

Intellectual property rights as revenue-generation for Galileo

TO OWN OR NOT TO OWN, THAT IS THE QUESTION

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One of the major legal issues surrounding the future Galileo concerns intellectual property rights and their potential for revenue-generation to the benefit of the future private concessionaire. This article investigates some of the key aspects concerned, with a view also to down-stream value-added service providers using Galileo signals and services.

Introduction

Free access to signals provided by the US Global Positioning System (GPS) and the Russian

GLONASS led to the introduction the mid-1990s of Global Navigation Satellite Services (GNSS) in the civil sector. This caused a major evolution in the approach to various timing, positioning and navigation problems and needs, and stimulated a number of very important technological, operational and market developments. Whilst Europe profited to a considerable extent from these developments, for example through the European Geostationary Navigation Overlay System (EGNOS), such benefits were indirect and small compared to benefits in particular to the US economy. Moreover, the continuation of any such benefits remained totally de-



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pendent upon continuous provision of GPS and GLONASS signals.

From this situation the European Commission, representing the European Union (EU) and the European Space Agency (ESA), deduced a crucial need for Europe to become directly involved in the development of a second-generation GNSS system. A realisation of the further potential of GNSS in economic, as well as strategic terms, resulted in plans for Galileo. At the present point in time the major decisions at both government and European level necessary for the development, deployment and operation of Galileo have been taken, and by 2008 or shortly thereafter Europe will have its own operational satellite navigation system. Apart from essentially duplicating GPS in a number of areas and hence providing some welcome redundancy, in view of the inherent vulnerability of GPS, Galileo is intended to provide a number of features not (yet) found in the operation and use of GPS. Some of these have distinct and rather novel legal consequences, such as the use of intellectual property rights, a matter of interest for further investigation; hence the exclusive focus of this article upon Galileo.

Towards Galileo

A primary crucial manner in which Galileo will distinguish itself from GPS (and GLONASS) concerns the services to be provided. Whilst the details of these are yet to be determined, the intention is for Galileo to provide five core services as follows:

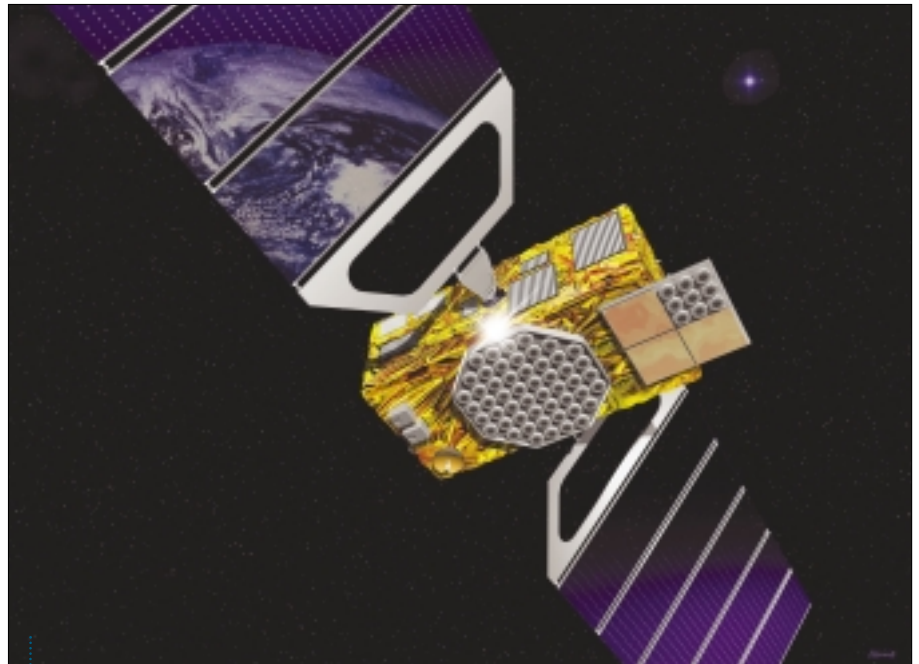
- the Open Service (OS)
- the Commercial Services (CS)
- the Safety-Of-Life Services (SOL)
- the Public Regulated Services (PRS)
- a contribution to existing Search-And-Rescue Services (SAR).

