IAC-10-E7.1.10

SPACE AND LISBON. A NEW TYPE OF COMPETENCE TO SHAPE THE REGULATORY FRAMEWORK FOR COMMERCIAL SPACE ACTIVITIES

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The event with perhaps one of the major repercussions for space law of the last year has precisely occurred outside the boundaries of space law. That is the entry into force of the Lisbon Treaty and with it the recognition of the competence of the European Union to potentially regulate space activities. It is well known that space legislations do not only have the capacity to shape the space market while strengthening the international position of national commercial operators but also to shape the business culture of such operators. Perhaps a more neglected regulatory area is the one composed by the set of other regulations which are not specific to space but which are applicable and often indispensable to space activities such as data regulations, standards or insurance regulations. The reach of such regulations goes far beyond space activities as covered by national legislations (launch services and satellite operations), it actually stretches to space applications and services which have a high market component and affect the daily live of citizens. All in all, those regulations have the capacity to enhance the role of space in the economy and in our societies.This paper selects a set of most representative regulatory fields which apply to space activities, identifies for which stages of space activities they are relevant and determines their impact on the development of space activities, space based applications or space based services. The paper will finally draw recommendations on how to elaborate a balanced regulatory framework which facilitates the development of space activities, applications and services while discussing how the new European competence can play a role towards such aim.

1. INTRODUCTION

That space has grown to comprise more mundane aspects than exploration and human flight such as space applications and services is nothing new to the space community. Space agencies already have years of experience with user driven programmes and in many cases applications rank higher in hierarchy than science programmes. Furthermore, more and more efforts are being applied in the combination of different applications with the purpose of satisfying the extremely demanding commercial requirements.

Space based applications have entered citizens lives in the shape of wireless broadband connections, navigation devices or TV broadcasts. Constant access to information is becoming a need for citizens and this increasing demand provides growing market opportunities for commercial space actors. Space based services and applications are entering highly competitive markets while concurring with goods and services which are subject to the same regulatory frameworks despite the different nature of their original technologies.

Space technologies are not only competing with other technologies but merging with them to produce state of the art services such as 4G mobile services. The boundaries between space based services and applications an terrestrial technologies has blurred away and they are all regulated under the same sectorial laws and regulations where space law is not applicable anymore. However, the very special nature of space technologies may imply different consequences for their markets.

Given the potential of space based technologies to supply society and create wealth, it is important to keep regard to their applicable regulations in order to facilitate their commercial development. However, the unclear boundary between space and terrestrial and that space based applications and services are part of bigger sectors originates the question of to what extent such regulation do not need to fall under the participation of the authorities in charge of space.

The EU is currently faced with this issue. The Lisbon Treaty introduces for the first time the so called "space competence" setting the basis to adopt a European space programme, implement space policy while it has no competence to harmonise space legislation. Despite this incapacity to legislate on space law, the EU is faced with regulatory tasks for implementing programmes such as Galileo or GMES. In addition the EU does have law making competences in other policy areas such as telecommunications or transport where it can regulate on issues of direct impact on space. How this competence may be shaped may shed some light on the relationship between space and other areas.

2. SOME REGULATORY AREAS RELEVANT FOR SPACE

Regulatory fields falling outside the traditional scope of space law often fall within the competence of governmental authorities other than the ministries in charge of space affairs. Yet the impact of such regulations on the development of the space sector and the array of space based services is considerable and cannot be neglected by those authorities in charge of space. The development of commercial applications and services has already posed the first questions and challenges on the regulatory level. The following subsections present the challenges aroused in three of the most discussed areas: data regulations, radio frequency regulation and export control regulations.

2.1 Data regulations

Issues concerning data ownership and data transfers are common in other fields. Definition of what data is and whether it can be owned have originated some amount of doctrinal discussions as well as some jurisprudence to the point that there is even a "Database Directive" in the EU[1]. Also, privacy issues related to personal data transfers are not new and have already created some distress in international relations[2]. All these discussions are not extraneous in the area of Remote Sensing (RS) where they have all arisen without a clear answer.

In fact the characteristic of data management in the area of RS is that it is usually not covered by special regulation on RS. Rather, legislation on Intellectual Property or general environmental legislation have applied. Due to this vague regulatory landscape pertaining to RS data, space agencies and commercial operators have been free to develop their own data policies, regulating delivery to customers and pricing policies[3]. Those data policies already work on the assumption that operators enjoy ownership rights, and therefore, certain Intellectual Property over the data they generate. This assumption is based on the right to reap the benefits of the investment for developing RS technologies and the launch and operation of such technologies in space.

