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THE ISS IGA: LESSONS LEARNED AND LOOKING TO THE FUTURE

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A European Perspective on Lessons Learned from the Intergovernmental Agreement (IGA) on International Space Station (ISS) Cooperation

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The partners in the ISS Cooperation programme had the right legal visions in developing a three-tier structure of legal arrangements, and primarily the IGA, to govern the activities related to that permanently-inhabited integrated facility in outer space built and exploited by several international partner governments. More than 25 years after its original conclusion, the IGA provides the appropriate legal and cooperation tool to enable the ISS Partners to benefit from a wealth of experience in its enhancement and use of cutting-edge technology, despite having occasionally been severely put to the test by extremely challenging circumstances.

The managerial and legal regimes for ISS Cooperation introduced through a number of IGA articles have provided the necessary flexibility in addressing and formalising additional arrangements for furthering different aspects of the cooperation. They also ensured such things as orderly decision-making at different levels in the partnership without a trace of dispute, the protection of intellectual property rights of all the stakeholders, the reorientation of certain research priorities, while easily accommodating inevitable major technical changes, especially in the use of transportation systems.

Each ISS Partner discharges its obligations, and benefits from its rights, under the available legal instruments governing ISS Cooperation through its own ISS programme which it funds and manages according to its own rules. ESA, as the Cooperating Agency of the eleven-state European Partner, put in place first the ISS development programme and subsequently the ISS exploitation programme for that purpose. A significant effort is required at organisation level to ensure continuity in ESA's ISS exploitation programme, through the periodic subscription of participating States' contributions in the programme financial

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envelope and the corresponding amendment of some of the applicable terms and conditions.
The legal experience from ISS can be taken as a landmark case of international space cooperation and a useful legal model for future multilateral cooperations.

I. Introduction

The International Space Station (ISS) programme is not only the most ambitious and costly scientific and space research project ever undertaken in a cooperative mode among five international Partners, but it also offers the most exhaustive and complex legal framework ever developed to govern a space project conducted through a "genuine partnership".
Obviously, that framework was developed primarily to respond to the particular needs of the ISS programme. It contains many "state of the art" provisions developed over more than 12 years, and forming together what is being referred to as the "legal regime for ISS Cooperation". Some elements of that legal regime may be used, with some adaptation, to fit other cooperative space projects in the future. Other provisions will be used surely as points of departure for the development of new legal arrangements responding to the specific needs of the new space projects.
In trying to identify the "lessons learned" through the conduct of ISS Cooperation, the text below describes - based on the experience gained by the authors in witnessing the history of ISS negotiations being made - the context and environment in which the States have concluded all necessary arrangements and give them standing as fully-fledged international agreements.

II. A three-tier legal structure for legal arrangements

As any large endeavor, the Space Station Cooperation required an adapted and sophisticated set of political and legal arrangements to be defined.
Early on in the negotiations on Phase C/D/E of ISS Cooperation, everyone involved in these negotiations considered it appropriate that a three-tier structure be adopted for the legal arrangements setting forth the rules for ISS Cooperation: (a) a State-level intergovernmental agreement (IGA), (b) an Agency-level Memorandum of Understanding, and (c) a series of Implementing Arrangement developed as may be required by the Agencies concerned to follow-up on any MOU obligation.
This approach – which was bold and innovative in many respects - was at variance with what had been done until then for space projects carried out with some form of international cooperation, and in particular the cooperation on the Spacelab project conducted in the 1970's and early 1980's - and also phase B of ISS Cooperation as formalized in April 1985 - for which the legal arrangements had been stipulated only in a Agency-level Memorandums of Understanding.

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The reasons for the 3-tier approach, and in particular for relying on an intergovernmental agreement and thus emphasizing the need for explicit Governments' endorsement of the Cooperation, were:

(a) the significant funding needs, reaching a multi-billion dollars level for each Party and making a multi-year financial commitment of Nation States essential;

(b) the duration of the project which, in the IGA, is open-ended; in this connection, the original IGA was based – from discussions at technical level among Agencies' representatives – on a 30-year duration of the ISS Cooperation while the second IGA was based on a 10 to 15-year duration; and

(c) the fact that many aspects of the Cooperation touched on issues which were over and above the prerogatives of any of the space agencies concerned, for example the exercise of States' jurisdiction and control onboard the different modules of the ISS, and the liability and immigration aspects.

