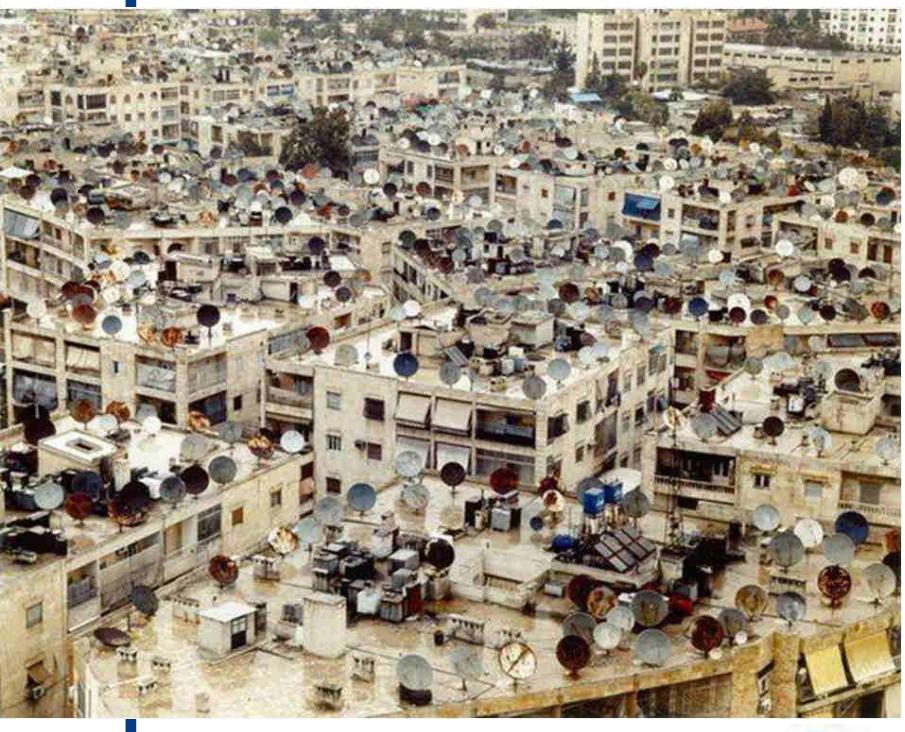
Note de l'Ifri

Governing the Geostationary Orbit
Orbital Slots and Spectrum Use in an Era of Interference

Coordinated by Guilhem Penent



January 2014

ifri

Space Policy Programme

The Institut français des relations internationales (Ifri) is a research center and a forum for debate on major international political and economic issues.

Headed by Thierry de Montbrial since its founding in 1979, Ifri is a non-governmental and a non-profit organization.

As an independent think tank, Ifri sets its own research agenda, publishing its findings regularly for a global audience.

Using an interdisciplinary approach, Ifri brings together political and economic decision-makers, researchers and internationally renowned experts to animate its debate and research activities.

With offices in Paris and Brussels, Ifri stands out as one of the rare French think tanks to have positioned itself at the very heart of European debate.

The opinions expressed in this text
are the responsibility of the authors alone.

This collective book was produced within the framework of a three-year research program focused on the governance of the geostationary orbits and associated radio frequencies. For its most part, it is based on the extensive discussion and stimulating exchanges that took place during a closed seminar organized in Paris by Ifri's Space Policy Program in April 2013. In 2014, a one-day conference open to all will be held to take stock of the situation. These three steps aim at placing the issue of the orbit/frequency governance at the heart of the European political agenda, by including decision-makers, relevant stakeholders within the space sector, and recognized experts and researchers.

ISBN: 978-2-36567-238-2

IFRI
27, RUE DE LA PROCESSION
75740 PARIS CEDEX 15 – FRANCE
Tel: +33 (0)1 40 61 60 00
Fax: +33 (0)1 40 61 60 60
Email: accueil@ifri.org

IFRI-BRUXELLES
RUE MARIE-THERESE, 21
1000 – BRUSSELS – BELGIUM
Tel: +32 (0)2 238 51 10
Fax: +32 (0)2 238 51 15
Email: bruxelles@ifri.org

WEBSITE: *Ifri.org*

1/ Getting Into the Picture: Satellite Communications Today

1.1/ Political Issues of Satellite Telecommunications

Xavier Pasco, Senior Research Fellow at Fondation pour la recherche stratégique (FRS), Paris (France).

The role played by Satellite Communications (Satcoms) development has often been underestimated in the construction of national space policies before Satcoms transformed into successful commercial applications over the years. Indeed, high political stakes have been apparent from the start as testified by the relatively heavy involvement of the UN in the international regulation of this activity (through ITU in Geneva).

Precisely, the evolution of the political status of the Satcom activity, as well as a brief assessment of current and future issues will be the main subject of this paper.

Some remarkable features of Satcom history

A look at space telecommunications history shows how much this technique has largely contributed to structuring the regulation (and the universalization) of space applications and has prompted the crafting of national space policies by the main space faring nations, namely the US and USSR first, with very different choices and consequences.

