.S. companies: Hughes, Lockheed/Martin and Space Systems Loral. Canada supplies less than 2 percent of the world market for civilian geostationary satellite systems.

Remote Sensing

Greater concern for the environment, and the need to obtain information over large areas in a cost-effective way, will strengthen the already rapid growth of geographic information. Geographic information systems (GIS), which combine a variety of data with maps and imagery, provide the bulk of such information products. The GIS market is estimated to be \$13 billion per year between 1996-2000. Satellite-based remote sensing is increasingly able to service this market; in particular, the world market for value-added goods and services, based on satellite remote sensing, is estimated to be about \$9 billion over the 1995-2000 period. Strong demand for geographic information systems and their products is in turn driving the demand for the platforms from which raw data are acquired.