Lesson: It is important for the negotiators representing different national organizations wishing to be involved in a cooperative project to clearly define at an early stage the different parameters and requirements (legal, administrative, programmatic etc.) entailed by the joint undertaking. This will contribute significantly in shaping up the overall legal framework, i.e. the network of legal arrangements, required for the execution of the programme, and ultimately enable all the stakeholders, whatever the level and substance of their projected involvement, to play more efficiently their respective roles.

III. Approach for negotiations of ISS Legal Framework

IGA negotiations: from a series of bilateral agreements to a single multilateral agreement among Partner States

The negotiations of the ISS Cooperation legal arrangements were started in 1986; the draft arrangements consisted, initially, in a series of bilateral intergovernmental agreements between the United States and each other Partner State (and the European Partner), complemented by a series of memorandums of understanding between NASA and each of the other designated Cooperating Agencies. This bilateral approach, both at Government and Agency levels, imposed on the U.S. delegation the burden to travel successively to the capital of each other Partner State to have the latter accepting the changes negotiated previously with other Partner States, and also agree on other provisions deemed necessary which were to be imposed to the other Partner States in subsequent rounds of negotiations.

The bilateral approach at State-level was considered unpractical by the Partner States other than the United States and the latter agreed at the end of 1987 that the IGA shall be a single multilateral agreement, negotiated in sessions bringing together the representatives of all the Partner States.

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Lesson: When there is a clear leader in a cooperative project, the latter may prefer to negotiate the legal arrangements required for the execution of that project on a bilateral basis with the potential partners, possibly because it is felt that the control on the negotiation process and on its output is easier that way. However, when it is expected that there would be a significant level of commonality among the provisions developed in the series of bilateral agreements being negotiated, settling for a multilateral approach may not only facilitate the logistics for the negotiations but also bring benefits through a "cross fertilization" of the process by the different partners.

MOU Negotiations: NASA the focus point of a series of bilateral instruments

The negotiations on the three MOUs, one between NASA and each of the other Cooperating Agencies, continued on a bilateral basis. At the end, the vast majority of the provisions of the three MOUs were similar in their formulation or objective, the remaining differences residing in the introduction of partner-specific provisions in each of the three MOUs to describe the particularities of the hardware contributions. The rights and obligations of the Cooperating Agencies towards each other are transiting through NASA which is the only partner party to the three MOUs, thus creating a sort of "hub and spokes" system where NASA is acting as the hub. Even more unusual from a structural standpoint is that the multilateral cooperation bodies established among the Agencies for the purpose of managing the different aspects of the Cooperation, those working on the basis of consensus, have been set up through the conclusion of the three MOUs.

Nature of legal instruments forming the ISS Cooperation framework

A significant amount of time has been spent by the States' representatives on exchange of views concerning the status of the various legal instruments to be developed for the purpose of establishing the overall framework for ISS Cooperation. This discussion addressed in particular whether the IGA shall be an international agreement which would generate rights and obligations under international law for its signatories from the time of its entry into force.

The negotiators were also interested in determining whether the MOUs shall be considered as international government agreements. For a number of Partner States, the conclusion of any kind of arrangement directly by an organization of the public administration supposes that such instrument is not an international agreement but rather a type of gentlemen agreement setting forth an agreed course of action, and consequently imposing on the signatories a commitment of a political nature. However, because of the nature of the content and of the commitments stipulated in the MOUs, the Partner States generally accepted the idea that the MOUs shall be considered as international agreements in their own right.

This distinction in the status of IGA and MOUs also led the negotiators to adopt a rather strict approach for the drafting of both instruments. The IGA's obligations are spelled out through the consistent use of the future

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tense ("shall") and the MOUs consistently use the present tense to describe an obligation ("will").

Lesson: It is worth for the negotiators spending the necessary amount of time at an early stage to the discussions on the nature of the legal framework, and of the related legal arrangements, so as to make sure that the level – and format - of the formal commitment that can be given by the other potential partners correspond to the size and importance of the project and to the extent and level of the expected involvement of the different stakeholders.

