

## RECENT LEGAL DEVELOPMENTS OF GNSS IN EUROPE

**Marco Ferrazzani**<sup>1</sup>

European Space Agency, ESA Legal Counsel and Head of Legal Department  
[marco.ferrazzani@esa.int](mailto:marco.ferrazzani@esa.int)

Europe has promoted and is bringing to fruition several initiatives in the field of satellite navigation: EGNOS as a regional augmentation system and Galileo as a long-term strategic solution. Given the technical, economical and political benefits such systems can provide to all users and to technologically advanced areas, European governments have recognized the interests to invest as public funding for the development and construction of the space infrastructure. As in any large government initiative, such a challenging view leads to complex financial, institutional and legal issues.

Several legal issues have been analysed, as these initiatives combine the institutional competencies, the technical skills and the financial and human resources of the EU, ESA, of European industry and operators. While development of the space infrastructure is assumed by public funding, an innovative formula will need to be explored for sustainable operations, to combine together both public and private sector resources, through the mechanisms taken from the experience of Public-Private Partnerships. Several legal and financial issues are currently addressed, so to favour a successful European satellite system. The paper will give an update on the status of progress of the European programmes on GNSS and outline the current legal issues and solutions being considered.

### I. THE EFFECTS OF THE SPACE SECTOR GLOBAL FINANCIAL AND ECONOMIC CRISIS

The financial crisis is prompting severe recovery plans throughout the world, especially in Europe. Public budgets and nations have had to appease social difficulties in a yet evolving financial and economic environment. This has affected Europe's stature and the perception that the EU might have means to protect the European social model. The crisis has rendered national politics more volatile, with repercussions on their political platforms at European level, and has highlighted different views within Europe regarding monetary and economic policy, result of a yet unfinished economical integration process begun over 20 years ago with the single market. Finally, Europe's divergences in the governance of economic affairs have contributed to a political backlash, modifying the European citizens' perception that Europe could become a decisive force in their future lives and well-being.

With respect to space, the refocusing of governments towards the reduction of budget deficits and sustainable economic fundamentals could still lead to budgetary cut-backs. However, as highlighted by the success of the 2008 ESA Council at Ministerial level, public space activities, in this context, are regarded as a driver for growth, where invested budgets have significant positive impact on the economy, employment and innovation. In addition, an ambitious and beneficial long term space programme addressing

global challenges through the promotion of research and innovation, might offer an additional opportunity for Europe to play a key role in the global scenario.

### II. THE LISBON TREATY: REAPING THE BENEFITS FOR THE SPACE SECTOR

One cannot speak of a homogeneous perception of space activities through the traditional and emergent (or recently emerged) space powers in the world. Whereas the US and Russia continue to operate on models which are respectively oriented towards innovation and optimal reuse of already existing technologies, the development of the Chinese space programme is articulated around the prestigious dimension that the space endeavour confers to a nation becoming a world power.

Recent geostrategic shifts and the emergence of new economic powers with their associated political influence are changing Europe's role in the world, including in space.

Europe is characterized by a set of diverse approaches to space programmes, within the EU\*, ESA and States Member of both the EU and ESA. This wide diversity of perceptions of space activities should be taken into account in defining common European

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\* Since implementation of Article 189 of the Lisbon Treaty and definition of a new "European space programme" are still under development.

1. The views expressed are purely personal and do not necessarily reflect the view of any entities with which the author may be affiliated.

strategic objectives and used as an asset in maximising potential investments. Furthermore, in order to guarantee benefits from investments to all the diverse actors and partners investing in space, a holistic vision of space projects has to be adopted, with the objective of allocating interests of all the players all along the end-to-end phases of a space programme.

Although potential benefits expected to be generated by the new EU Treaty are centred on ESA as pillar of the European space sector, in order for those benefits to materialise, a new balance among existing institutional actors is required along a strategic vision common to all the European stakeholders. ESA, space industry and EU Member States, in this respect, are expected to determine, together, and safeguard a new framework of governance in space programmes, where the Commission has made its political and now legal entry with Article 189 of the Treaty.