The OS will be comparable to (and interoperable with) the GPS Standard Positioning Signal (SPS); it will provide perhaps slightly enhanced signals, without user charges, and without any attendant liability or service guarantees. The PRS will be roughly comparable to the GPS Precise Positioning Signal (PPS), in particular as it will be encrypted and available only to a limited and closed group of users; in the case of PPS only the US military and allies, in the case of the PRS the governments of ESA member states and, more generally, the EU.

The main differentiation between Galileo and GPS in this regard will consequently consist in the provision

of the CS and the SOL. The CS will be provided against direct user charges, offering in return enhanced data-streams and communication potential, as well as service guarantees and some measure of liability acceptance. The SOL will also somehow be provided against user charges (although these will probably be included in existing charges such as, in the case of aviation, ATC charges) and be accompanied by liability arrangements. These services will in particular provide the level of integrity and integrity monitoring which GPS cannot offer. It is precisely for these reasons that augmentation systems like EGNOS have been developed, themselves adding such benefits to the use of GPS. Finally, contribution to existing SAR services also represents something not currently provided by GPS.

A second major differentiating factor for Galileo is its planned complicated institutional structure, involving civil authorities at the highest level. This is



Sending out timing, positioning and navigation signals, a Galileo satellite will contain many highly valuable high-technology features - protection of the intellectual property rights over such features is, however, a major issue.

clearly distinct from both GPS and GLONASS, where national military authorities own and operate the system and civil users are able (only) to address their interests and worries through consultation procedures, having themselves no say over the operation of the systems.

At the core of the institutional structure envisaged for Galileo, a Public-Private Partnership (PPP) will be established; the European Commission in particular

was keen to involve not only public but also private investments in operation and marketing of the system. Obviously any such fundamental private involvement also demands concurrent responsibilities and competencies, and these will be laid down in a negotiated concession agreement. For this purpose in 2003 the European Commission and ESA together established the Galileo Joint Undertaking (GJU) on their behalf to conduct the tendering process and decide on a winning private consortium [1]. Such a private consortium, currently being labelled as a 'Galileo Operating Company' (GOC), will operate the system, market and sell the (paid) services and develop new markets. The GALILEI Study performed for the Commission put forward the following reasons for having a private operator as another key differentiator with regard to the current GPS [2]:

- for flexible, non-bureaucratic and commercial modes of operation
- for marketing purposes
- for obtaining finance and investment from capital markets in normal commercial modes
- for dealing with intellectual property-rights issues in a proper and more commercially-oriented fashion
- for obtaining insurance against limited liability
- for sensible business partnership.

Representing the other side of the PPP, a public body currently going by the moniker of Galileo Supervisory Authority (GSA) will own the system, monitor GOC operation thereof and deal with various public, international, safety and security-related

interests. In the GALILEI Study a number of reasons were put forward for having a public supervisory body in such a core position within the institutional architecture [3]:

- to negotiate and conclude agreements with states 'external' to Galileo yet hosting Galileo-related assets/service providers
- to license non-European augmentation and integrity providers (or negotiating and concluding agreements on such operations by the GOC)
- to serve the general public interest, for example in regard of safety, security and search-and-rescue issues
- to offer last-resort unlimited liability to value-added service providers and end-users.

At the time of writing, the allocation process for concession to operate the system has narrowed down the competition to two remaining consortia: Eurely and iNavSat. The former comprises at the highest level Alcatel, Finmeccanica, Hispasat, AENA, Boeing, the Russian Federal Space Agency, Deutsche Bank, Chinasat and Navteq; the latter consortium comprises EADS Space, ING Bank, Inmarsat Ventures, the Thales Group, Boeing and the Russian Federal Space Agency. Later in 2005 the winner is to be decided, and by the end of 2005 or shortly thereafter further detailed negotiations on the concession should lead to a finalised concession agreement, probably covering a period of twenty years. Details of the concession will thus become clear only at that point and then, of course, only to the extent that they do not remain confidential for security and/or commercial reasons.



Using Galileo services for car navigation might be very interesting....

