



PHOTONICS

Market Overview

The optical technologies industry is undergoing rapid change and growth. Sectors such as traditional optics, light sources (lasers), optical microstructural systems, sensors and optical communication have been grouped under a new sector name, photonics. While the term photonics is already widely used throughout North America, it has been less well-adopted in Europe. German researchers and industry prefer to use optical technologies instead of photonics.

Driven by the enormous demand for more speed and capacity, optical broadband communication is the most rapidly growing segment of photonics. Lasers, for use in industrial processes and medical applications, are also very important.

In Canada, the United States and Germany, roadmaps have been prepared or are in the process of being developed, to help companies in their navigation in this broad and fast-growing field. In Germany, the Federal Ministry for Education and Research (BMBF) has commissioned a roadmap for Germany, which was presented in May 2000 and is entitled "German Agenda for Optical Technologies for the 21st Century". This report gives direction on the emerging opportunities in photonics applications.

Because photonics really is a very recent sector term in Germany, numbers to describe the market potential in Germany are difficult to obtain.

Optical broadband communication is the major opportunity in Germany for Canadian companies. The country is optically wired. German companies Siemens and Infineon Technologies are developing the next generation of broadband network technology and chips. The 40 Gibits technology is on the test bench to be launched in the near future. Research facilities work on the next generation, the 120 Gibits technology. The total level of activities in Germany is below the level in Canada. Good opportunities exist for system and components suppliers. Both Canada and Germany have the same trend, i.e. larger companies focus on core business and development, and buy off-the-shelf technology for standard devices from suppliers.

Opportunities also exist in other sectors in photonics, such as in the special equipment sector for scientific, environmental or industrial application, in bio-medical systems, or for software used in photonics R&D and manufacturing. A big field in photonics is new display technologies, which is very oriented to R&D.

In laser sources and systems, Germany is a strong global player and a source for new technology. Germany's particular strength lies in integrating lasers in manufacturing processes, i.e. material applications such as laser welding, cutting, boring, hardening, surface treating and marking. Other important areas are quality control, high-precision measurements, precision engineering and laser medicine.