### III. THE PROGRAMMATIC STEPS OF GALILEO

We are now closing into operations.

**The Initial Operating Capacity** is able to provide initial services based on 18 satellites and should be completed by 2014 at the latest to ensure that Galileo does indeed become the second GNSS constellation of reference for receiver manufacturers.

The first two Galileo In-Orbit Validation satellites will be launched by the first Soyuz flown from French Guiana on 20th October 2011.

**The Full Operating Capacity** is based on a constellation of 27 satellites plus a suitable number of spare satellites and adequate ground infrastructure. This should be reached by 2018 at the latest, which, according to the Commission, is estimated to require additional financing of EUR 1.9 billion and annual funding to cover operating costs of approximately EUR 800 million from 2014 onwards. A clear financial proposal is now submitted for EU adoption in 2013.

An appropriate financing structure (taking into account, among other things, the future revenues from Galileo's Commercial Service) is necessary to limit the additional financing.

EU also plans some funding of R&D for GNSS but at no more than EUR 15 million per year and there is a risk of damage to other R&D programmes if additional funding for these activities is taken out of

the current framework programme.<sup>†</sup> The future funding is planned to be provided under the next framework programme<sup>‡</sup> and through other measures to facilitate the development of GNSS-based products and services.

### Public awareness

Additional funding for GNSS can only be secured if awareness of the benefits for the EU economy and society brought by GNSS is raised considerably among decision-makers and the wider public. There is the setting-up of concrete initiatives, such as the annual Galileo Masters competition for ideas, for which there were 350 entries from 44 countries in 2010, the Galileo children's competition and the GNSS innovation prize.

The Commission and the EU GNSS Agency (GSA) are putting on more effort into raising awareness of GNSS among potential users and investors, promoting the use of GNSS-based services, as well as identifying and concentrating the demand for these services in Europe. Galileo is in the public interest at EU level and thus has a justified claim to financing from public funds.

### International dimension

The Commission is doing efforts to ensure the compatibility and interoperability of Galileo with other satellite navigation systems and to strive for global standardisation.

Regions of the world where the adoption of European GNSS technology and applications may help market development should be involved, such as Latin America, South-East Asia or Africa.

### Financing

EU Regulations have set the principle that Galileo and EGNOS, as **European programmes owned by the EU which address a public interest at EU level**, should mainly be financed through the EU budget. Alongside the contribution from the EU budget, all possible sources of financing should be investigated,

<sup>†</sup> The Seventh Framework Programme for research and technological development (FP7) is the European Union's chief instrument for funding research over the period 2007 to 2013. It brings together all research-related EU initiatives under a common roof playing a crucial role in reaching the goals of growth, competitiveness and employment.

<sup>‡</sup> The next Framework R&D programme is FP8, due to run from 2014 - 2020. With a proposed budget of at least €140 billion there is much to fight for.

including innovative forms of financing. Members emphasise that ad hoc, emergency budgetary solutions such as those seen recently are likely to jeopardise the success and added value of such strategic, large-scale EU projects and undermine the political momentum around them. They suggest that a predetermined annual amount should be provided from the EU budget (for the financing of the remaining Galileo infrastructure as well as the operating costs). The Commission presented a detailed breakdown of the estimated financial needs proposing that any cost be financed from the EU budget without endangering other existing programmes, by establishing a 'Galileo EU budget' to cover such costs.

### Governance

The European Parliament feels that the **long-term governance and management structure of GNSS** should address the division of tasks and responsibilities between the Commission, the GSA and the European Space Agency (ESA). It calls on the Commission to make swift progress with the ongoing reflection on future governance schemes for the operation of the system, to take responsibility for long-term operations and adaptation of the infrastructure, to ensure the delivery of continuous data and services to users, and to maximise opportunities for the development of commercial services. There is a clear need for the long-term governance and management structure of GNSS to be fully transparent. The Commission is mandated to establish mechanisms to ensure that GNSS based services to be provided by Europe comply with fundamental rights such as privacy and data protection.