Despite being commercially sound, that behaviour also finds certain opposition as it is found to contradict the right to information. It is argued that the data collected by RS satellites can not be owned as data *per se* is not subject to appropriation. In addition the UN Resolution on open access to RS data establishes the right of sensed countries to obtain access to data on open and non-discriminatory basis[4]. The concept of open access to data is not clear however and has been interpreted by some as access to data against no cost.

The discussion is relevant for the development of Earth Observation imagery and meteorological services. Open access to RS data can facilitate the development of a wider range of services by imagery developers who are not satellite operators but who do rely on RS satellite operators to develop their services. Open access to such data would lower the costs of generation of this type of imagery while allowing new entrants to the market.[5]

Another level of regulation relating to RS data is linked to the standardisation of RS data. This gains particular relevance in the environmental field where the integration of satellite originated data with ground based data may provide for higher accuracy. The European INSPIRE directive is an example of the effort to generate standards which can facilitate the integration of environmental data collected by satellite technologies and ground based technologies[6].

2.2 Radio-frequency regulations

It is needless to say that radio-spectrum is the natural resource which satellite telecommunications could not exist without. It is also needless to say that radio spectrum is not the exclusive natural environment of satellite signals but the natural environment of all telecommunication signals. Radio spectrum is also a scarce natural resource shared by a wide number of telecommunications operators which needs to be used efficiently in order to satisfy the needs of all radio spectrum users.

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[1] Directive of the European Parliament and of the Council (EC) 96/9 of 11 March 1996 on the legal protection of databases. OJ [1996] L77/20; Case C-203/02 *British Horseracing Board Ltd and others v William Hill Organization Ltd. (ECJ) ; Case* C-444/02 *Fixtures Marketing Ltd. v Organismos prognostikon agonon podosfairou AE (OPAP) (ECJ)*

[2] In 2010 the European Parliament strongly opposed agreements with the U.S. for data allowing for personal data transfers under the passenger data transfer scheme and bank data transfer through the SWIFT network. http://www.bankinfosecurity.com/html/rr_cudd.html http://www.europarl.europa.eu/news/expert/infopress_page/062-76230-165-06-25-910-20100616IPR76229-14-06-2010-2010-false/default_en.htm

[3] ~~Von der Dunk, Frans. "European Satellite Earth Observation: Law, Regulations, Policies, Projects and Programmes". Creighton Law Review.~~ April 2009, Vol.42, No.3

[4] A/RES/41/65 Principles relating to remote sensing of the Earth from space

[5] Catherine Doldirina. "Are Intellectual Property laws an impediment to the development of collaborative Earth observation missions?" IAC -09

[6] Directive of the European Parliament and of the Council (EC) 2007/2 of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). OJ L108, 25 April 2007

The efficient and equitable use of radio spectrum are ensured by the provisions of the Convention and Constitution of the International Telecommunications Union (ITU)[7] and are implemented through the Radio Regulations adopted through its Radio communication sector which plays a vital role in the global management of radio spectrum. Radio-regulations are revised every three to four years during the World Radio communication Conferences (WRC). Frequency bands are allocated to the different types of telecommunications services also per geographical region.

Further to the international level, national telecommunications authorities manage radio spectrum within their territories through national regulation on the access to the different frequencies for each user or telecommunications operator. Spectrum management at national level is often carried out by telecommunications authorities under telecommunications regulations. Furthermore, licensing to provide access to different frequencies is not provided in the same way for different telecommunications services. While in some cases frequencies for mobile phone networks have been only subject to technical standards without requiring issuing of any licence, the most common case for television broadcasts has been the *command and control* model whereby frequencies are limited to given uses which have been established on purely regulatory criteria. Another model of licensing is the so called "exclusive use" whereby a licensee owns a exclusive transferable right for a specific spectrum and geographic area with flexible use rights which are limited by technical rules to protect spectrum users against interference.[8]

The telecommunications market is a highly competitive, innovative and dynamic market. Telecommunications have boomed in recent years with the development of 3G and 4G mobile technologies as well as wireless broadband technologies have developed, in particular WiMax which allows high rate wireless data transfers in longer distances than WLAN. Telecommunications are evolving to offer higher data rates, mobility and availability any time, anywhere. Flexibility and efficiency in frequency management are crucial in order to meet such demands which rely on two main enabling factors, technology development and a more flexible regulation.