Treaty practice and constitutional law considerations in developing international arrangements

The discussion among Partner States' representatives addressed extensively the procedures applied in each Partner State for the conclusion and ratification of international agreements. In this connection, and despite numerous hours of discussions, an ambiguity remained concerning the effect for the United States to consider that the IGA shall be concluded as an Executive Agreement within the meaning of US law. This supposed a rather simple internal approval process in the United States; if the IGA would have been a "treaty", this would have required the Senate's formal ratification. The effect of going the Executive Agreement route was not to lower the value or enforceability for the United States of its commitment expressed in the IGA, as some legal scholars have reported it, but rather to impose on the US negotiators the burden to ensure that the formulation of IGA provisions were in line with US law in force at the time, and thus would not impose that amendments to US law would have to be adopted before ratification.

Lesson: Negotiators should be fully aware of the formalism required in the respective administrative systems of their potential partners for obtaining, and firming up subsequently through acceptance or ratification whenever necessary, the level of commitment which they consider justified by the size and importance of a given joint project. They shall also be ready to deal with this formalism and able to explain to the others the requirements in their own system.

The officials concerned shall monitor, primarily for their own organization or country but also be aware of what is happening in the case of other partners, how the series of procedures required for obtaining internal acceptance of the negotiated arrangements and for permitting the entry into force of the legal arrangements after signature are being observed.

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IGA Provisions addressing Partners' distinctiveness

The IGA contains numerous provisions addressing the distinctiveness of the Partners' situations, still with a view to providing them with equal treatment as Partners. One example is coming from the Intellectual Property provisions which contain several assumptions justified by the fact that the European Partner is a group of States. Consequently, a license validly granted in one European Partner State (EPS) is to be considered valid in all the other EPS and litigation related to a dispute concerning patent infringement can be initiated only in the Courts of one EPS, thus preventing litigation in multiple European jurisdictions for the same dispute. Also for the European Partner, provisions were inserted in the original IGA – and substantially amended in 1998 - to establish a dedicated process for the entry into force of the IGA for the European Partner States, and for the European Partner as a whole.

Lesson: When a number of potential partners are involved in a given complex project, and despite the desirability of having the highest degree of commonality in the provisions setting forth these partners' rights and obligations, it is almost unavoidable to address the distinctiveness of each partner in dedicated provisions so as to specify how this distinctiveness is impacting on the partnership.

Arrangement confirming States' willingness to be bound by IGA provisions

A rather unique legal instrument used in setting up the legal framework for ISS Cooperation is the one-pager Arrangement signed by the representatives of all Partner States, with the exception of a number of European Partner States which could not be party to such an instrument because of constitutional impediments, shortly after their signing of the IGA, both in September 1988 and January 1998. The objective of that Arrangement was to obtain confirmation by those States of their determination to implement the provisions of the IGA to the maximum extent possible under their domestic legal system pending finalization of their ratification of the IGA and its entry into force for each of them.

Considering that the original IGA entered into force only for the United States and Japan, and not for Canada nor the European Partner, and that the new IGA signed in January 1998 entered into force for Europe only in early 2007, it can be said that – from a formal standpoint - ISS Cooperation activities were conducted by the European Partner almost entirely on the basis of the Arrangement, something which shows the importance of that instrument. This is particularly noteworthy when one is considering that the ESA/NASA ISS MOU entered into force, through exchange of notification, in January 2008, only days before the launch of the Columbus Laboratory.

Lesson: The desirability of having the highest degree of legal certainty in the commitment given by all the partners for any given joint project at the

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earliest opportunity, and in any event well before starting the main part of the activities, can lead the negotiators to develop innovative arrangements to bridge the delays imposed by the finalization of internal approval procedures in the different States. These arrangements are subject to the limitations imposed by the different constitutional practices and, for certain parties, may not be acceptable or be somewhat limited in their effect.

Interpretative letters on key IGA provisions

As part of the legal framework, a special mention should be made of the letters of interpretation exchanged on the date of the IGA signing in September 1988, by the US Partner State, on the one hand, and each of the other Partners, on the other hand, concerning the "peaceful use" of the ISS. Through that letter, the Partners agreed to interpret the corresponding provisions of the IGA so that a Partner would be able to deny access of its ISS laboratory to an experiment proposed by another Partner if that experiment would not comply with its interpretation of "peaceful purposes".

That exchange of interpretative letters was repeated in almost identical terms on the day of the signing of the new IGA in January 1998, this time by each of the US Partner and Russian Partner, on the one side, and the three other Partners on the other side. For the sake of completeness, it is worth mentioning that the Canadian Partner and the European Partner exchanged interpretative letters in September 1988 confirming their willingness to submit disputes to arbitration. This last exchange of letters was not repeated for the signing of the new IGA in 1998.