### International liabilities issues

The Global Navigation Satellite System is poised to be one of the most critical technologies in the 21st century and considered as an important element of the communications, navigations, surveillance, intended to provide worldwide coverage. At present the satellite navigation technologies are becoming a global means and finding an application practically in all areas of the economic activities.

Satellite based navigation systems have totally changed our concept of regulation in Air Traffic Management (ATM) as the legal regime or liability regime hitherto applicable for territorial service seems no longer support new global or at least regional ATM services offered by the various Providers. The legal issues related to satellite navigation vary and depend up on numerous factors depending on the adapted and precise commercial application. Satellite navigation is an enabling technology of future

transportation and airspace management system.

According to several studies, the use of Galileo data is expected to be extremely wide- spread on a global level. It represents an evolution in and a substantial improvement of the satellite radio navigation systems currently existing. Its very nature will make it significant in various economic sectors and in sectors of substantial public interest. Considering Galileo's potential global scope, the risk of loss is significant and may even be catastrophic.

The absence of an international uniform law on provision of data and services causes a number of problems. Such problems include the risks of multiple applicable jurisdictions, the difficulty and costs of identifying the responsible party, uncertainty relating to the notion of reimbursable loss, the introduction of effective loss recovery mechanisms, and difficulties in coordinating with existing conventional regimes.

Analysis of the conventional scenario concerning uniform civil liability rules highlighted a set of well consolidated approaches in practice on an international level.

One recent European proposal is to make a broad reference to these approaches when devising a specific regime for civil liability for loss deriving from Galileo services. The above mentioned proposed regime should include: the strict liability rule; compulsory insurance for at least the limit of liability; the provision for supplementary compensation to guarantee satisfactory reimbursement of losses; and the criteria for identifying the applicable jurisdiction.

## IV. SOME PROPOSALS TO ADDRESS GNSS LIABILITY

The existing legislation in Europe has been assessed against the following policy objective: the applicable liability regime should strike the **right balance between two conflicting interests**:

- **Defendants** - The players in the EU GNSS chain face the risk of handling multiple legal proceedings and/or of paying high damages. They could not predict the liability regime applicable, which would prevent them from preparing in advance to meet their financial obligations. This would deter them from playing their role, undermining the existence of the EU GNSS and thereby the interest of the public at large.
- **Claimants** - Each victim in the EU must be guaranteed prompt and adequate compensation. "Prompt" does not mean "automatic" (e.g. to ascertain the causal

link between the damage and the GNSS signal). "Adequate" does not mean "full" in all circumstances (e.g. indemnification of victims may be limited in order to ensure that the risks of the players in the EU GNSS chain are manageable).

The legislation applicable depends upon the person against whom claims are directed: the owner and/or the operator. The Commission is now considering how existing applicable legislation can help to meet the policy objective. There is a possibility for a legislative initiative at EU and at global level to address these shortcomings.

A new liability regime could have the following features:

- Strict liability regime but with a limitation ceiling (at a first stage – this is more favourable to the victims than the existing scheme);
- Possibility to refer to fault-based and unlimited liability (only at a second stage - recourse to the existing scheme with systems for backup coverage to be defined).

The modalities of the limitation are yet to be defined:

- Global limitation per year, global limitation per incident or *per capita* limitation;
- The ceilings could be set at different levels depending upon the services provided (Open Service, Safety of Life, Search and Rescue, Commercial Services, Public Regulated Services).

Claimants in Third Countries would be attracted by the scheme contemplated in the EU Regulation (e.g. strict liability of GNSS operator or service providers based in EU), but they would not be prevented from seeking compensation based on legal grounds as applicable in the local jurisdictions, with potential conflicts of laws (e.g. place where the damage occurred, different remedies).