In this vein technological advances have given birth to the so called " Dynamic Spectrum Access Technologies" such as software defined radio or cognitive radio which allow for radio devices to assess their environment and detect and use the available frequencies each time. The technological and regulatory challenges posed by this type of technologies are particularly relevant to satellite telecommunications as they can cause interferences to fixed satellite signals.[9]

Fixed communication satellites rely on extremely sensitive antennas capable of receiving low power signals from small transmitters located in orbit. On the contrary, terrestrial wireless applications are by definition ubiquitous and nomadic. They emit signals from many locations, in all directions, simultaneously that are powerful enough to saturate the C band satellite receiving systems causing loss of signal.[10]

On the other hand, regulation plays a key role in facilitating enough flexibility to allow for efficient use of the available spectrum but needs to be carefully tuned to avoid interferences. National regulators are tilting towards liberalisation of spectrum within their jurisdiction while pursuing higher competition and economic benefit for their telecommunications sector. However, this needs to be carried out in the right measure as illustrated by the EU telecommunications package reform whereby in the context of the initiative called "information society" the European Commission launched a proposal to amend the exiting directives on telecommunications (telecommunications package).

The proposed amendments[11] where based on the principles of non-discrimination and fair competition and applied the principles of technology neutrality and service neutrality. According to those principles all types of radio network or wireless access would be allowed to access the radio spectrum open to electronic communication services. The existing system based on

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[7] http://www.itu.int/en/pages/default.aspx

[8] Thomas W. Hazlett, "Market allocation of radio spectrum", ITU Workshop Geneva January 22-23, 2007

[9] Frédéric Pujol, " Regulatory and Policy Implications of Emerging Technologies to Spectrum Management.", ITU Workshop Geneva January 22-23, 2007

[10] Position Paper on Interference in C-band by Terrestrial Wireless Applications to Satellite Applications. Adopted by international associations of the satellite communications industry. 18 May 2007; Michael Whittaker, "Space-Centric Management. a general Solution for Equitable Access to Radio Spectrum Space under Conditions of Flexible Use". ITU Workshop Geneva January 22-23, 2007

[11] Proposal for a Directive of the European Parliament and of the Council amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to and interconnection of, electronic communications networks and associated facilities, and 2002/20/EC on the authorisation of electronic communications networks and services.

individual authorisations was to be substituted by a system of general authorisations only to be waved by reasons of public interest. In addition, primary right holders would be allowed to transfer or lease their rights to secondary service providers. The proposal contained no reference to ITU Radio-regulations and national authorities and regulations were referred as the means to implement the directives. This highly liberalised scenario was widely contested by satellite operators who argued in favour of respecting ITU radio regulations and the authority of national telecommunications authorities on the grounds of potential interference and services of public interest. The package as amended [12] still contains the general authorisation scheme and keeps the wording on non-discriminatory access but has incorporated heavily references to ITU radio-regulations and national regulations.[13]

2.3.Export Controls

Export control regulations are an essential piece of national regimes regulating the export and import of goods into national territory. Like import rules, export regimes have the aim of preserving national supply as well as national security interests.

While import and export activities are by nature trade activities and therefore subject to the supervision of commerce authorities such trade authorities must apply rules based on security considerations and often cooperate with other governmental agencies or even refrain from acting as it falls under the competence of other governmental agencies. This division of competences has had special impact in space activities due to the dual nature of space goods.

Space technologies are incorporated into national export control regimes for national security considerations but to a large extent as implementation of international obligations on export controls which act as transparence and confidence building measures to avoid proliferation of mass destruction weapons. International non proliferation regimes range from nuclear to chemical substances and touch space in the same fashion. Space goods are particularly affected international regimes for the control of ballistic missiles. There is not a single international instrument but a set of them regulating the non-proliferation of ballistic missiles. All of them incorporate space items in one or another way. In this sense, the Wassenaar Arrangement[14] incorporates a detailed chapter including all propulsion technologies, materials and even test infrastructure and technologies. Equally, the MTCR[15] includes a catalogue of goods and a chapter on space technologies. Other international regimes for the prevention of the proliferation of weapons of mass destruction a applicable to space do not incorporate such catalogues. However, their commonality lies on the fact that they serve as authoritative guidance for national export controls.

A look into the workings of the Wassenaar Arrangement as well as the MTCR shows that they not only provide for soft law but also the forum for the exchange of good practices regarding the concession of export licences destined to certain countries but also relating the procedures of information to companies. These are all reflected in national export controls which elaborate the different categories.

However such international obligations are not binding and do not regulate internal licensing procedures which fall under national jurisdiction. National export control regulations may take as basis the overall reason of non proliferation as stated by in simmilar way by the different regulations but are also due to national security and defense interests. The balance between trade interests and international and security obligations is not easy to strike and the way this is done may have high repercussions on the development of the space sector at national level. The impact of export control regimes on the development of the national space sector is due to two main factors, the material scope of the regulations and the procedures for licensing. This has been most widely evidenced by the case of the U.S. and its International Traffic in arms Regulations (ITAR).

