1. INTRODUCTION

Aerospace is a leading, high-technology sector which is believed to be central to Europe’s future international competitiveness. It is research and development (R&D) intensive, requiring substantial inputs of human capital (e.g. scientific manpower), with potential technical "spin-off" for the rest of the economy. It is also involved in the newly-emerging market in space. Traditionally, it is an industry which has been dominated by government with its defence demands and a national desire for independence. Increasingly, however, there are some aerospace R&D projects where the minimum entry costs are so high that it is necessary for nations and firms to combine. Already, European aerospace firms are collaborating in military and civil aircraft, helicopters, missiles and space projects and such collaboration provides the basis for the eventual creation of a European aerospace industry. In addition, the desire for a 'peace dividend' will mean smaller defence markets and an inevitable re-structuring of Europe's defence-dependent aerospace industries. These trends towards international collaboration and re-structuring will be reinforced with the ECs emphasis on creating a single European internal market, including its possible extension to defence equipment.

This chapter provides the basis for understanding European aerospace industries and their likely future structural changes. After a description of the market, the economic characteristics of aerospace industries are outlined, followed by an analysis of structure, performance and collaboration. The possible opening-up of EC defence markets and the implications of cuts in defence budgets are also considered.
2. THE MARKET

2.1 Demand and Supply

Aerospace markets consist of buyers and sellers of military and civil aerospace products. In military markets, national governments act as a single buyer (monopsony) of the aerospace equipment needed for their armed forces. In the civil market, the world's airlines are the major buyers of civil aerospace products. Airlines are state- or privately-owned involved in the domestic and/or international scheduled and charter transport business (passengers and freight). In addition, large numbers of companies and individuals throughout the world demand smaller aircraft for commuter, business and pleasure flying (general aviation). There is also a developing civil demand for space products, where the buyers embrace governments as well as publicly- and privately-owned companies (e.g. satellites for telecommunications and weather forecasting).

On the supply side, the world's major aerospace industries are located in the USA, USSR and the EC, although new entrants have emerged in countries such as Brazil, India, Israel and Japan. Firms in the industry design, develop, manufacture, sell, service and repair military and civil aircraft, helicopters, hovercraft, missiles and space systems, together with their components and related products. Typically, the industry contains airframe, engine and equipment firms, with the airframe companies acting as final assemblers of aircraft, helicopters, missiles and space vehicles. On a modern combat aircraft, the distribution of production costs might be 60% for the airframe, 20% for the engine and 20% on avionics. Life cycle costs are likely to be more than twice the initial procurement cost.¹

Actual aerospace markets are complex and heterogeneous comprising a variety of sub-markets. In defence, there are markets for fighters, strike aircraft, bombers, transports, helicopters, short-medium-long-range missiles and space vehicles with the products demanded by air, land and sea forces. Civil markets exist for short- to long-range airliners of varying sizes, together with helicopters, light aircraft and space systems. Given the various markets, aerospace firms exhibit different degrees of specialisation. Some specialise in military combat aircraft (e.g. Dassault, France; Northrop, USA), or in military aircraft for either the air force or navy (e.g. Grumman, USA), or military and civil transports (Boeing, USA), or in helicopters (Westland, UK). Others produce a range of military and civil products including aircraft, helicopters, missiles and space systems (e.g. Aerospatiale, France). In this context, there is a belief that long-run