In the computer-electronics field, a degree of protection in the form of various "industrial policies" aimed at promoting each nation's technological capabilities has also hindered Canadian sales of products and services to the EC. Compounding the problem for outsiders are technical barriers in the form of equipment non-compatibilities.

The existence of technical barriers to trade has been an important constraint on intra- as well as extra-European trade. A survey of business people in Europe ranked technical barriers to trade in electrical engineering products, particularly telecommunications equipment, as of "great" importance and technical barriers to trade in office and data processing equipment as of "medium" importance.[5] An example of high technical barriers to intra-EC as well as extra-EC trade are the standards and certification procedures applied to business telephone switching devices, known as private automatic branch exchanges (PABX). Despite *earlier* efforts to harmonize EC Member State standards for PABX, important differences still exist. One result is that PABX prices are more than twice as high in Germany as in France. Nevertheless, exports from France to Germany are almost non-existent. It has been estimated that a cost reduction in the neighbourhood of 6 per cent of total German expenditure on PABX could be realized if French manufacturers were allowed to capture a 10 per cent share of the German market.[6]

The promise of Europe 1992 is that the EC will become one large market, suppressing the various non-tariff barriers (NTBs) such as firm-specific technologies, national (rather than EC-wide) standards, non-transparent technical regulations, procurement policies, etc., which have tended to balkanize the EC despite its tariff-free profile. This promise is, of course, a promise only; the degree to which it will be fulfilled is still a matter of debate and conjecture.

b) Extra-EC Trade Flows

What is the situation in European equipment markets on the eve of Europe 1992? Figures 11, 12 and 13 (see detailed figures in Table 6) illustrate the magnitude of the market and production of the EC and of five of its leading members. The figures indicate overall self-sufficiency in telecommunications equipment, but a net dependence on imports of data processing equipment and semiconductors. Much the same picture is indicated in Table 7, which presents production to domestic market ratios for four different categories of products. Table 7 indicates that in addition to telecommunications equipment, the leading EC members come close to overall self-sufficiency in the production of data processing equipment. However, as Tables 8 and 9 show, overall self-sufficiency in telecommunications equipment masks substantial extra-EC exports and imports.

c) Leading Firms

Tables 10 and 11 tell us something about the identity of the world's major players in the supply of telecommunications and computer products. Table 10 indicates the leading producers of telecommunications equipment, data processing equipment and semiconductors. Except for Alcatel NV and Siemens these markets are dominated by U.S. and Japanese firms. Table 11 lists the major suppliers to EC (and other European) countries, the average number of leading suppliers doing business per EC member, and the relative importance of economies of scale. The average number of central office and transmission equipment suppliers per country substantially exceeds what economies of scale would otherwise allow.[7]