The export control process in the US involves two sets of regulation: the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations (EAR) administered by the Directorate of Defense Trade Controls (DDTC) and the Bureau of Industry and Security (BIS) respectively. Both regulations aim at reducing the possibility of missile-related technology spreading to foreign entities that could use it to threaten U.S. interests. Both sets of regulations work on the basis of lists of items. While ITAR only lists items that could threaten military purposes , EAR lists dual use items. While application for a licence under EAR works on the basis of which is the destination country, ITAR requires the exporter to prove that their item does not pose any threat to national security.

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[12] Directive of the European Parliament and of the Council (EC) 2009/140 of 25 November 2009 amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to and interconnection of, electronic communications networks and associated facilities, and 2002/20/EC on the authorisation of electronic communications networks and services.

[13] Codecision procedure 2007/0247/COD http://ec.europa.eu/prelex/detail_dossier_real.cfm?CL=en&DosId=196418

[14] Category 9 "Aerospace and Propulsion", The Wassenaar Arrangement on Export Controls for Conventional Arms and dual-use goods and technologies dual-use goods and technologies and munition list

[15] Missile Technology Control Regime (M.T.C.R.) Equipment, Software and Technology Annex.

Although space items are dual use items and therefore they fall under the EAR regulations, basically all space items and services are covered by ITAR. They therefore need to be licenced by the DDTC. This is a specially burdensome procedure that depending on the item or the good may involve interservice consultation and even Congressional Notification. Yet two more burdens need to be added to this trail. When the foreseen export qualifies as a defence service, the exporter needs a special authorisation called a "Technical Assistance Agreement" or " manufacturing licence" or a "distribution agreement" which permit the intermediate technology transfers involved by the service. The second burden relates to telecommunications satellites which are also covered by ITAR in cases where satellites are launched from a non-NATO country.[16]

The example of the US export regulations illustrates the difficult balance between non-proliferation commitments, national defence interests and trade interests with space items and services given their dual nature.

Stringent export controls have a strong impact on national space activities to the point that they are able shape the national space sector. Such export controls make international cooperation difficult as every bit of technology transfer that occurs during the joint development of space technologies may require authorisation and lengthen the process. Commercial counterparts may be afraid of being found to infringe foreign laws and be involved in legal procedures which will deter them from relying on exporters of certain countries. A well known example is the development of "ITAR free" space goods and services by European manufacturers who have even branded their products as such.

Due to the sophistication of space technologies and the high investment they require, space technologies are unique. They might be developed by only one space power. If such technologies are cut off by export control regulations potential importers are forced to develop competing technologies as a less costly alternative.

Finally, the lack of customer across borders obliges national space industry to depend on public expending and public programmes which will eventually determine the shape of the national space sector.

3. THE LISBON COMPETENCE. A LIMITED COMPETENCE OR A VISIONARY PIONEER?

We have seen a few examples of regulatory fields falling outside the traditional scope of space law which often fall within the competence of governmental authorities other than the ministries in charge of space affairs. Yet the impact of such regulations on the development of the national space sector and the array of space based services is considerable and cannot be neglected by those authorities in charge of space.

However, space hardly qualifies for a competence of its own as it is most likely to fall as part of the competences of the ministry in charge of scientific research, industrial activities, transport or telecommunications and often space agencies falling within the competence of those ministries do not have the capacity to regulate or licence commercial activities. Furthermore, because of its horizontal nature, and the many applications of space legislation space is prone to regulation in areas far from research or industrial development.

The question arises whether space would be better regulated by services encompassing the entire spectrum of space activities or it is adequate to have space related regulations spread on sectorial criteria over those authorities in charge of other policies relevant to space and whether such competence of its own qualifies for legislative and regulatory power.

As of 1 December 2009 the European Union works under the Lisbon Treaty which substitutes the previous constitutional law and introduces institutional changes. Among those changes the Lisbon Treaty has introduced the new competence for space which is catalogued in the Treaty as a shared competence without preemption (both Member States and the EU can take decisions related to space). The nature of this competence is somewhat unclear, it is called a *sui generis* competence, and the contents of it are rather open to development. However, this unclear status and prospects of development provide for an excellent test case regarding the question of regulatory competence in space.