Lesson: Negotiators may determine that, in exceptional circumstances, they have to address problems of a political nature not through changes in negotiated provisions in the various legal instruments, which they judge sufficiently balanced, but rather through parallel texts detailing the meaning – or the extent of application - they believe should be given to the original provisions. These separate texts shall normally constitute a part of the package submitted for approval to competent authorities.

IV. Group of Legal Experts

Even during the bilateral phase of talks in 1986-1987, discussions on the "legal regime of the Cooperation", basically all the IGA provisions that were to be developed first by the legal representatives of the Partners before being submitted for approval by the plenary of negotiating teams, were conducted multilaterally. For that purpose, a Group of legal experts was formed and it even identified which legal issues would be dealt with through specific provisions in the IGA; for example, the idea of having a dedicated article setting forth fiscal rules, which had been identified at first, finally did not materialize.

The four initial Partners each sent between two and five representatives to the Group of legal experts (both from their Foreign Affairs ministries and from

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their space agencies), something which was also the case for the European Partner which regrouped 9 different States, thus confirming that the participants in that Group's discussions were to provide their contributions as legal experts rather than as representatives of any given State. A significant number of IGA articles were entirely developed in the Group of legal experts and subsequently endorsed – exceptionally with some minor changes being made – by the plenary of negotiating teams.

One of the consequences of the work of the Group of legal experts was to create among the participants in that Group a common legal culture facilitating the understanding of complex legal concepts, i.e. those entailed by the legal regime contained in both the IGA and MOU, by people coming from different legal systems. This was true also for the Russian side which joined the discussions in 1993 and which, surprisingly for those times, also got familiar rapidly with these legal concepts. Because IGA and MOU-levels negotiations, and negotiations on the various side agreements, were conducted at a rather intense pace from 1986 until a slow-down experienced following the Columbia Shuttle accident on 1 February 2003, the common legal culture contributed largely to the successful drafting of a large number of agreements in the space community, also beyond ISS itself.

Many of the detailed legal provisions developed by the Group of legal experts, such as the cross-waiver of liability and the provisions governing the exchange of technical data and goods, were considered "state of the art" clauses and have been used, sometimes with necessary adaptations, consistently since 1988 for cooperation among space agencies in the different fields of activity. In that sense, it can be said that the influence of the Group went far beyond the limits of ISS Cooperation.

Lessons: The negotiators generally recognize the appropriateness of mandating experts to develop some parts of the overall framework required by partners for conducting a joint project. This could be the case for different domains of expertise but, among those domains, one that appears always inevitable is the legal sector because, by definition, legal instruments dedicated to governing the activities taking place onboard a permanently inhabited facility in outer space shall contain a significant amount of provisions detailing rather complex and innovative legal concepts. To take advantage of the pressing requirement for legal expertise during the negotiations to establish a Group of legal experts which has ensured continuity in the negotiations for a number of years is an initiative that has produced substantial benefits for the partnership, including by guaranteeing a certain degree of coherence among legal instruments.

V. States and Partners: implications for European signatory States

One of the five IGA Partner, the European Partner, which regrouped the 9 European signatory States of the original IGA (11 European States for the IGA

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currently in force), is a rather loose association of States and that constitutes a special case at international law. Over and above obligations addressed to signatory States individually, the IGA provides for a number of specific obligations for the different "Partners", and thus for the European States acting collectively. These collective obligations, for an overwhelming majority of those such as financial ones, shall be discharged through the European Partner States' participation in European Space Agency's programmes dedicated to ISS Cooperation. Thus, the European States' participation in ISS Cooperation is substantially channeled through an inter-governmental organization having a distinct legal personality under international law.

An illustration of the legal implications of that relationship between the European Space Agency and the European Partner States in ISS Cooperation was when France's representative signed the new IGA on 29 January 1998 with a written indication that it had provided the US Partner with a "déclaration interprétative" on that same day. In the year following the signing of the IGA, the European States – with some involvement of the United States - deliberated at length on whether France's "déclaration", which substantially was a statement to the effect that France was determined not to finance that Cooperation over and above its original commitment, should be considered as a "reserve on an international agreement" within the meaning of that expression under international law. The discussion did not result in concrete measures being taken.

A clarification of the issue was given by France when it subscribed the "early activities" of the newly adopted ESA's ISS exploitation programme at Brussels in May 1999, through confirmation of a lower level of subscription for the "variable costs" part of that programme. In other words, the effect of France's "declaration" was felt at ESA only, and did not have any repercussion on other ISS Partners.

