

Space News, May 7, 2007, Commentary, p. 15.

Strengthening Galileo's Business Case

By Laurence Nardon

Europe's future satellite navigation system, Galileo, is an extensive program involving dual use technologies and is conducive to the development of a tremendous service market down the line. Its development also is considered more proof of European technological capacities. The first program to be managed jointly by the European Union (EU) and the European Space Agency, Galileo has challenged European officials repeatedly to come up with new concepts and ideas. Galileo's financial structure, for instance, is still under debate and difficult negotiations currently are under way between industrial partners as well as European countries and institutions.

One reason for this is the fact that the Galileo business case remains difficult to define. Galileo's five signals were determined in late 2004. The "Open service" will be free. It is comparable to the current U.S. GPS signal, only with better precision. The other four signals will come at a charge. Three will address the commercial market: "Safety of Life" has been designed mostly for air traffic management; "Search and Rescue" for stranded mountaineers or navigators; and "Commercial" for professional users such as geodesy institutes, electricity distribution networks or financial services. The last signal, called the "Public Regulated Service" (PRS) is designed for government customers. Paying for these four signals will allow customers to secure a guarantee of service.

Although there is a fair certainty that navigation services will enjoy a boom in coming decades, the profitability of Galileo remains unclear. Which services will be foremost? What customer base will emerge? What new applications will be devised and how much revenue will they generate? The balance between commercial and government revenue is another element present estimates lack. If commercial revenues are more limited, governments will have to support more operational costs for the program, probably pushing up the price of the PRS service.

These uncertainties make it difficult for European companies to clearly

evaluate their business risk. They are therefore reluctant to pay their share of the basic investment as the public-private partnership approach would have it. This also explains why they have such a hard time agreeing on the management aspects of the Galileo Concession. Indeed, negotiations have come to a stand still in recent months, resulting in very pessimistic appraisals of the program's future.

Two steps have been taken to remedy this state of affairs and put the Galileo program back on track. European Transport ministers have done what they should have done from the start -- demanded that industrial partners in the Galileo consortium, who will build and manage the future constellation, quickly get their act together.

Other helpful initiatives also are under way. Two different exercises have been launched by Europeans to identify new and profitable applications for satellite navigation. Their goal is to clarify and optimize the Galileo business case. A "Green book on Satellite Navigation Applications" was presented to the EU Council of Transport Ministers in December 2006. It organizes a consultation process that addresses the industry, public authorities, consumer groups and individuals in order to identify new commercial and civil applications for Galileo. A parallel effort was launched in January by an EADS-led consortium. It explores possible applications for the governmental signal PRS. This 18-month consulting project is called Pacific, short for PRS Application Concept Involving Future Interested Customers.

The Green Book and Pacific initiatives are meant to foster creativity and innovation in identifying possible future uses for the system. These initiatives will help the industry devise better offers to the market. A large number of areas are likely to benefit from satellite navigation. According to the Green Book, these appear not only in the fields of transport and communications, but also in land survey, agriculture, scientific research, tourism and others. Cars, portable phones as well as energy distribution networks or banking systems will benefit from satellite navigation services. Each area must be explored in order to make Galileo most beneficial.

One thing that most economists and industry representatives insist upon is the necessary extension of the customer base. This is why PRS, for instance, must be opened to all government customers.

The PRS signal was defined in 2004 as a signal with higher-level encryption and anti-jamming features. These features are meant to insure continued government access to a reliable navigation signal. If there is a

suspicion, say, that hostile forces want to use the Galileo signals for evil purposes, the authorities in charge will jam the first four signals while government services will retain crucial and exclusive access to PRS. Access to PRS by countries outside the EU is highly unlikely as this will either require a unanimous vote by the 27 members of the EU or suppose that the former have cracked the encryption system. The PRS signal will be used by the police, custom services, agencies in charge of critical energy or communication networks, and more generally, for all emergency needs in Europe, including of course the European military.

However, some partners in the program are reluctant to endorse military use of PRS, preferring that European military forces continue to rely on GPS. Whatever the political reasoning behind this stance, it does not make sense from a business point of view.

According to the European industry, PRS could make up to 20 percent to 25 percent of the future Galileo business. Consulting firms such as Price Waterhouse Coopers and Frost & Sullivan evaluate a global economic impact of 7 billion (\$9.56 billion) to 9 billion euros per year between 2012 and 2027. This compares with a very limited cost for the particular features needed for the PRS signal. In 2004, the cost of the overall Galileo architecture was estimated at 1.5 billion euros. The cost of the general security specifications of the Galileo system were estimated at 130 million euros. The cost of the special PRS features is a small fraction of that figure.

While the United Kingdom has said it would opt out, 11 European countries so far have officially expressed an interest in PRS use for their military forces. Looking at ways to optimize Galileo's benefits will serve the European citizen both as end-user and tax-payer. Military use of PRS does not add any cost to the PRS architecture. On the contrary, allowing European military forces to buy this particular signal will greatly improve the Galileo business plan. The principle of best value for money demands that the government PRS signal be used by European military customers, as well as other government users.

Laurence Nardon is a senior research fellow and head of the Space Policy Program at Ifri, the French Institute for International Relations.