However, already at this stage and without knowing any such details in advance one major issue that merits attention, including legal attention, concerns the potential of intellectual property rights as a revenue-generating tool for Galileo, in particular for the GOC. The two main initiators of Galileo development, the European Commission and the European Space Agency, are both adamant that the future concessionaire will *inter alia* provide the aforementioned OS for free.

For any concessionaire this obviously raises the question of the commercial rationale behind providing a service free of charge which will, in all likelihood, cost at least something to provide. One solution would of course be to 'cross-subsidise': to ensure that sufficient revenues are generated by other, paid services to pay for any costs specifically attached to provision of the OS. A second solution would be simple public subsidy (whether from EU funds or otherwise) to offset any such costs. However, the solution envisaged by the Commission in particular is that the GOC generate OS-related revenue somehow through the mechanism of intellectual property rights. In view of the major role of the Commission within the GJU, the latter will probably press during concession negotiations with the winning consortium for use of this mechanism.

The use of intellectual property rights as a revenue-generating tool, however, poses a number of important questions, including some with substantial associated legal elements. This article presents a first

inventory of these legal issues, always keeping in mind that in the end it will be for the two negotiators on the concession to agree on the details of using such mechanisms for revenue generation - within the bounds, of course, of the law as it stands. Secondly, then, such an outcome will fundamentally determine parameters for any down-stream usage of Galileo signals and services, read with regard to value-added service providers contracting with the GOC for such signals and services.

Intellectual Property Rights: a General Overview

It has to be understood that property rights, in the broadest sense of the phrase, are about giving private persons and entities the opportunity to 'own' something and protect such ownership by law. Based on the same underlying philosophy, it has long been considered essential for society too to protect non-physical assets by means of so-called *intellectual* property rights. Generally, such non-physical property rights have been classified into two broad and generic categories: industrial property rights and intellectual property rights in a narrower sense. All these regimes essentially provide for a balance between the interests of the individual whose industrial or intellectual property is at stake, and the interests of society at large in being able ultimately also to benefit from such property. This balance is further influenced by policy considerations regarding the encouragement of public education and enlightenment, assistance in economic development and the protection of national security, all of which have a bear-



...but what will the user have to pay for any intellectual property rights incorporated in the on-board device?

ing on the actual level of intellectual property rights protection in given cases.

The category of intellectual property rights *stricto sensu* concerns, most prominently, copyright and such additional neighbouring rights as those related to production, editing and publishing, photographs, computer programs and databases. The essence of copyright is that protection of the content of a certain piece of work – which may well include the content of any timing, positioning or navigation message! – stimulates people to undertake the effort of creating a piece of work in the first place; they may be sure that (at least, in law,) free-riding is disallowed, since creators have an exclusive right to their own work. Of course, they can then also use this right as a revenue-generating tool by allowing others, against a fee, to use copyrighted work.

Copyright is, at the same time, only a rather limited form of property right providing basic opposition to mutilation of a piece of creative work and determining proper forms of publication, alteration or additions. In other words, all that it disallows is reproduction without proper reference, or reproduction of major parts of a copyrighted work. Copyright thus encompasses certain enumerated rights which are statutorily reserved to the copyright holder, such as the right to reproduce the work in copies, to prepare derivative works based on the original work and to distribute copies to the public for exploitation of the product. Copyright does thus establish a complicated balance between the private interest of the creator and the public interest of society at large.

With regard specifically to timing, positioning and navigation services, one further issue has to be noted: the specifics of digital and/or electronic messages and the current IT-environment raise specific questions as to the appropriateness of general copyrights (developed in the past for written works, paintings and pictures, music etcetera) for this sector. In particular, the problems of enforcing copyright: monitoring all use, uncovering unauthorised use and sanction against such, raise fundamental questions about the practical relevance of copyright in a digital and electronic environment. But, of course, these problems are not unique to the timing, positioning and navigation sectors. As similar experiences in other digital and electronic environments (computer software, the internet) have shown, such measures at least ensure the eventual detection of any massive unauthorised use, and appropriate sanctions, given that a proper legal regime is in place. Also, the mere fact that certain forms of use are clearly prohibited may at least considerably diminish the chances of such unauthorised use in the first place.

