Chapter 6

Competitiveness of Space Industry

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“The intensity of the competition in an industry is neither a matter of coincidence nor bad luck. Rather, competition in an industry is rooted in its underlying economic structure and goes well beyond the behaviour of current competitors.”

Michael E. Porter, Chapter 1: The Structural Analysis of Industries, Competitive Strategy

1. INTRODUCTION

Space industry is dominated by the rules and regulations of its institutional customers. High market-entry barriers, complex procurement rules, technology-driven competition and buying rules define the space market segmentation. High interdependence between players, high market-entry barriers, ongoing mergers and acquisitions and the small number of players indicate the existence of an oligopoly market structure. Export regulations, licensing, ITAR and EAR regulations are some of the market-entry barriers which space companies have to face. These barriers will not only result in revenues losses from sales for space manufacturing companies, but they will also influence the direct and indirect benefits from commercial utilisation of space-based technology from interplanetary missions and future commercial and crew and cargo transportation services. This chapter will analyse the competitive-
ness of the space industry, discuss the market structure in the space industry, the market-entry barriers and the space-related patents and partnerships.

2. COMPETITIVENESS IN SPACE INDUSTRY

Competitiveness measures the ability of a firm to sell and supply goods and services in a market. For example, a country that has diverse launch capabilities and has foreign customers that use their launcher technology can have a high level of competitiveness in the launcher market.

There are various approaches for measuring foreign space industry competitiveness, either by measuring national exports/sales from space technology or national R&D or as a percentage of national GDP. Exports can have a direct influence on the export trade balance of a country as can be seen for Russia (see section in Chapter 4). On the other hand R&D investment measures whether a country aims at encouraging national competitiveness or economic growth through technology innovation.

The interdependency of the space industry stakeholders (see Chapter 4) in combination with the high concentration ratio in the European space industry and the high market entry barriers, imply the existence of an oligopoly market structure in the European space industry.

Oligopoly is described as a market structure in which there are a few players (i.e. EADS Astrium, TAS) that sell homogeneous products and services and there are high market-entry barriers.

The oligopoly is referred to when there are very few dominant players on the market. For example, the European space manufacturing industry is very concentrated and 70% of the space industry employment is distributed in only four main groups (i.e. EADS, TAS, Safran and Finmeccanica). Market-entry barriers in the space industry are different for each country. For example, in the US market-entry barriers are considered to be ITAR regulations, while in Europe it is primarily ESA geographical return rule.

The competitive forces in a typical market are: threat of new entrants, bargaining power of buyers, bargaining power of suppliers and threat of substitute products and services (Porter, 1980). Companies developing commercial projects using space-based technology from future interplanetary missions may be driven by the forces above to find new ways to improve their products and processes. Therefore, these forces can have an indirect influence upon the direct and indirect benefits from the commercial use of space-based technologies for future Moon and Mars missions.

Space agencies are the prime initiators behind institutional programs, technology innovation and competition is limited (e.g. especially for launchers), there is mid-term stability and prices are negotiable. However, once the companies involved
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