To start with, the space competence laid down by Art 189.2 of the Treaty on the Functioning of the European Union (TFEU) contains three major cornerstones to shape the competence. [17] The article endows the EU with substantial competence to create a European Space Programme, it also endows the EU with political capacity to conceptualise a space policy and finally it provides for the regulatory competence which excludes "any harmonisation of the laws and regulation of the Member States". The wording of the article in terms of regulatory powers leaves no place for doubt. In EU

[16] Introduction to U.S. Export Controls for the Commercial Space Industry. U.S. Department of Commerce and U.S. Federal Aviation Administration. October 2008.

[17] The Lisbon Treaty has reorganised the contents of the former EU constitutional law composed by the founding treaties providing for two new treaties, the Treaty on the EU which contains the principles, main competences and institutional organisation and the TFEU which contains the legal basis for further regulation of the competences and the institutions.

language, "excluding any harmonisation of the laws and regulations of the Member States" undoubtedly means that the EU cannot impose any binding space legislation.

The question of interpretation of what pertains to space law *stricto sensu* and what pertains to space based services and applications and their corresponding regulation or space law *lato sensu* particularly relevant to the interpretation of the space competence and regulatory power of the EU in this field. If the clause on non-harmonisation is related to address space law in strict sense, the EU would not be able to regulate with binding rules over questions of launch and operations in space such as questions of authorisation, registration and liability of space operations which would remain within national jurisdictions as they do today. This lack of harmonising competence was misunderstood by legal scholars and legal advisers to national authorities as killing the EU space competence.

This interpretation might have been quite a premature one as Art. 189.2 endows the EU with the capacity to formulate a space programme and a space policy. Given the technical nature of space programmes, this might not provide for the basis to create regulation. However, it also endows the EU with the capacity to formulate a space policy. The latter does not only contain the goals and the focal areas for the entire space sector, be it private or commercial, but it does also place space in the overall political and economic context and defines interactions between other policy areas and space.[18]

A look into the already existing European Space Policy shows that the flagships of EU space policy are Galileo, the European satellite navigation system, and GMES, an Earth monitoring system relying on a terrestrial (*in situ)* component and space component. Both systems have been defined according to user needs and have defined their applications in the context of other policies. Galileo will provide for an essential infrastructure for transport policy initiatives such as intelligent road tolling, air traffic management or logistics. GMES aims at supporting environmental and emergency services and is mainly understood to provide for the infrastructure required by EU policy making. Both cases incorporate a strong regulatory component which has been taken care of within the existing EU services. Certification and frequency management are two of the regulatory issues of major concern taken care of by the Galileo units in the European Commission and GMES counts with its own data policy let alone the massive harmonisation effort triggered by the INSPIRE directive which establishes an Infrastructure for Spatial Information in Europe.

These two examples showcase the strong focus on space applications and services of the EU activity in space and the regulatory capacity of the EU which fills with meaning the space competence under the Lisbon Treaty. One more element comes to support regulatory powers under the space competence. That is the general principles of the EU which establish that the fundamental objectives of balanced economic progress are to be attained by the completion of the internal market (Art. 3 TEU and Art. 26 TFEU). To that aim the EU is endowed with the capacity to take regulatory initiative in any field when it is aimed at the furtherance of the internal market. Actions in space related regulations could be envisaged on these basis.

The EU space competence is the consequence of already existing initiatives in the field of space which have been hosted by other competences such as Research, Transport or Industry and have been characterised by their application oriented nature. The outcome competence is therefore the encapsulation of this approach and it is nothing but the asseveration and prove of the wider scope of space composed of applications and services which offer wide commercial opportunities and with them, an important potential for growth.

4. CONCLUSIONS

What the foregoing analysis shows is that space ceased consisting only of manufacturing industries and launching activities. The meaning of commercial space activities expands now to large downstream markets which are affected by the stark competition from other terrestrial technologies. All kinds of regulations may be applicable to space activities and affect the competitiveness of the space sector.

Fostering a healthy development of space applications markets does not only ensure continuity of space activities and a new niche of commercial activity but also creation of wealth and economic growth. It is already a long time that space authorities have realised and elevated space applications and services to the higher ranks among space programmes. However, the commercial potential of those services has not been realised yet through regulation.

By creating a space competence the European legislator has realised the need to foster the creation of downstream space markets as a way to create economic growth. By excluding any legislative and regulatory harmonisation of space legislation but yet keeping with a space policy, the European legislator has made clear that there is a wider field of action of space in

[18] Council Resolution (EC) " Taking forward the European Space Policy", as adopted by the Competitiveness Council meeting on 26 September 2008

other policy areas. What is more, it shows that regulation of such areas can be monitored and guided from the space sector in order to ensure that the regulation of other space activities under other policies is not detrimental to the development of commercial space activities.