A political landscape shaped by technical competences very early on

As soon as the 1960s, the development of Satcom techniques has had a strong political imprint on the development of international organizations. The U.S. Comsat Act (26/07/1962) can be considered as the first attempt for designing a global governance of Satcoms under U.S. guidance. The specific balance of power of the day meant that this initiative (also based on a quasi unique mastery of Satcoms satellites in the “western block” at that time) quickly gained some political legitimacy in the UN arena via a largely admitted principle of non-discriminatory access to Satcom (Res. 1721-XVI)

In this context, Intelsat, as a uniquely organized technical-oriented organization but also as a U.S. commercially-oriented structure (Comsat), became in charge of ensuring a world-wide public service. As an illustration of its normative power during these years, Intelsat had eventually gathered 143 States by 2000.

However, orbital systems have been treated in a manner that was remaining very specific in this respect, while, by construction, ground stations have remained under sovereign leadership. Additionally, USSR did not adhere and built its own network, providing additional evidence of the highly political character of the word-wide development of Satcom networks.

It remains that the Satcom industry quickly developed dependency upon a unique source, with unavoidable political and industrial consequences.

Nascent alternate views in the 1970s

The common objective of a nascent European community in the 1970s to gain more political weight and visibility in the international scene prompted new political perceptions and postures in the old continent in many domains. Satcoms didn't escape these general trends. Following a few years of almost unique technical and regulatory dependency on a U.S.-led commercial endeavour almost transformed into a "global commons" as it may be labeled today, European States progressively looked for an increased political presence in this field. On the technical level, this took the form of the Symphonie Satellite mainly promoted by France. The political significance of this programme was also made apparent in the controversy that surrounded the launching of the satellite on the basis of existing rules dominated by U.S. interests. It must be recalled incidentally that this episode was also used to legitimate the development in Europe of an autonomous launching capability that would pave the way for the Ariane launchers family. But this more assertive European posture also led to the creation of two levels of responsibilities in Intelsat (State parties), materializing a first step before creating a fully autonomous capability.

Parallel rising concerns appeared in developing countries, both increasingly dependent on Intelsat and fearing some sort of cultural dominance, that some feared to see reinforced by the advent of direct broadcast satcom technologies. The autonomy acquired for domestic political development for many countries freshly relieved from past colonial links with dominant western countries made them very reluctant towards any system that shall be considered as infringing on their hardly gained national sovereignty. In some more specific cases, models of political development were to become a very sensitive issue as many countries saw rising domestic conflicts for the gain of power, sometimes (but not always) leading to regimes that did not promote liberal democracy but rather authoritarian regimes. Leaving domestic access to cultural values coming from abroad, and in this particular case broadcasted from abroad, was not accepted.

In this context, as soon as early 1972, a number of Asian, African and South American nations opposed the cross-borders principle of freedom of information. This movement quickly gained legitimacy and transformed into a 1972 UNESCO "Declaration of Principles" supporting this view. It is notable that this Declaration of principle was clearly opposed by the U.S. while the USSR abstained. In one way or another the political dimension of direct broadcast satcoms had indeed been clearly established by the two superpowers in their respective spheres of influence.

"O tempora, O mores"…

Following this initial founding period marked by the traditional cold war style, but also showing the premises of deep international transformations, the 1980s and the 1990s would give birth to a large deregulation movement that would clearly act as a game changer.

Initial impulse and enduring energy for this changing perspective for the satcom policies and industry was found in large politically-inspired projects, again under the very energetic leadership of the U.S. (and most notably at the time from the Clinton administration, with Vice-President Al Gore as a very proactive proponent of projects such as National Information Infrastructure – NII – or Global Information

Infrastructure/Grid – GII) with parallel industrial new organizations and moving alliances. This change of perspective, a by-product of a careful reconsideration of the U.S. industrial, economic and even military[1] policy in the post cold-war new balance, was both prompted by a need to prepare for a more opened and competitive world following the transitional post cold war years, with a view to benefit in this new context from the initial investments made by powerful actors with the hope of commercial and political gains. The National Economic Council in the U.S. acted here as a key strategic executive institution.

As a consequence, starting from 2000 (year of the U.S. "Orbit Act"), Intelsat, but also Inmarsat and Eutelsat, non U.S. large semi-public operators, had to adapt to the announced international competition and transform into private structures (Intelsat, Eutelsat, 2001). This can be considered as another key step in the world-wide evolution of the Satcom activity. The mainly political nature of this move can even lead to compare it with president Kennedy July 1961 engagement behind the initial Intelsat endeavour, but obviously in a very different environment. Here again, Satcoms are not considered for themselves anymore but more as elements of a larger vision involving the use of information systems in proactive foreign policies.

Obviously, these evolutions have also reflected over the recent years an increasing diversification of the techniques used allowing the Satcoms transmission of more and more diverse types of data and information.

