Asset-Based Financing in the Space Sector: the Space Protocol of the Cape Town Convention
What is the Space Protocol?

1. The Cape Town Convention System

2. Key Features

3. Special Features of the Space Protocol
The Space Protocol to the Cape Town Convention is an international treaty adopted in 2012 at a Diplomatic Conference in Berlin under the auspices of the International Institute for the Unification of Private Law (UNIDROIT).

It is part of the Cape Town Convention treaty system, the aim of which is to facilitate asset-based financing and leasing for the manufacture, acquisition and use of specific types of high value equipment.

The Space Protocol’s aim is to adapt the Cape Town Convention model to the specific characteristics of space assets and space activities.
Cape Town Convention: The Numbers

Political acceptance:
CTC: 85 contracting States + 1 REIO (EU)

Aircraft Protocol: 82 contracting States + 1 REIO (EU)
Cape Town Convention: Economic Benefits (1)

Aircraft Protocol of the Cape Town Convention

The Aircraft Protocol of the Cape Town Convention is a great example of how a financing instrument can allow for the growth and expansion of an entire industry:

- The coming into force of the Aircraft Protocol has reduced the cost of financing aircraft equipment by at least 30%.
- Moreover, one study showed that the adoption of the Aircraft Protocol by an average country could save it between $7.6 Billion and $11.1 Billion over a twenty-year period.

Political acceptance:
- CTC: 85 contracting States + 1 REIO (European Union)
- AP: 82 contracting States + 1 REIO (European Union)
- Volume of transactions:
  - More than 1.3 Million registrations in the AP Registry since 2006
  - Estimated value of collateral 650 billion US$

Quantifiable economic benefits deriving from the lowering of the cost of credit:
- "Cape Town Discount" practiced by Export Credit Agencies (OECD)
- Improved rating in recourse to capital market debt financing
- Better conditions for commercial credit (including leasing operations)
According to various studies conducted by Oxera, the Luxembourg Rail Protocol is projected to bring large economic benefits to the countries all over the world. These include:

- Study indicating total benefits of 19.4 Billion EUR in 20 European countries.
- Study indicating direct micro-benefits between 4.8-5.2 Billion GBP in the United Kingdom.
- Study indicating direct micro-benefits between 1.6%-13.5% of total value of railway rolling stock in Africa.
- Study indicating direct micro-benefits up to 20 Billion Rand in South Africa.
Cape Town Convention: Economic Benefits (3)

Mining, Agricultural and Construction Protocol of the Cape Town Convention (MAC Protocol)

The expected economic benefits are enormous for countries that ratify the MAC Protocol.

A 2018 independent report prepared by Warwick Economics and Associates states that the MAC Protocol is predicted to have a positive impact of $23 billion on GDP in developing countries and of $7 billion in developed countries, for a total impact on GDP equivalent to $30 billion a year. It is estimated that over a ten-year period, the Protocol may increase the stock of MAC equipment in developing countries by $90 billion.

As the scope of the economic assessment was limited to UNIDROIT’s 63 Member States, the actual global economic impact is likely to be much higher.
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Objectives of the Cape Town Convention

1. To facilitate the acquisition and financing of economically important items of mobile equipment by providing for the creation of an international interest which will be recognised in all Contracting States;

2. To provide creditors with a range of basic default and insolvency-related remedies and, where there is evidence of default, a means of obtaining speedy relief pending final determination of its claim on the merits;

3. To establish an electronic international registry for the registration of international interests which will give notice of their existence to third parties and enable the creditor to preserve its priority against subsequently registered interests and against unregistered interests and creditors in the debtor’s insolvency;

4. To ensure through the relevant Protocol that the particular needs of the industry sector concerned are met;

5. To grant Contracting States a degree of flexibility in adhering to the international regime, by allowing, to a well-defined and limited extent, policy choices through declarations, while preserving the basic uniformity of the legal regime;

6. By these means to give intending creditors greater confidence in the decision to grant credit, enhance the credit rating of equipment receivables and reduce borrowing costs and credit insurance premiums to the advantage of all interested parties.
Key legal features of the Cape Town Convention Model (1)