Lesson: The unique situation of the European Partner in the ISS Cooperation, and the designation of ESA as the Cooperating Agency, has been at the source of new solutions in terms of international law. The fact that the European Partner's IGA rights and obligations are discharged through a series of ESA programmes adds to the originality – and the legal complexity - of Europe's participation in this cooperation.

VI. Requirements for a valid Implementing Arrangement

NASA always a party to an Implementing Arrangement, which always detail and implement a MOU-level obligation

One of the issues that was clarified in December 1996, at the end of the round of negotiations having resulted in the finalization of the second IGA, was that any "implementing arrangement", within the meaning given to that term in the IGA, shall always involve NASA as a party. This was because of

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the necessity for NASA to ensure the highest possible level of programmatic coherence among the Agency-level obligations for ISS Cooperation. Subsequently, an understanding developed among the Agencies that only an agreement which detailed the terms and conditions for the implementation of an existing obligation of either NASA or another Cooperating Agency in a MOU could be dealt with in an "implementing arrangement".
In other words, it is only when a legal instrument details an existing MOU obligation that it can acquire the status of "implementing arrangement", even if the "quid pro quo" for the other Cooperating Agency – for example the elements bartered for obtaining a service - is not *per se* originating in a MOU obligation. This strict interpretation has limited the number of implementing arrangement having been concluded.

Lesson: In the context of ISS Cooperation, it has been decided to respond to the requirement of a high degree of programmatic consistency among the various implementing arrangements by imposing that NASA always be a party to such an arrangement.

The other parts of the constellation of ISS-related legal instruments
Because of the narrow approach for concluding Implementing Arrangement explained above, numerous other legal instruments concluded by two or more Cooperating Agencies for the purpose of addressing one aspect or another of ISS Cooperation beyond a strict MOU obligation, whether with NASA's involvement or not, are somewhat left out of the mainstream of ISS legal instruments. In this case, it is difficult to determine whether these other instruments are consistent with ISS Cooperation in general and to which extent the basic rules of the IGA and MOUs are deemed applicable to the corresponding activities – or conversely whether the interested parties are free to develop their own new rules over and above the ISS core rules on liability.
This is particularly relevant when two or more Cooperating Agencies agree to cooperate in utilization activities, bearing in mind that the IGA and MOUs only stipulate how ISS utilization rights are accruing to the partners individually. A large number of Letter Agreements have been developed bilaterally to cover cooperative utilization activities, or even the acquisition through barters of utilization rights from the other partner; four of the partners have also concluded a MOU setting forth a process for conducting life science utilization activities onboard the ISS.

Lesson: A certain amount of uncertainty remains on the true nature and effect of the ISS-related agreements, or other types of instruments, which are not part of the 3-layer legal framework established for ISS Cooperation. A related issue is to which extent these instruments can contain provisions which differ from the rules set forth in that framework, other than for the liability clauses which appear to be unavoidable. Although that uncertainty

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has not created unsolvable problems for the partnership in practice, the underlying situation is not necessarily the most suitable one from a coherence and cohesion standpoints.

VII. Adoption of ISS Cooperation rules in domestic legal systems

Because the IGA and MOU are the first legal instruments developed by the interested States to regulate the permanent presence of humans onboard a facility located in outer space, these States had to take steps to integrate in their domestic legal system some of the rights and obligations to which they had subscribed in the ISS agreements. This was required so that the relevant rules governing ISS Cooperation could be made applicable to private individuals and companies involved in such Cooperation.

As a consequence of the above, national courts should be able to assert their jurisdiction over cases brought to them for the purpose of furthering those rules, or against individuals or companies failing to abide by such rules. This is also required, to a certain extent, to enable each of the Partner States to exercise in an effective manner jurisdiction and control over ISS elements and personnel it had provided, as stipulated in the IGA.

A number of ISS Partner States have chosen, consistent with their constitutional rules and procedures, to incorporate into their own domestic legal systems the IGA rights and obligations through the submission to their Parliaments of draft legislation for that purpose. The involvement of legislators can explain the long delays induced by the ratification process provided for in the IGA. For example, Canada, Germany and France have decided to incorporate the text of the IGA as a whole in their national legislation, signaling therefore that for the purpose of ISS Cooperation, the IGA provisions would take precedence over other national laws and regulations that would not be compatible with IGA rights and obligations.