Today's main characteristics and trends

The rising role of private operators as structuring new international relations

However, a second key trend must be taken into account in the general balance that is characterizing the satcom activity today. The Satcom industry and services have been dominating the economy of the space sector by far for many years. This simple fact of life has induced a slow change in the way such systems (sometimes huge, with 50 to 70 satellites composing the fleet of the main private players today) have been gradually perceived by governments today who have often become some of the main customers of these private operators. This evolution has materialized more as an obligation given a sky-rocketing consumption of bandwidth by state actors, rather than as a deliberate political decision by governments. Both this increasing role of private operators in the global satcom economy and the "modernized" cultural approach they adopted to better suit their respective markets (diversification of broadcasted local channels, radios, etc.) have allowed private regional *de facto* networks being more widely and more easily accepted by local actors, whether they are state actors or nascent private TV industry. Pioneering examples of success in this respect in areas initially often reluctant to endorse international broadcasting systems can be illustrated by projects such as AFRISTAR by Worldspace (providing local Radio broadcast); then CNN (with for example United Tribes of Africa News); Asiasat for Saudi Arabia early 2002 or New Skies in Bangladesh.

Again, the improvements in precise broadcasting techniques allowed by more and more precise beams and footprints configurations have played a key role in improving the relationship between "western" private satcoms providers and their local customers on a world-wide basis. Additionally, over the recent years, an explosion in the quantity and diversity of information services (along with the use of the Internet) has consolidated the key role played by private satellite operators in

[1] The military version of this large reconsideration was well-known at the time under the generic label of RMA standing for "Revolution in Military Affairs."

global communication policies. As a result, the demand for satcom services has been stirred up, constituting a key trend today that has in turn reinforced again the role of these private operators.

Redefinition of public-private balance

Given this "new deal" in the satcom activity, public and private users appear to be more and more intertwined. An increasing military demand (the most striking – and often quoted – figure of 80% of U.S. milsatcom representing 1.2 $B of revenues in 2012 for the satcom industry can be quoted here) has been forming a new very active market segment. It has offered opportunities to induce new public-private relationships, or sometimes partnerships. The number of communicating systems in the field of security and defense as well as the "weight" of the content (despite improved compression techniques) has transformed the demand for world-wide instant connectivity, giving a boost to the satcom services industry.

Of course, while this tendency has defined a market for private operators, (sometimes representing a very significant two-digit part of their revenues), it has also given birth to new specific constraints for those actors. Constant availability, ability to satisfy unpredictable so-called "surge" market, "new security" demands (protection of space and ground segments) are among the most common requirements that have implied new responsibilities of the private operators.

This redefinition of the public-private relationship has been currently going on and is far from being stabilized yet. Still, should such relationships extend, the issue of a de facto "regulatory" come back via "normative styled" State users can legitimately be raised when confronted the raise of private companies.

Whatever the fate of this relationship, one can already witness a side effect of this new pressure in self-private collective organizations which tend to answer, and sometimes even anticipate, regulatory demands or the pressure of new requirements. In this respect, the example of the *Space Data Association* (SDA) with the goal to generate better orbital management coordination as well as non interference policy between space operators is very typical. The parallel emergence of national space laws, leading to national obligations, precisely taking into account the emergence of the private actors in the space activities, has indeed formalized, or reformatted, the role of national States in regulating national private operators activities in this new era.

Whether the increased public users weight on the Satcom market (especially in the field of security and defense) or the new format given to the public-private relationship on a world-wide basis, especially in the field of satcom services, are likely to lead in the mid-term to increased complexity for collective governance is the key question.

Future policy/international governance challenges

Whatever the answer, the current evolutions may appear as a key challenge for the collective principles inherited from an international public regulation-dominated era. To summarize the findings evoked in this paper, a number of possibly deep changes will result of:

- A quickly evolving balance between public and private operators/stakeholders/users with possible effects on international regulation and public service;

- New issues related to spectrum management; to national policies about Satcom protection, all this implying a possible evolution of the International Telecommunications Union;

- The development of new reference strategic and policy environments for the Satcom activity worldwide taking into account that:

    - Satcoms will become more and more part of integrated IT systems and architectures;

    - New technological environment will also be based on non space systems evolution, possibly creating conflicting situations with satellite technology. The key illustration is given by the WI Max development, possibly ousting satellite from the use of C-Band or by other terrestrial developments looking at L-Band (as was the case with the *LightSquare* issue in the U.S. in 2012);

- An increasing national political "added-value" of Satcoms as they become part of complex national/regional global IT and telecommunication policies, hence involving complex evolutions?

- Satcoms becoming targets from deliberate interferences

The rapidly transforming nature of the Satcoms activity calls for a reinforced/reshaped international governance (e.g. ITU with high political stakes) or may lead to self-organized regulations from the part of the stakeholders with possible differences related to fragmented (sometimes even opposed) corporate or national interests. In this context, reconciling both trends shall certainly be proposed as a major international challenge to be tackled by each actor (Governments, international institutions and private operators) to their mutual benefit and for the best continued service of their respective constituencies.