

Space

The space industry consists of companies and organizations that provide products, including hardware and software, that generally form part of larger space systems, such as satellites, space vehicles, ground stations for communicating information and/or controlling space assets, and launch vehicles, including expendable and reusable rockets and space planes. It also includes a range of service providers (such as geomatics and telecommunications firms) whose business activities depend on the use of space systems.

International Environment

In 1993, the world space industry activity was estimated at US\$43 billion, dropping significantly (from US\$55 billion in 1992) since the collapse of the Soviet Union. It is still highly concentrated in the United States (75 percent), Europe (14 percent) and Japan (5 percent).

Government defence and civil programs account for close to 90 percent of the global market. While the defence portion is difficult to estimate, it has decreased in recent years and is now considerably less than civil spending. Since the collapse of the Soviet Union, military spending on space has dropped dramatically; by some 30 percent in the United States and by over 90 percent in the former Soviet Union (FSU). For national security reasons, most governments try to procure space equipment from domestic firms, and use their space programs as vehicles for national industrial and scientific development.

Surveillance, command, control and communications via satellite have continued to rise in importance since the early 1980s, especially since the Gulf War. On the other hand, with the end of the Cold War, military spending in general has declined in many markets. As a result of rationalization, many marginally profitable firms are being taken over by larger, more diversified firms and several major mergers are anticipated (e.g. Lockheed/Martin Marietta). Defence space firms are looking to the civilian space arena and to strategic alliances to reduce research and development (R&D) costs and improve market access. While the FSU was not an active participant in

the international space market, Russia has the interest and potential to become a major player.

The high cost of R&D has also contributed to the internationalization of major space programs, characterized by the establishment of new and stronger links between space companies in different markets or trading blocs. For example, the European Space Agency (ESA) is a key vehicle for co-operation in space projects for its 14 European members, and Canada, which has a unique relationship to the ESA as a closely co-operating state.

The U.S.-led International Space Station (ISS) is currently a co-operative effort among the ESA, Japan and Canada, and negotiations are under way to bring Russia into the partnership.

The use of space for commercial purposes is growing and evolving. Space-based communications comprise the most commercial space activity, relying on government support primarily for R&D and advanced technology development. Although there is a commercial market for remotely sensed data and the reception and processing equipment needed to acquire it, remote sensing does not yet generate sufficient returns to cover the cost of remote-sensing satellites, which are usually procured by governments.

Communications

Satellite communications are driven by the rapidly growing \$600-billion annual demand for communications services, which include telephony, data transmission, cable and broadcast services. In 1992, commercial satellite systems operators and transponder brokers earned approximately