Business Intelligence Enhances Strategic, Long-Range Planning in the Commercial Aerospace Industry

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ABSTRACT

The world's largest aircraft manufacturers like Boeing and Airbus have traditionally been dominant in the commercial aerospace industry, but due to the rise of several smaller commercial aircraft companies and in spite of air travel increasing each year, it will be paramount for Boeing and Airbus to thoroughly understand past and current market conditions and be able to combine their understanding with the proper analytical tools to anticipate the market demands of the future if they are to remain the world leaders in their industry. This paper presents a discussion of industry factors such as airline routes, past passenger demands in different regions of the world and the sizes and types of aircraft that were required to support those demands, and more importantly, how analysis of that information is integral to the projection of future demands within the commercial aerospace market which will facilitate Boeing and Airbus positioning themselves to provide their airline customers with the right product at the right time.

Keywords: Business Intelligence, Correlation Analysis, Federal Aviation Administration, Global Competition, Gross Domestic Product (GDP), Long-Range Planning, Market Projections, Predictive Analysis

INTRODUCTION

Boeing and Airbus have been the world's leading commercial aircraft manufacturers for decades and the future may indeed look bright to their leaderships given the increase in air travel that appears almost certain to occur in the future; however, with increased competition from manufacturers in Canada, Brazil, Russia and China, it will be increasingly difficult for Boeing and Airbus to preserve their dominance as the commercial aerospace industry expands.

As all of the manufacturers attempt to best position themselves to acquire the largest possible share of new aircraft orders resulting from the anticipated increases in air travel, they will not only have to understand past and current market demands, but more importantly, will have to be able to use that knowledge to accurately project future market demands and offer airline customers the correct aircraft at the correct time at the correct price. Historically,
Boeing and Airbus have performed quite well in providing the airlines with the sizes and types of aircraft they have needed to meet demand, and in doing so, they have established themselves as leaders in the industry. However, considering the ever-changing landscape of the air travel market and the fact that it takes 7+ years to design, build, certify and deliver a completely new aircraft design, preserving market share in the future may be a challenge. It will be the manufacturer, employing business intelligence tools to develop accurate market forecasts upon which to base long-range planning, that is in the best position to offer airlines the right product at the right time and consequently, to be the industry leader.

1. RESEARCH

A recent report prepared by The Boeing Company indicated the total number of commercial aircraft in the world’s airline fleet in 2009 was 18,890 and was expected to grow to 36,300 by 2029. The estimated market value (in 2009 USD) of the increase which was based on several factors including, expected aircraft retirements, freighter conversions, and new aircraft deliveries will be $3.59 trillion (Boeing, 2010).

A similar report released by Airbus Industries considering the same factors projected the size of the world fleet in 2029 to be 36,303. It may seem remarkable that competing companies could independently formulate 20 year industry forecasts with almost identical results, but the explanation for the similarity is quite simple: similar approaches are employed in the data analysis to develop strategic forecasting. Business intelligence tools such as correlation analysis and econometric modeling are used to perform in-depth studies of past market conditions and then use the results of those studies to develop a better understanding of current market conditions, forecast future market demands and develop strategic plans for the future (Airbus, 2009).

Generally speaking, forecasting is an extremely important activity. According to Thomas J. Gallagher, Managing Director of CIBC World Markets Global Aerospace, no endeavor has a greater impact, for good or bad, on the overall success of a corporation than the practice of forecasting. When successful, forecasting integrates the abilities, decisions, and informed perspectives of the entire corporation and converts them into a comprehensive view of the future and a cohesive set of expectations. A successful forecast illuminates, while just below the surface it provides an accurate description of the complexity and intricacy of the reality it attempts to portray. Poor forecasting overwhelms its victims by numbing them with large data arrays of indeterminate relevance, ill-considered assumptions, and undisciplined clumps of emotion. A poor forecast offers confusion, misdirection, and disappointment to those whom its developers were seeking to enlighten. Good forecasting on the other hand achieves lasting value, credibility, and more importantly, clarity and transparency. Furthermore, all of these attributes can be acquired with a good forecast methodology without compromising accuracy (Gallagher, 1998).

Forecasting is particularly critical in the commercial aerospace industry because of the lead time required to bring a new product to the market. For example, if a manufacturer’s projection does not extend beyond 5-6 years into the future, it would have little value since it would be almost impossible for the manufacturer to design, build and certify a new aircraft within the projected time period should a new model be required. For this reason, most aircraft manufacturers look at least 20 years into the future with market forecasting in order for the result to be of value (Greer & Liao, 1986).

The Market Outlook reports released by Boeing and Airbus indicate that over 17,400 new aircraft are expected to be added to the world fleet over the next 20 years to handle the increase in air travel throughout the world. One may think this figure alone could be quite useful for strategic planning purposes, but in actuality, it represents only a single element of the overall projection that is necessary for
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