- **AUTONOMOUS INTERNATIONAL INTEREST**: Parties to a financing transaction can create an autonomous “international interest” over the equipment (deriving from a security agreement, retention of title or lease)

- **INTERNATIONAL REGISTRY**: The international interest is registered in a dedicated international asset-based wholly electronic registry
  - transparency and predictability

- **ENFORCEABILITY OF REGISTERED INTEREST**: The Convention and its Protocols ensure (cross-border) effectiveness and enforcement of the registered international interest in contracting States

- **CLEAR PRIORITY RULES**: Clear rule for determining priorities, including as against interests in national law, with clearly identified and transparent exceptions: a registered interest prevails over unregistered and later registered interests (no constructive knowledge)
Key legal features of the Cape Town Convention Model (2)

- **EFFECTIVE ENFORCEMENT MEASURES (DEFAULT REMEDIES):** The Convention and its Protocols provide effective and swift enforcement measures, largely based on contractual agreements, and including advance relief pending final determination during court proceedings.

- **EFFECTIVENESS IN INSOLVENCY:** Registered international interests effective in insolvency proceedings as against the debtor/buyer/lessee.

- **POLICY CHOICES THROUGH DECLARATIONS:**
  Contracting States can make policy choices through declarations:
  - States may protect **specific national interests** (e.g.: declaration under Art. 39 of the Convention allows States to list non-consensual liens that prevail over a registered international interest, like employees’ liens, tax liens, liens protecting repairers...)
  - States may enhance economic benefits of Protocols by strengthening creditor’s rights in enforcement and insolvency.
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Special features of the Space Protocol (1)

Scope of application:
A ‘Space Asset’ is defined in Article I(2)(k) of the Protocol as:
any man-made uniquely identifiable asset in space or designed to be launched into space, and comprising

(i) a **spacecraft**, such as a satellite, space station, space module, space capsule, space vehicle or reusable launch vehicle, whether or not including a space asset falling within (ii) or (iii) below;
(ii) a **payload** (whether telecommunications, navigation, observation, scientific or otherwise) in respect of which a separate registration may be effected in accordance with the regulations; or
(iii) a **part** of a spacecraft or payload such as a transponder, in respect of which a separate registration may be effected in accordance with the regulations,

...together with all installed, incorporated or attached accessories, parts and equipment and all data, manuals and records relating thereto.
Special features of the Space Protocol (2)

HOW IS IT POSSIBLE FOR CREDITORS TO EXERCISE THEIR REMEDIES UNDER THE SPACE PROTOCOL?

The Protocol takes into account the physical impossibility of repossession in two ways:

ASSIGNABILITY OF DEBTOR’S RIGHTS
The Protocol recognises the importance of revenue streams in relation to the space asset for the creditor, and it contains detailed provisions on the assignment of debtor’s rights, broadly defined as “[…] rights to payment or other performance due or to become due to a debtor by any person with respect to a space asset”

TT&C ENFORCEMENT MECHANISM
Moreover, the remedies section of the Protocol contains a provision on the Tracking, Telemetry and Control (TT&C) of space assets which can be found within the command codes associated to it (encryption keys which give control over the satellites)

Article XIX allows the parties to specifically agree to the placement of command codes and related data and materials with a third party so that the creditor may establish control over, or operate the space asset.

As a safeguard, however, laws and regulations of Contracting States can prohibit, restrict, or attach conditions to the placement of command codes with third parties.
Special features of the Space Protocol (3)

PUBLIC SERVICE EXCEPTION

• Noting that space assets are often used for the provision of important public services, the drafters of the Space Protocol ensured that such services are not unexpectedly terminated in the case of a default on part of the debtors to a financial agreement. As such, Article XXVII of the Space Protocol contains a provision restricting the remedies available to a creditor with respect to a space asset that provides a public service.

• The underlying concept is that the State has a natural interest in ensuring that a creditor exercising its rights does not cause the abrupt termination of a service of public importance (e.g. a satellite system monitoring weather conditions or providing GPS public services). Article XXVII is triggered by the registration of a ‘public service notice’, which can be done on agreement of the parties to the public service contract and the Contracting State.