With a view to the timing, positioning and navigation environment within which Galileo is to oper-

ate, two approaches must be noted which may, broadly speaking, be discerned regarding copyrights. The European-continental approach is relatively speaking more author-minded; the author has a right to the fruits of his labour, which has its primary roots in the natural bond between author and the work he has created. At the same time, in general, European-continental copyright laws are alike in requiring a certain level of originality; this may be considered the threshold to enjoyment of copyright protection, in particular in cases of digital and/or electronic services. The Anglo-American approach, on the other hand, is more utilitarian: copyright is aimed at stimulating authors essentially for the purpose of allowing society to benefit from them, and dealing with them accordingly, so the level of protection is relatively low. At the same time, under Anglo-Saxon intellectual property rights law it basically suffices that skill and labour are involved; the 'sweat of the brow' concept largely replaces a requirement of authorial creativity being perceptible in the work.

The other category of industrial property rights operates essentially in similar fashion to establish a balance between the interests of society in stimulating individual creativity for the benefit of society and the interests of that individual in personally reaping the benefits of his creativity; but it is targeted at protecting the expression of creativity in a more 'industrial' context. This concerns patents for inventions as the most prominent category, but also includes trademarks, service marks and suchlike.

Ownership of a patent entitles the owner to quite exclusive control over the invention thus patented for many years to come (usually something like twenty) depending, of course, upon a sufficiency of 'novelty' and practicality for something to be considered an invention. The essence of patent, basically similar to that of copyright, is to stimulate inventiveness and inventions by offering the prospective inventor certain exclusive rights over his invention and some financial benefits, since his exclusive rights allow him to license others to use the patented invention against the payments of royalties. It is thus that patent ownership translates into a revenue-generating mechanism for the patent holder.

An altogether different question in the case of patents, of course, concerns the extent to which any legal protection afforded by intellectual property right in cases of timing, positioning or navigation-related inventions also implies *de facto* protection. Unauthorised use of patents may not actually be discovered, relevant national legal regimes might turn out not to allow for a claim to be made (in the case of Galileo, such disputes may be imagined arising all over the world, and many countries lack the appropriate legal regimes or court procedures) and the chances of a claim being successful may be

rather slim. Whilst these are extremely relevant issues, both in the decision to patent a certain timing, positioning or navigation-related device and in subsequent enforcement of such a patent, they lie beyond the scope of this paper. The most that can be said here is, again, that at least massive piracy will sooner or later be detected, and that the mere fact of a patent will restrain at least some potential pirates from going ahead with intended unauthorised use.

Further to such general discussions surrounding the potential applicability of patents in the timing, positioning and navigation-environment, broadly speaking two approaches are taken to patentability, best summarised respectively as 'first-to-invent' and 'first-to-file' (with a recognised, usually governmental, patent authority). The first system is generally adhered to by European countries, whereas the second is *inter alia* applicable in the US.

Intellectual Property Rights and the Law: National, International and European

It has to be realised that all sorts of intellectual property rights have historically been addressed, first of all at national level. For centuries occasional domestic legislation has been evolved to try to ensure a balance between the individual interest of the creator or inventor and the general interests of society in such creations and inventions. Obviously, the scope of such legislation has extended no farther than the territory of the state concerned when it came to enforcement of applicable rules on protection. As far as patent is concerned, the enjoyment of protection also depends initially upon territoriality: the national law of the territory wherein an invention is made and filed, respectively, applies (although usually patent authorities allow only filing of inventions made on their own territory).

But ever since the beginning, awareness of international trade and commerce and the obvious interest in ensuring widespread additional protection outside national borders, as well as maximising harmony between relevant national regimes has led to international efforts in this direction. Thus regarding copyright, for example, the 1886 Berne Convention for the protection of literary and artistic works established a first measure of cross-border recognition of nationally-granted copyrights, and harmonisation of the relevant national laws [4]. Similarly, in the field of patent protection [5] the 1883 Convention for the Protection of Industrial Property as Modified by Additional Act of 14th December 1900 and Final Protocol was agreed. Whilst these treaties have been regularly updated in terms of content and scope and have enjoyed increasing adherence, none enjoys full global membership [6]. So in each particular case of a (national) market targeted by Galileo and the GOC we may be forced to inves-

tigate whether the state concerned has developed any national legal/enforcement regime and/or whether international rules laid down in certain treaties are actually applicable within that jurisdiction.

