INTRODUCTION

One of the key objectives in determining a firm’s corporate strategy is to match its own internal competencies and resources to the complex and ambiguous external environment in which it finds itself. In an increasingly competitive and internationalized business world, success is grounded in uniqueness and commercial advantages that must be continually updated. For the multinational corporation (MNC), the processes of strategic analysis, option evaluation and implementation are further complicated by the fact that the company may operate across a diverse range of geographic environments and markets. This introduces additional demands on the organization in terms of establishing a suitable control structure. The way it configures its various subsidiary operations around the world and how it coordinates activities between them become important issues for the MNC.

In appraising the external business environment, technological factors have traditionally been perceived as an important consideration. In the past, however, technology has often been relegated to peripheral importance when developing an actual strategy. The management of technology has been regarded conventionally as a tactical rather than a strategic issue. However, there is now a growing acceptance that technological factors are of strategic importance and should be intrinsic to the process of formulating overall business strategy. This is particularly so for MNCs. Technology is often the single most important source of competitive advantage that an international firm can possess, and not simply for those who are directly associated with high technology or advanced R&D. Technological developments drive new products and processes, and MNCs can be extremely efficient in transferring innovation quickly throughout their network of subsidiaries.

The aim of this chapter is to address some of the issues surrounding the strategic management of innovation and new technology in the Scottish electronics industry, based on an empirical investigation of a selection of MNC subsidiaries.
REVIEW OF CONCEPTS

The perception that technological decisions need to be made in the context of overall corporate strategy is a fairly recent one. Kantrow (1980) notes that much of the relevant literature up to the 1970s was concerned with the specialized application of technology within the separate functional areas of business; there was little guidance on the ‘total process’ by which companies translate a technological development into new products or services. This has changed considerably. A large number of authors have since assessed the strategic implication of technology in achieving ownership-specific competitive advantage (Porter, 1985; Maidique and Patch, 1989; McGee and Thomas, 1989; Pavitt, 1990; Dodgson, 1991; Merrifield, 1991; Berry and Taggart, 1993 and 1994). The review here necessarily concentrates on those aspects of the subject relevant to this study. Although the discussion generally considers the development of manufactured products, many of the points are equally applicable in service industries.

Technology and Corporate Strategy

Erickson et al. (1990) regard management of technology as covering the management of research, product and process development, and manufacturing engineering. Basic and applied research expand the firm’s grasp of scientific and engineering skills, development makes this knowledge relevant to the firm’s business, and manufacturing engineering translates technology into desirable products for the customer. Technology now plays an increasingly important role in achieving and maintaining competitive advantage (Porter, 1983), and technology strategy must be developed and implemented within the content of overall corporate strategy (Wilson, 1986). Further, a unified technology strategy should address three interrelated business areas – product development, process development and information systems. For a technology-intensive MNC, such a strategy should cover the critical issues of technology acquisition, the method of exploiting technological advantage, and the diffusion of technology within the organization and beyond (Taggart and McDermott, 1993, p. 85). MNCs are prolific creators and diffusers of technology, and the typical multinational technology portfolio is likely to consist of a combination of technologies from a variety of sources. For a wider review of these issues, see Berry and Taggart (1994).

The Strategic Management of Technology

Porter (1983) claims that the study of technological innovation is too often decoupled from the study of competition, and vice versa. Emphasis on the