• The creditor’s consent is not required to register a public service notice, however, since the debtor will be party to the public service contract, the creditor will be able to make a contractual provision restricting the debtor’s right to consent to the registration of a public service notice.

• Upon the registration of a public service notice, a creditor may not exercise remedies which would make the space asset unavailable during the suspension period, which begins with the registration by the creditor of a default notice which states that it will or may exercise default remedies of the debtor does not cure its default within the registration period.

• The length of the ‘suspension period’ is confirmed by Contracting States through a mandatory declaration under Article XXVII(4), but it must be between 3–6 months.

• Article XXVII(9) provides an exception to suspension of remedies under a public service notice, in the unusual circumstances that:
  1. the international interest is registered before the public service notice,
  2. the creditor has no knowledge of the public service contract or the public service notice and
  3. the public service notice is not registered within 6 months after the initial launch of the space asset.
Special features of the Space Protocol (3)

SALVAGE

‘Salvage’ is a legal or contractual right or interest in, relating to or derived from a space asset that vests in the insurer upon the payment of a loss relating to the space asset (Article IV(3)).

Insurance is an important consideration in the financing of space assets, the Space Protocol seeks to ensure that this aspect of the industry is not significantly affected by the Protocol.

Article IV(3) provides that nothing in the Convention or Protocol can affect any legal or contractual rights of an insurer to salvage in accordance with the applicable law. As such, salvage rights, including rights by subrogation, are not affected by the Convention or Protocol, so that any priority dispute between salvage rights and creditor rights will be resolved by the applicable law.
PHYSICALLY LINKED ASSETS

Often, spacecraft are comprised of different modules that are physically linked together (e.g. the International Space Station).

- Article XVII(3) prescribes a significant restriction on the exercise of remedies related to physically linked assets. A creditor may not enforce an international interest in a space asset that is physically linked with another space asset so as to impair or interfere with the operation of the other space asset.

- Two limitations on the Article XVII(3) rule:
  A creditor or buyer of the physically linked space asset must have registered its interest in the space asset before the interest of the enforcing creditor was registered.
  Article XVII(3) only takes effect subject to any agreement to the contrary between the two parties concerned (i.e. its not a mandatory provision).

- This rule is not strictly a priority issue, as the two interests relate to different space assets which are physically linked, rather than two interests in the same asset.
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Space Assets in terms of the Space Protocol

- Spacecraft
  - Part of a Spacecraft*

- Payload
  - Part of a Payload*

* uniquely identifiable, according to the Space Registry Regulations
Space Assets in terms of the Space Protocol

Spacecraft

Part of a Spacecraft*

Payload

Part of a Payload*

*uniquely identifiable, according to the Space Registry Regulations

International Interest in

- security agreement
- title reservation agreement
- leasing agreement

protected through registration in International Registry

International Registry on Space Assets
Space Assets in terms of the Space Protocol

Spacecraft

Part of a Spacecraft*

Payload

Part of a Payload*

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Article 11 – Meaning of default

1. The debtor and the creditor may at any time agree in writing as to the events that constitute a default or otherwise give rise to the rights and remedies specified in Articles 8 to 10 and 13.

2. Where the debtor and the creditor have not so agreed, “default” for the purposes of Articles 8 to 10 and 13 means a default which substantially deprives the creditor of what it is entitled to expect under the agreement.
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Example Transactions Under the Space Protocol

- Two Transactional Structures
- One Hypothetical Case
- 2 Scenarios
1. Sale of asset to financier for cash payment

2. Financier leases back asset to company in return of rental streams (inclusive of profits)

Company

Company undertakes to redeem asset at the end of lease period

Financier/Bank

Utilised to finance project costs
Example Transactions Under the Space Protocol

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ABC is a NewSpace company based in a developing country which has ratified the Space Protocol of the Cape Town Convention. ABC is developing small satellite technology and intends to launch a constellation of 10 satellites into lower earth orbit (LEO) for earth observation purposes. They have managed to use commercial off the shelf (COTS) components to develop their first satellite and have conducted tests on this satellite in a laboratory and in a near space environment. Their initial developmental and testing phase was funded by an angel investor who has acquired a 30% stake in their company. They now require an injection of additional capital to manufacture their fleet and launch it into outer space.