Finally, in particular when it comes to Galileo as a European system no doubt first targeting EU markets, it is noteworthy that harmonisation and mutual recognition have been realised to an even greater extent within the context of the European Union. Because of the inherent economic value of intellectual property rights and the ensuing possibility of their use or abuse for competition purposes, proper regulation of intellectual property rights also came to be considered an indispensable part of the European Internal Market. A number of specific European legal agreements have therefore led to the basic existence among EU member states (certainly the 'old' fifteen; to what extent the ten newly acceded member states are already incorporated into this regime without a transition period is another matter) of one, comprehensively applicable and harmonised regime on intellectual property rights [7].

Intellectual Property Rights in the Context of Galileo and GOC Commercial Operations

Now that the major thrust of legal protection of intellectual property rights has been outlined here, it becomes possible to at least make an inventory of 'how these would work' in the context of Galileo, with a view to their potential as a revenue-generating mechanism for the GOC.

A great deal of attention was paid to this aspect of Galileo's future operations in the context of the GALILEI Study Cluster [8]. Firstly, this analysis resulted in an overview of the types of intellectual property rights which might apply to Galileo. Secondly, their possible effectiveness in the case of Galileo was analysed. Thirdly, an analysis of their respective revenue-generating potential was provided. Unfortunately, it is beyond the scope of this article to go into all the details of these analyses; the conclusions, however, merit revisiting.

The main conclusion pertained to the potential economic significance of intellectual property rights. From this perspective, copyright on semiconductor topography as mentioned as a revenue generator of potential interest has, as far as is known, never been used as such a tool and would also be an unlikely candidate within the context of Galileo. Copyright on software seemed useful only in the software publishing industry and, since it is anyway widely and easily pirated, would not seem either to offer interesting possibilities. Semiconductor topography and software copyright have a very narrow scope, covering only a single embodiment; alterna-

tives are consequently easy to imagine, and an only minor change in a copyrighted item would cause it to fall outside the scope of protection. Both are difficult to detect in the finished product, so enforcement against infringement is equally difficult. Finally, both have a short time to obsolescence, which in the case of Galileo might actually about equal the time to market.

Trademark protection would, then, seem to present a more promising option. As the name Galileo is already widely filed, however, its ultimate economic potential would depend mostly upon marketing influence on end-user psychology, through advertising for example. At the same time, its effectiveness would depend on the extent to which other ownership and/or usage of a 'Galileo' trademark could legally be minimised so as to pave the way for this Galileo.

From a factual perspective, the protection of trade secrets, know-how and encryption may be the only form of protection which could eventually be applied to every terminal in the world. This, however, is not properly speaking a legal matter; ultimately it depends more upon the factual possibilities of creating optimally impenetrable barriers, and to the extent that such barriers might then (illegally, that is, basically without authorisation) be overcome; generally speaking, normal criminal jurisdiction would apply. Most importantly, with the exception perhaps of encryption, these forms of protection do not easily lend themselves to generating income; as defence mechanisms they are rather absolute in character.

When it comes to legal protection, therefore, patent protection, especially if standardised and if alternative solutions are not to be standard-compliant, would seem to provide the most interesting mechanism. Actually, this form of protection could cover the majority of the world market. Protection exists only in states where the patent is filed, which means that over 140 states are available for this purpose through the 1970 Patent Co-operation Treaty filing procedure [9]. Additional regional filing procedures are available within Europe, Eurasia, Africa and the Asia-Pacific region, excluding Japan and China. A European Community Patent [10] is on the horizon, essentially a unified patent with EU-wide effect. The duration of revenue-bearing protection is twenty years from filing, or until someone else finds a viable, non-infringing alternative - whichever comes first. Finally, the difficulties in circumventing patents are considered substantial, although in the case of down-stream services and applications and patentable items used in this environment evaluation may have to be reconsidered. This is particularly true in view of the practical need to balance the costs of enforcement actions against chances of their success, and the chances and costs of unsanctioned piracy.

