

II. MAJOR CONCEPTS AND DETERMINANTS

2.1 Terminology

A consortium is a group or association of organisations (i.e., separate legal entities such as firms, non-profit organisations, government research institutions, universities, etc.) which reach an agreement to accomplish a set of common objectives for a given period of time. Such a consortium may be government initiated or industry initiated. Under this definition, a consortium is synonymous with an alliance which is also an association of organisations with common interests.

Technology is the knowledge about products, processes and plant organisation that is used in the production of goods and services. Technology consortia are, therefore, associations of organisations which come together for the purpose of creating or acquiring new, state-of-the-art knowledge. This knowledge may be embodied in machinery, equipment, handbooks, blueprints, designs or human skills (expertise).⁹

Conceptually, high-technology industries are those industries in which "knowledge is a prime source of competitive advantage for firms, and in which firms invest large resources in knowledge creation." These industries are generally characterized by above average spending on R&D and above average employment of scientists and engineers.¹⁰

Another concept that requires some explanation is innovation. A number of models have been used to characterize the innovation process from basic scientific research to applied R&D and commercialisation of the new product or process.¹¹ In

⁹ J. Niosi, "Technical Alliances in the Canadian Electronics Industry: An Empirical Analysis", *Technovation*, 12:5, (1992), p. 309. According to Dr. Niosi, this definition of technology is generally agreed upon in the literature on economics and management of technology.

¹⁰ Paul R. Krugman, "Technology and International Competition: A Historical Perspective", in Martha Caldwell Harris and Gordon E. Moore, eds., *Linking Trade and Technology Policies*, (National Academy Press: Washington D.C. 1992), p. 13.

¹¹ One such characterization is the "innovation network model" described in a recent paper by Sylvia Ostry and Michael Gestrin of the University of Toronto, entitled "Foreign Direct Investment, Technology Transfer and The Innovation Network Model", (March 1993), pp. 10-11:

"Early models of technology transfer were based upon a linear conceptualization of the process of technology development and innovation. At the heart of this conceptualization was a linear flow of information 'downstream', beginning with basic research in laboratories and ending in the manufacture of a more technology intensive product.... The innovation network model is similar to its linear predecessor in so far as it identifies several of the same important nodes of activity in the innovation process. Basic research continues to be concentrated in universities, and in private