Other ISS Partner States have not taken specific legislative measure before ratifying the IGA. This is the case, for example, of the United States which only required to abide by its procedure applicable to Executive Agreements, and thus have the text of the IGA lay before Congress for the prescribed period of time. However, the U.S. authorities also took appropriate regulatory measures to proclaim that U.S. jurisdiction and control applied to the US elements and personnel of the ISS.

Finally, some Partner States have not taken particular steps before their ratification of the ISS for ensuring the applicability of national law to ISS elements and personnel, such as a formal "proclamation", or assertion of jurisdiction, that could be required under their own national law. This is the case, for example, of the United Kingdom.

Although no systematic study has been done on the ratification process and thus on the effective assertion of jurisdiction and control, it can be assumed with certainty that, because of the lack of appropriate measures at national

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level in certain cases, there are different degrees of application of national laws – either fully, partially or not at all - of each of the eleven European Partner States on the ESA-provided ISS elements and personnel.
This is also because these States relied on the European Space Agency, their designated Cooperating Agency which is also an intergovernmental organization having legal personality at international law, to effectively enforce their rules onboard the Columbus laboratory. The supervision by ESA of the European Astronauts, who are ESA staff members within a corps of astronauts placed under the authority of the ESA Director General, is particularly eloquent. Under the IGA, each of the Partner States shall be the one exercising jurisdiction and control over individuals bearing its nationality; in reality, such supervision is being exercised within the ESA framework, in full consultation with the interested States.

Lesson: Because any given cooperative space project of a certain size in the future is likely to involve, on a large scale, not only government organizations but also individuals and private industrial entities, the requirement to transpose into the domestic law of the partners concerned the rights and obligations agreed at State level will become more essential. States will have to develop the appropriate approach, consistent with their legislative practices, to efficiently assert jurisdiction and control, and enable application of national law, over the elements contributed to space facilities being developed in outer space.

VIII. New Partner State joining ISS Cooperation

With the proposal made by the US Partner early in 1993, shortly after the swearing in of President Clinton and finalization of yet another re-design of the ISS referred to as "Alpha", to bring the Russian Federation into the ISS partnership, the Partner States had to agree on a roadmap for achieving that objective. It should be noted that the IGA does not contain clauses enabling other States to ask for their accession to the Agreement and thus the arrival of a new States in the Cooperation supposes an amendment of the IGA, or its replacement.
After informal talks among Agencies' Heads, the terms of a formal invitation to Russia to join the partnership were developed in the spring of 1993 by representatives of the Partner States. Once that invitation was accepted by the Russian side, representatives of the Partner States and Russia met in Paris for the purpose of developing the basic rules for the forthcoming negotiations.
Among these basic rules figured the "minimalist" approach, which was devised to respond to the programmatic need to formalize rapidly Russia's accession to the IGA. That approach consisted in the parties accepting that only essential amendments to the IGA justified by Russia's accession would be made.

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Negotiations were started in April 1994 for the purpose of amending the existing IGA and all the Partner States and Russia were involved in these negotiations. This was at variance with the amendment clauses contained in the IGA which provided that only the Parties to the IGA, i.e. those Partner States for whom the IGA would have entered into force, or only the United States and Japan in the circumstances, could negotiate amendments to the IGA. Despite the minimalist approach, fifteen rounds of negotiations extending from April 1994 to December 1996 were required, including three of these dedicated exclusively to legal issues. At the end, the quantity and substance of amendments to the IGA being proposed were of such magnitude that the parties to the negotiations decided to replace entirely the 1988 IGA with a new one.

In parallel to the IGA negotiations were conducted to amend the three existing MOUs and add a fourth MOU, this time between NASA and the Russian Space Agency (RSA). NASA, together with the other Cooperating Agencies, decided to proceed in two steps: (a) first agree with the three other parties to the original MOUs on amendments to be made, and (b) secondly, negotiate bilaterally with Russia on the basis of a text reflecting what had been agreed as a result of (a). This was repeated through more than ten rounds of negotiations.

Lesson: Because a cooperation to develop a space project is carried out, preferably, by a "closed partnership", the access of a new partner into that partnership supposes a rather cumbersome process of re-negotiations of applicable legal instruments. Despite the expression of goodwill from the States concerned to remain within a "minimalist approach" for that negotiation, the re-negotiation of agreements has to be exhaustive and address adequately not only all the characteristics of the planned participation of the new partner but also provide the occasion to introduce or modify provisions confirming changes having been made in the programme after the signing of such legal instruments.