Further, since any revenue-generating potential for the GOC depends upon the extent to which it owns a patent, any patent should be made to rest upon the Signal-In-Space (SIS) and in particular on its signal waveforms and encryption algorithms, as these are under control of the GOC. Moreover, the highest probabilities for innovation lie within the space segment or in the SIS itself. Actors most likely to generate intellectual property rights with the greatest chance of patentability are those working at system architect-level, air interface, signal specification and characteristics, which is where the GOC is indeed to operate.

At the same time the highest potential for revenues lies in the user segment, where innovation is expected to be low to non-existent. To reconcile these apparently disparate considerations spaceborne intellectual property must be 'brought down to earth', that is: it must somehow be embodied in the user terminals, possibly accomplished by a patent on the signal, provided that the signal characteristics also impose specific characteristics on the receivers.

However, this will require a few more issues to be solved. So far both ESA and the European Commission have been used to issuing contracts to the space industry whilst themselves maintaining very strong rights over any resulting patents or inventions because of the large amounts of public money (to be) invested. If, however, a GOC is to be enticed under the concession to put a lot of effort (read 'a lot of money') into developing patentable inventions, it is crucial that somehow ownership of patents thus developed come to be owned or at least sufficiently controlled by the GOC to allow it indeed to use applicable patents for the purpose of revenue generation. Otherwise, researchers under Galileo-related research contracts might find their enthusiasm for developing items of interest and eligible for patent or copyright fundamentally stifled.

Any limitations resulting from such ESA and/or EU policies on the capability of the GOC itself to control its intellectual property will most likely also have a bearing on the down-stream development of items eligible for patent or copyright. Such consequences are, however, by no means straightforward to forecast. It may indeed mean that the GOC adopt the same approach (or is even forced to do so) towards down-stream development by its customers of items somehow involving Galileo signals, services or hardware. But it may also mean easy access for GOC down-stream customers to relevant intellectual property; and to the extent that ESA or the Commission actually brings this into the public domain, it might perhaps even be for free. This does not, as such, exclude the possibility for such customers to patent, copyright or otherwise protect their own relevant items developed

using Galileo signals, services or hardware. Still more scenarios might have to be considered before a more or less definitive evaluation can be offered.

Ultimately, however, all depends here on the outcome of many yet to be conducted negotiations; firstly between concessionaire-to-be and the GJU, and secondly individual contract negotiations between concessionaire and its customers, where the GJU will no doubt wish to flow down relevant aspects of the concession agreement to those customers.

Another issue concerns the applicability of patent protection as it depends upon the novelty of relevant assets to be patented. Thus any invention should be 'non-obvious', in particular as compared with GPS; for patent rights to work, therefore, a major duty rests upon the engineers to ensure that sufficient novelty does indeed inform Galileo SIS-generation. Then, as the GOC is unlikely itself to develop signal waveforms or encryption algorithms, it

It is along these lines that the (future) GOC, that is the consortium winning the concession, might be expected to develop its intellectual property rights strategy in close co-operation with, or indeed with the support of, the (future) GSA. Following on from this, intellectual property thus protected will be used to generate revenues from GOC clients and down-stream customers, who will be faced with the basic choice of paying for such intellectual property rights in order to have access to the relevant Galileo services, or using non-Galileo options to fulfil their own business requirements in such cases as their being not individuals interested in using Galileo for their own sake, but rather services and applications businesses interested in integrating Galileo services into their own services or applications.

Finally, it has to be pointed out once more that the real value of intellectual property rights depends not only on the applicability and application of relevant legal regimes to protect them, but also on



Agriculture: one of many potential down-stream value-added applications of Galileo services.

should ensure through contracts with manufacturers or other providers that the applicable patents come to rest with itself rather than with the creators of the patented asset.

