Planning in Companies with Dispersed Capacity

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**Abstract**  
This chapter’s objective is to discuss the effect of dispersed capacity on planning in manufacturing organisations. The chapter is based on case study research conducted by the authors in a company with geographically dispersed capacity. This is augmented by a questionnaire survey intended to show that the case study company is not unique. The information collected from the two previously mentioned sources is compared with literature. The questionnaire and literature indicated that there are now substantial numbers of companies with dispersed capacity. The case study research indicates that this leads to greater planning complexity because of increased lead-times due to transhipment. In contrast with single-site companies, this complexity cannot be addressed by Just-in-Time in cases where capacity is dispersed. In-depth research has been conducted in only one company, though the questionnaire survey provides supporting data. The chapter implies that companies employing dispersed capacity need to focus on improving their planning systems to cope with the increased complexity. While the literature on Supply Chain Management (SCM) is extensive, there has been relatively little case-based research on the implications of globalisation for planning. In particular, while it is widely believed that many companies have dispersed their capacity, the evidence for this is largely anecdotal. The survey presented in the chapter provides quantitative data to support this belief.

**Keywords:** Case study, Logistics, Supply Chain Management, Survey

**9.1 Introduction**

Supply Chain Management (SCM) has attracted an enormous amount of interest from both academics and practitioners. Examples of key works on Supply Chain Management include: Lambert and Cooper (2000), Harland (1996), and Mason-Jones *et al.* (2000). Distributed Manufacturing has addressed the issue of dispersed manufacturing planning, and scheduling. Examples of such work include: Azevedo and Sousa (2000), Duffie and Prabhu (1996), Maturana, and Norrie (1996), and Shen
Over the last sixty years, numerous SCM philosophies have been developed for manufacturing organisations. Over this period, however, manufacturing has actually been in decline in Western Europe. In the UK, there is disagreement over the level of the decline of the contribution of manufacturing to the Gross Domestic Product (GDP) because the price of manufactured goods has fallen faster than in other sectors. Certainly, there is a strong perception that manufacturing is in decline in the UK to such an extent that the Department of Trade and Industry (DTI) has proposed measures to improve the image of the sector (DTI, 2004). Across the world, however, manufacturing has grown significantly. Since 1990, Manufacturing exports across the world have grown by 103% (The Globalist, 2005). The majority of this growth has been in the developing nations whose exports have grown by 224% over the same period as opposed to 69% for developed nations. Many western companies are choosing to invest in the developing nations. There has been a total of 9008 foreign direct investment projects in the Asia-Pacific region since 2002 and 5754 in Eastern Europe (Locomonitor, 2005).

There is a large volume of literature on networks and the extended enterprise. Examples of such work include: Frederix (2001), O’Neil and Sackett (1994), and Karlsson (2003). There is evidence for a movement of manufacturing capacity into countries such as India and China. In some cases, this movement may be the wholesale outsourcing of manufacturing to an area with low labour costs. An alternative approach is advocated by Preston (2004) where an established company re-locates some of its capacity offshore, but retains a measure of control and ownership. This is a strategy adopted by Strix Ltd, a leading manufacturer of controls and cordless interfaces for kettles, jugs and a wide range of water boiling appliances. Strix controls are the enabling technology that kettle manufacturers use to give their products extra features. They are designed to work in conjunction with the kettle’s heating element, switching the kettle off when the water inside boils. The controls also protect kettles and its user in the event of the kettle boiling dry. Strix Ltd and the University of Manchester have been engaged in collaborative research over the

Figure 9.1. Strix Ltd sites