The EU may publish disclaimers in order to influence court judgments in Third Countries, which may however be unenforceable locally. As an alternative, the Commission may enter into bilateral agreements in order to extend the application of the EU Regulation, but this process would anyway be complex for the high number of jurisdictions involved given the global coverage of the GNSS.

An EU Regulation is acknowledged to prove to be insufficient with respect to the worldwide use of any GNSS.

The Commission has placed the risk management at the heart of its works<sup>§</sup>. Among other risks (technology, operation, market, governance), the risk of liability related to the two European systems [Galileo and Egnos] causing direct or indirect losses to their users or to third parties has been identified and classified as a high priority issue to be addressed:

The analysis carried out by the Commission reveals that **“the current state of law applicable does not provide an appropriate legal framework** ensuring a fair balance between the interests of the victims and those of the owners and operators of the European satellite radio navigation systems. Appropriate initiatives must therefore be taken, **both in Europe and worldwide**, to remedy this situation by 2014. The Commission is carrying out studies in this connection, in collaboration with other international bodies.”

Any regulation (at national, European or international level) should be conceived as the legal framework for third party claims that is necessary to implement in order to ensure on the one hand appropriate protection to public and private stakeholders and on the other hand effective compensation to all users and the community at large.

By setting a clear regime for the liability deriving from the malfunctioning of services and equipment, an ad hoc legal regime may also be a major cornerstone underlying a safe and fast development of all markets and activities based on GNSS “interoperable” applications.

Mandatory provisions may be established as a regulatory foundation for contractual and insurance schemes in order to prevent claims to be targeted against single public or private entities and so distribute litigation among a number of operational and institutional players at various levels (“no deep pocket”).

In the context of a shared legal and financial responsibility (PPP) between private industry (not only space but all sectors) and public entities (e.g. States participating to GNSS programmes), a specific legal regime may balance economic sustainability to be ensured to operators and adequate remedies to be granted to victims.

<sup>§</sup> Report from the Commission to the European Parliament and the Council [COM (2011) 5].

## V. CONCLUSIONS

The last decade has seen an extremely rapidly evolving international environment. The international system, influencing Europe's future, remains multi-polar, with a confirmed leading role by the US, although challenged by the BRIC powers and their increasing weight on economic and political evolutions; it remains heterogeneous, with increasing divisions, calling for renewed and extended international cooperation efforts to cope with more and more global issues affecting the entire planet; it then requires global governance tools, as the recent financial crisis has shown.

Europe is expected to constantly adapt in these complex times, in order to play a significant role in solving global challenges steering future successes. Although the EU Lisbon Treaty framework still remains to attain full maturity and balance between European and national solutions, the progress achieved in the European governance scheme is a promising basis for Europe to bring a key contribution to the global context.

These challenges call for ESA and its Member States to consider long term planning in a complex and evolving context, but where the focus on space as a public good adapted to solve global issues needs to remain the main driver.

The aim is to consider recent world events that have influenced Europe and to identify how space, as a public tool, could support the European Union and its Member States in this evolving political context.

The dominating element of the global context is the financial crisis and its effects on European economies: the solutions found by Europe to curtail effects, but also to prevent future such events, are in fact as fundamental as the crisis itself. The evolving and uncertain economic evolution of some European States has an impact on European governance, and so potentially on space investments.

In a difficult financial and budgetary environment, the EU has set high and demanding objectives for its space policy and on its first flagship space programme GALILEO. The recent EU budget proposal plans to secure public funding sufficient to complete the development and deployment in outer space of the GALILEO constellation as a new European infrastructure, totally funded and owned by the EU. This will soon result in new competences and responsibilities of the EU as owner and operator of public services, along with adapted schemes involving the private sector. Public interest and extensive potential liabilities will be compelling arguments to require some legislative or conventional work, to properly shape the GNSS normative framework. Europe is considering alternative solutions, being well aware that any regulatory or economic development will need to be done in harmony with other space faring powers, to reap the benefit of such innovative technology, put at the service of world population.