The establishment of a patent pool for essential intellectual property rights offers a particularly interesting, partly alternative, tool for overcoming this problem. The essence of the 'patent pool' concept is that should there emerge several holders of essential intellectual property rights, one being the future concessionaire and others developing relevant patents elsewhere in the chain of production for key Galileo products, some or all of these patents be pooled for eventual joint collection and distribution of royalties benefiting all pool members.

the practical reality of what it costs to actually use the law to protect them as set against the costs of and revenues lost by not protecting them. Patents may be used for the protection of investments, by down-stream Galileo customers for their own inventions as much as by the GOC for up-stream Galileo-related inventions. Similarly, copyrights may be used for the protection of content, by down-stream Galileo customers for the content of their own timing, positioning and navigation-related messages as much as by the GOC for up-stream Galileo-related such messages. In both cases, however, only a pragmatic business decision will decide whether and/or how to use those legal instruments made available by intellectual property rights law.

It may be noted that whilst hardware (if inventive) and content (if creative, or at least having cost 'sweat-of-the-brow') may indeed make use of, respectively, patent and copyright for protection purposes, as yet the services themselves (as distinct from the hardware involved or the content delivered) do not fit within this outline. Here, however, it should be noted that the GOC will have a monopoly on Galileo services as (exclusive) concessionaire at the level of the Galileo system itself and, until and unless a competing system arrives on the scene providing the same levels and types of services, a monopoly on these too. In the process of contracting with down-stream service and application providers, such a de facto monopoly could be used to ensure that Galileo customers somehow protect their services from being copied by, for example, exclusive use of the service contracted for within a certain area, for certain purposes or under certain circumstances.

Whilst such an approach might be contrary to the general competition-minded and free-and-fair-trade-oriented approach of the European Union and the Commission, it may be necessary in order to create sufficient interests on the value-added service providers front to create enough of a business-case for Galileo – which is clearly the main concern of the Commission today. In other words, work should be done to make use of the possibilities for exemptions and exceptions to application of the Internal Market and competition-regimes also offered within the framework of European Community law.

Concluding Remarks

The above presents, in effect, no more than a rather succinct overview of the most salient issues at play in the discussion on intellectual property rights as a potential revenue-generating tool for Galileo, and in particular the future private GOC. This reflects on the overall business case for Galileo; it has become clear that any final solution as to the extent to which intellectual property rights be used by the GOC for generation of revenue within the context of free availability of OS will indeed depend to a major extent on the outcome of concession negotiations, to be expected towards the end of 2005 or shortly thereafter.

Whilst making use of the existing measure of legal protection as surveyed here, differing as it does amongst types of intellectual property rights as much as between markets, and despite widespread harmonisation of European market regulation, the two negotiating partners still have to thrash out between them how to ensure maximisation of opportunities for the generation of GOC revenues on a number of counts. Will the GOC be offered sufficient opportunities to control relevant patents?

Will manufacturers be sufficiently stimulated to put up large sums of money to generate novel and hence patentable elements of the space hardware, software or signals? Will the two international entities initiating and supervising Galileo be able and willing meanwhile – and time is running out if the deadline of the end of 2005 for concession finalisation is to be met – to set up a coherent and far-sighted intellectual property rights policy? In short, to what extent will the private concessionaire own the key assets for revenue generation, as far as the tool of intellectual property rights is concerned?

For any down-stream potential customers of the GOC and Galileo-provided timing, positioning and navigation signals and services this then will be the framework within which they in turn have to negotiate contracts on such usage. It would be wise for any such customer to prepare for negotiations by clearly determining its own potential for developing items eligible for patent, copyright or other protection, as well as a 'business case' for using any of the available intellectual property rights protection instruments discussed above (as compared to not using them), whilst realising that to a large extent the terms of such a contract will be presented as a given. On the other hand, nothing obliges a customer to abide by contractual terms offered by the future concessionaire, in particular not if alternative means are available. That, at any rate, is the responsibility of the concessionaire: to make Galileo sufficiently attractive to as many customers as are necessary to constitute a viable market.