XYZ Bank is a commercial bank in a highly developed country which is not a signatory to the Space Protocol. It has a portfolio of investments in space industry projects but typically only lends to AAA rated companies from developed economies who have a strong history in space exploration and strong financial backing.

The cost of development and launch of each small satellite is 35 Million Euros. ABC prepares a proposal to set up 10 separate Special Purpose Vehicles (SPVs) to finance each satellite individually through loans from XYZ Bank repayable over the course of 5 years. ABC offers XYZ a secured interest in each of their satellites up until the full repayment of the loans.

The deal is agreed. XYZ Bank registers International Interests in the International Registry in all 10 of the satellites at the stage of manufacturing when the satellites could be clearly identified. The parties agreed in writing that ABC is at default in terms of the Cape Town regimen when it has not paid back its debt to the XYZ bank for more than two months.
Scenario 1

ABC launches all ten of their satellites 6 months after the agreement and continues to pay back its debt to XYZ Bank. Overall, the business of ABC is developing well. However, close to the break-even ABC is running low in cash, though late payments by ABC have not yet triggered default. Most recently, ABC has agreed on a deal with a future anchor client.

Accordingly, it anticipates major revenues. In order to meet its obligations towards the XYZ Bank, ABC decides to assign debtor's rights, namely the right of payment by its future anchor client, to XYZ Bank. The assignment is recorded in the International Registry against the asset and claims priority over any future assignments to other parties. Through the assignment of these future debtor's rights ABC is able to meet its obligations towards XYZ Bank until the break-even while continuing the operations.
**Scenario 2**

In this scenario, ABC was not able to pay its debt for more than two months. A default notice is filed in the International Registry which entitles XYZ Bank to exercise any of the remedies available under the Cape Town regimen, i.e. take possession or control, sell or grant a lease, or collect or receive any income or profits.

XYZ Bank may take control through the documentation and data to be provided by ABC, namely including TT&C command codes and operational procedures, and by taking operational services from commercial ground control service providers or by terminating the debtor's right of use on a contractual basis.

Once XYZ has taken control, it may sell the services in the market or grant a lease to another operator. Collecting or receiving any income or profits generated through the operations of the assets seems to be the most viable option, taking into account that future revenues can be anticipated.
Example Transactions Under the Space Protocol

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Benefits to the NewSpace Sector

1. Start-up Financing Cycle
2. Risk Reduction
3. Existing Financing Structures
4. General Benefits
5. Space Sustainability
Startup Financing Cycle

- Idea
- Development
- Testing
- Deployment
- Operational

Equity Crowdfunding & Crowdplending

Accelerators

Angels, FFF

Seed Capital

VCs, Acquisitions/Mergers & Strategic Alliances

Later Stage

Early Stage

Mezzanine

IPO

Secondary Offerings

Public Market

Co-founders

Risk

Valley of Death

Break even

1st

2nd

3rd

NB: Risk and Revenue are not plotted relatively. Risk normally decreases as revenue increases.
Benefits to the NewSpace Sector

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Risk Factors

- The expected value of the collateral which can be recovered, net of any costs of recovery
- The amount of the loan
- The degree of certainty over loan repayments
Benefits to the NewSpace Sector

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Besides receiving government funding and grants, or relying upon the financial capacity of their founders, private entities typically rely upon the following mechanisms of attracting investment for their operations:
- Equity Finance, mostly through venture capitalists or angel investors.
- Unsecured lending, based usually on the creditworthiness of the entity.
- Project Finance, primarily through debt financing, hence creating a situation whereby lenders buy the debt, or the cost of a project and then are paid off using revenue generated from the project.