IX. Jurisdiction and control; genuine partnership

At the start of IGA negotiations in the mid-1980's, it became rapidly clear that the United States was ready to assert full jurisdiction and control over the ISS as a whole, something possible under the US legal system. Obviously, that approach did not suit the other States and the ensuing discussions, which lasted for a number of months, resulted in the recognition - in Article 5.2 of the IGA - of the co-existence of four legal systems onboard the ISS, since it was stipulated that each Partner would maintain jurisdiction and control over the ISS elements, modules or facilities, and personnel it provided.

The situation in the ESA-provided Columbus laboratory is somewhat more complex since the nine European Partner States of 1988, and also the two

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additional European States that have signed the new IGA in 1998, are able to assert jurisdiction and control, and thus apply their national laws and regulations over legally significant events happening in or on that module, provided they have taken the steps required for doing so under their domestic law. The IGA contains provisions – for example in Article 21 of the IGA on Intellectual Property and Article 22 on Criminal Jurisdiction - which purpose is to avoid conflicting requirements being imposed on personnel onboard the Columbus module through the concomitant application of various domestic systems of law.

It is worth mentioning a last-minute addition to Article 5.2 of the IGA which indicates that each Partner shall maintain jurisdiction and control over personnel "who are its nationals". First these provisions appear not to respond adequately to the reality of the European Partner, considering that the nationality can only be determined for each Partner State, and second they are at variance with applicable international law since the Outer Space Treaty of 1967 does not distinguish among personnel on the basis of nationality. This has practical consequences: for example, the Russian Partner has provided flight opportunities to spaceflight participants who are nationals of the United States or even of non-Partner States. The question remains whether Russia can rely on an appropriate legal basis for exercising jurisdiction and control over these individuals.

From the co-existence of jurisdiction, the Partner went on to discuss thoroughly – on the basis of a proposal made by the European negotiators - the concept of "genuine partnership" which, ultimately, was integrated in the IGA. This concept entails that the Partners are equal participants in a common endeavor, working together towards an agreed goal, and are therefore able to maintain control over their own programmes and activities dedicated to the cooperation.

This is a significant evolution over what had been done in the past, such as the approach chosen for Spacelab cooperation between NASA and ESA, where NASA's responsibility to manage the overall activities, and impose requirements and changes to ESA, resulted in the latter not being able to maintain adequate control over schedules and costs. The genuine partnership also entails some degree of solidarity among the Partners, for example if unforeseen events affect negatively the orderly implementation of the cooperation. This was clearly shown with the accident of the US Space Shuttle Columbia on 1 February 2003 which slowed down significantly the construction, and the operation and utilization, of the ISS and imposed additional costs and delays on every Partner for almost three years.

The equal status of Partners consistent with the "genuine partnership" concept is somewhat moderated by the categorization established in Article 1 of the IGA among (a) the two Partners providing elements serving as the foundation of the ISS, (b) the two other Partners producing elements which will significantly enhance the ISS capabilities, and (c) one Partner

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contributing an essential part of the ISS. In addition, there is clear reference in the same Article to the lead role of the United States for overall management and coordination of the ISS, that idea being detailed in Article 7 of the IGA. That reference is not only enhancing the status of the United States as a distinctive Partner but also, for practical purposes, enables that Partner to impose technical and management specifications - and the corresponding costs - to other Partners.

Lesson: Different formulae of cooperation are possible for partners to carry out jointly a large-scale space project; the "genuine partnership" was adapted to the magnitude and complexity of ISS Cooperation and was developed in response to other models of cooperation used in the past which were not fully satisfactory for the interested parties.

X. Summary Conclusions

Far from describing or commenting the history or substance of the various steps of ISS Cooperation, the above considerations attempt to show some critical lessons learned in the legal process.
Such lessons should be read in conjunction and ideally complement systematic legal and technical analysis of the ISS Agreements. Several authors have provided their views on such topics and will continue to enrich the debate, thanks also to the fruitful continuation of the life of ISS beyond year 2020.
While it is still too soon to draw conclusive legal lessons on the whole ISS enterprise, these considerations are offered by those who have witnessed topical steps, in order to help and build experience for future space cooperations.

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