Notes

- [1] Council Regulation (EC) No. 876/2002 of 21 May 2002 setting up the Galileo Joint Undertaking; OJ L 138, of 28th May 2002, pp. 1-8
- [2] Recommendations and Conclusions arising from Task I, Legal and Institutional Issues, of the GALILEI Study Cluster, DD-120, v. 2.1, of 24th July 2003, p. 33
- [3] Recommendations and Conclusions arising from Task I, Legal and Institutional Issues, of the GALILEI Study Cluster, DD-120, v. 2.1, of 24th July 2003, p. 34
- [4] Berne Convention for the protection of literary and artistic works, completed in Berne on 9th September 1886, came into force 5th December 1887; ATS 1901 No. 126
- [5] Convention for the Protection of Industrial Property as Modified by Additional Act of 14th December 1900 and Final Protocol, Paris, completed 20th March 1883, entered into force 6th July 1884; USTS 379; UKTS 1907 No. 21; ATS 1907 No. 6

- [6] This concerns, for example, such treaties as the Universal Copyright Convention, Geneva, completed 6th September 1952, entered into force 16th September 1955; 216 UNTS 132; TIAS 3324; 6 UST 2731; UKTS 1957 No. 66; Cmd. 8912; ATS 1969 No. 9; the Convention Establishing the World Intellectual Property Organisation (WIPO) (WIPO Convention), Stockholm, completed 14th July 1967, entered into force 26th April 1970; 828 UNTS 3; TIAS 6932; 21 UST 1749; UKTS 1970 No. 52; Cmd. 3422; ATS 1972 No. 15; 6 ILM 782 (1967); the Paris Convention for the Protection of Industrial Property of 20th March 1883, as revised, Stockholm, 14th July 1967, entered into force 19th May 1970; 828 UNTS 305; TIAS 6923, 7727; 24 UST 2140; UKTS 1970 No. 61; Cmd. 3474; ATS 1972 No. 12; 6 ILM 806 (1967); the Patent Cooperation Treaty, Washington, completed 19th June 1970, entered into force 24th January 1978; 1160 UNTS 231; TIAS 8733; 28 UST 7645; Cmd. 4530; UKTS 1978 No. 78; ATS 1980 No. 6; 9 ILM 978 (1970); the Universal Copyright Convention of 6th September 1952, as revised, Paris, completed 24th July 1971, entered into force 10th July 1974; 943 UNTS 178; TIAS 7868; 25 UST 1341; UKTS 1975 No. 9; Cmd. 4905; ATS 1978 No. 2; the Treaty on Intellectual Property in Respect of Integrated Circuits, Washington, completed 26th May 1989; 28 ILM 1484 (1989); the Trademark Law Treaty, Geneva, completed 27th October 1994, entered into force 1st August 1996; UKTS 1996 No. 76; Cm. 2836; ATS 1998 No. 3; and the Copyright Treaty, Geneva, completed 20th December 1996, entered into force 6th March 2002; 36 ILM 65 (1997)
- [7] This concerns for example, as far as patents was concerned, the Convention on the grant of European Patents, Munich, completed 5th October 1973, entered into force 7th October 1977; the Convention for the European Patent for the common market, Luxembourg, completed 15th December 1975; OJ L 401/9 (1989); and the Agreement relating to Community patents (89/695/EEC), Luxembourg, completed 15th

December 1989; OJ L 401/1 (1989). A number of EC and EU Directives on copyright issues have been promulgated, such as Council Directive on the legal protection of computer programs, 91/250/EEC, of 14th May 1991; OJ L 122/42 (1991); Council Directive on the coordination of certain rules concerning copyright and rights related to copyright applicable to satellite broadcasting and cable retransmission, 93/83/EEC, of 27th September 1993; OJ L 248/15 (1993); Council Directive harmonising the terms of protection of copyright and certain related rights, 93/98/EEC, of 29th October 1993; OJ L 290/9 (1993); and Directive of the European Parliament and of the Council on the legal protection of databases, 96/9/EC, of 11th March 1996; OJ L 77/20 (1996)

- [8] See for example Recommendations and Conclusions arising from Task I, Legal and Institutional Issues, of the GALILEI Study Cluster; DD-120, v. 2.1, of 24th July 2003, pp. 194-217
- [9] See supra, n. 6
- [10] See Proposal for a Council Regulation on the European Community Patent, COM(2000) 412 final, 2000/0177(CNS), 1st August 2000

Biography of the Author

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