- Traditionally, the space industry has comprised of triple-A rated companies which have relatively easy access to capital due to their financial stability and creditworthiness.
- Companies which have relied on obtaining either equity or project finance from lenders at an acceptable rate keeping their balance-sheets or on-ground assets as collateral.
- Also very often been heavily financed by governments who deal with them favourably considering their importance to the States to which they belong or to the governments themselves.

This is not NewSpace!
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Benefits to the NewSpace Sector

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Asset-based financing allows for actors within the space industry to create a new (lower) level of risk for financiers and the Space Protocol greatly facilitates this. It creates a uniform regulatory regime for the recognition, protection and enforcement of security interests in space assets.

Asset financing allows companies to leverage their assets and attain finance by giving creditors’ rights in those assets. The benefit of asset backed financing is that, in the case where the debtor cannot repay its debt to the creditor, the asset itself, or interests in the asset, may come under the ownership and/or control of the creditor.

The Space Protocol facilitates these types of transactions such that it reduces the riskiness of the extension of credit, by making it more likely that the amount loaned will be repaid if the debtor becomes insolvent.

The space industry has seen tremendous growth which is expected to multiply in the near future. Morgan Stanley estimates that the revenue generated by the global space industry will increase to $1.1 trillion or more in 2040, up from $350 billion in 2016.

Prior to the Space Protocol, there existed no international legal framework providing for asset-based financing within the space industry. To assist in the development of the space industry, an efficient international regime needed to be developed and this is exactly what the Space Protocol provides.

The Space Protocol provides a stable and secure legal environment for transactions in space assets based on the tried and tested mechanism of asset-based financing.
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Sustainability in Space:

By providing a mechanism for easy to execute in orbit transfers of space assets, the Space Protocol:

• Works towards creating a secondary market for satellites which no longer have funding.

• Gives the option to financiers to obtain returns from investments in which the operator has gone bankrupt, but they cannot find buyers for the entire project (e.g.: constellation financing).

• Allows the space industry to follow longstanding models of financing found in the aviation sector of fleet financing by way of finding investors in individual assets, thereby broadening the number of financing possibilities and increasing growth and development of the space sector.
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Asset-Based Financing in the Space Sector: the Space Protocol of the Cape Town Convention
Current Status

4 Signatories: Germany, Burkina Faso, Saudi Arabia, and Zimbabwe. Many other States interested.

Article XXXVIII
1. - This Protocol enters into force between the States which have deposited instruments referred to in sub-paragraph (a) on the later of:
(a) the first day of the month following the expiration of three months after the date of the deposit of the tenth instrument of ratification, acceptance, approval or accession; and
(b) the date of the deposit by the Supervisory Authority with the Depositary of a certificate confirming that the International Registry is fully operational.

UNIDROIT is working towards finalisation of the framework for the operation of the International Registry.

We are also closely working with Governments, International Organisations, Experts, and Industry to increase the understanding, and use of asset-based financing in the space sector, as well as to push States towards signing and ratifying the instrument.
New technologies are increasing the growth of a secondary market for space assets, thereby promoting the use of more asset-based financing.
On Orbit Servicing

this relates to refuelling, repairing and/or modifying an object already in space. Within this new sector, satellite life extension and retrofitting space assets for different purposes are the most commonly explored business models. Both of these have the potential to enhance the secondary value of space assets and allow for subsequent operators to derive benefits from an asset already in orbit.
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In Space Manufacturing

this relates to manufacturing space assets in orbit or on a celestial body, mostly through the use of 3D printing technologies in outer space. This gives rise to the potential for assets being built and deployed on demand in space, which subsequently creates a larger marketplace and thereby necessitates rules on issues such as rights of title, transfer of title, and financing.
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Software deployed satellites and ground station as a service

In the past, launching an object into space had to be coupled with establishing a ground station which would be dedicated to communicating with the launched space asset. However, with more satellites now using standard off-the-shelf components in their assembly, it is possible to have ground stations as a service which can be purchased from service providers. This can allow subsequent operators of a space asset to communicate with that object more effectively. Additionally, it is now also possible to deploy a software update to a space object from earth and have it perform a different purpose, thereby making the object more valuable on a secondary market.
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