Case Study - Millau Viaduct

Introduction
The Millau Viaduct - spanning the River Tarn near Millau in southern France, is the tallest vehicular bridge in the world. It was designed by Norman Foster (Foster and Partners) and bridge engineer Michel Virlogeux. The tallest tower is 343 metres high and is slightly taller than the Eiffel Tower.

Overall ten years of research and four years of implementation were required for completion of the Millau Viaduct. It was opened to traffic on 16 December 2004 and cost €390 million to build.

This case illustrates how large scale innovation projects can overcome enormous challenges. It compares directly with the Holyrood Scottish Parliament building project in many ways. For example, the effective stakeholder engagement across multicultural boundaries, the amount of preparation undertaken prior to the Implementation Phase of the project, and the approach taken to manage technological and commercial risks.

You will find these web references provide excellent material on the A380 project, its background and current status, including video, pictures and technical data.

http://en.wikipedia.org/wiki/Millau_viaduct

http://news.bbc.co.uk/1/shared/spl/hi/pop_ups/03/europe_the_millau_bridge/html/1.stm

The following information summarises aspects of the case relevant to the Advance Work Task.
Background
The bridge was part of a new autoroute, the A75 from Orléans, to Clermont-Ferrand and to Perpignan in the South. It was needed to relieve traffic congestion through the Rhone Valley and allow holiday makers to reach the Mediterranean area quickly.

The area is subject to tough climatic conditions and in particular violent winds. Geological conditions were also demanding because the Tarn Valley is so deep and the crossing difficult. Several options were investigated and all presented technically challenging problems.

Preliminary and feasibility studies were undertaken between 1991 to 1993. The requirement was opened to competition in July 1993 with a number of structural engineers and architects conducting preliminary studies. In February 1994 five general designs were identified for a final competition in which five teams of architects and structural engineers conducted further in-depth studies of one of the general designs.

In July 1996, the solution based on a suspended bridge and presented by the group of research bureaus Sogelerg, Europe Etudes Gecti and Serf, and the architecture group Norman Foster and Partners won the competition. Detailed design studies were then carried out concluding with approval in 1998.

Tenders were then sought for construction in 1999 and four consortia responded. The contract was awarded to Compagnie Eiffage du Viaduc de Millau (CEVM) working with Norma Foster. Many risks and technical uncertainties had been addressed during the design phase and this made contract negotiations easier, reduced public expense and speeded up construction.

Construction began in October 2001 and was completed December 2004 one month earlier than the official opening date. (Overall this appears to be a few months later than originally planned due to adverse weather conditions). The bridge was opened in December 2004 three weeks ahead of the planned opening date (BBC News 24, 14 December 2004).
Since the viaduct has been built the local economy which had expected a downturn in business, has in fact seen a significant upsurge. According to Wikipedia:

“"The mayor of Millau approved more than 100 building permits in 18 months for the construction of three hotels plus other businesses and industries. The two industrial zones in La Cavalerie to the south, and Sévérac-le-Château to the north, have both expanded greatly, accommodating new enterprises both local and national."”

(Wikipedia)

Summary of Project results

Tallest viaduct in world

Three months late over 14 years duration due to weather conditions

Significant reduction in traffic congestion and reduced journey times (several hours) for road users, leading to lower cost for motorists

Reduced traffic pollution

Local economic boom.

References

Wikipedia: en.wikipedia.org/wiki/Millau_viaduct

BBC News 24, 14 December 2004

Further references:

www.roadtraffic-technology.com/projects/millau_viaduct

Official website: www.leviaducdemillau.com