

Asset-based Financing in the Space Industry

The Space Protocol of the Cape Town Convention – An International Instrument to Enable Secured Transactions in Space Assets

**SIRIUS SPACE TALKS '18 - Space Economy: Urgent Need for New Global Regulation?
Toulouse – 23 October 2018**

**Hamza Hameed
UNIDROIT**

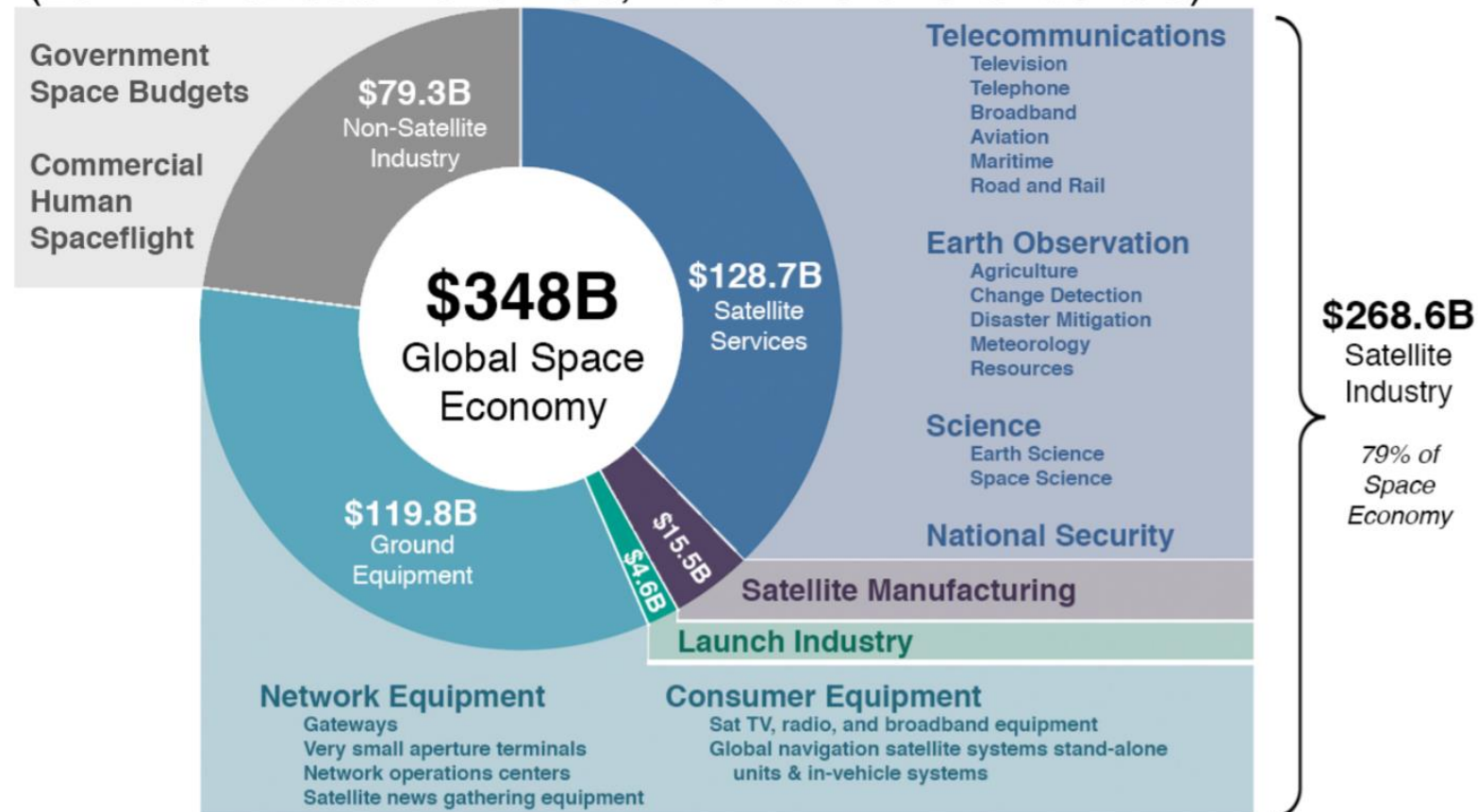
The Space Economy

The Space economy is the full range of activities and the use of resources that create value and benefits to human beings in the course of exploring, researching, understanding, managing, and utilizing space.

The space industry can be defined as the economic and financial activities relating to the manufacturing, production, or provision of products and/or services that operate in, or beyond the Earth's orbit, or the activities related to delivering these products or services to space and/or communicating with them.

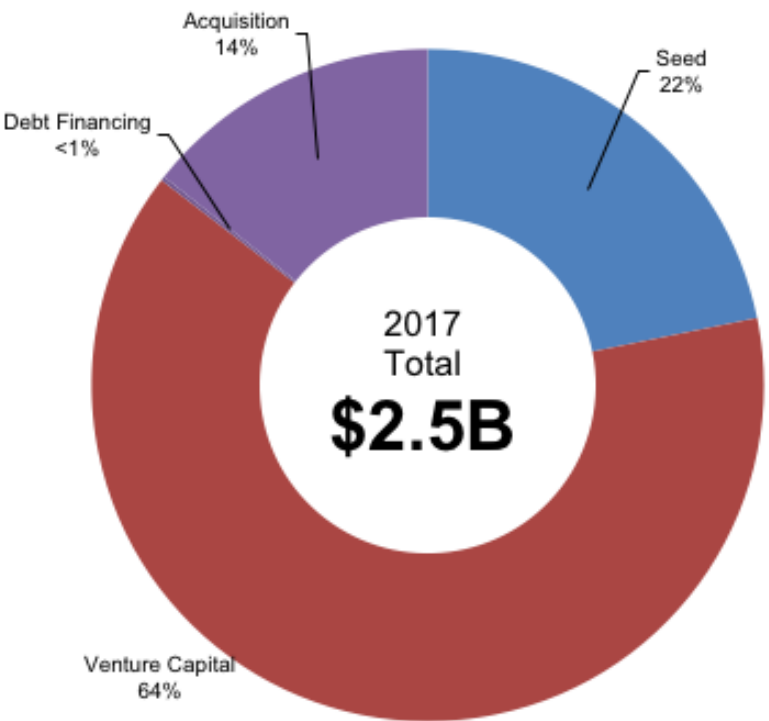
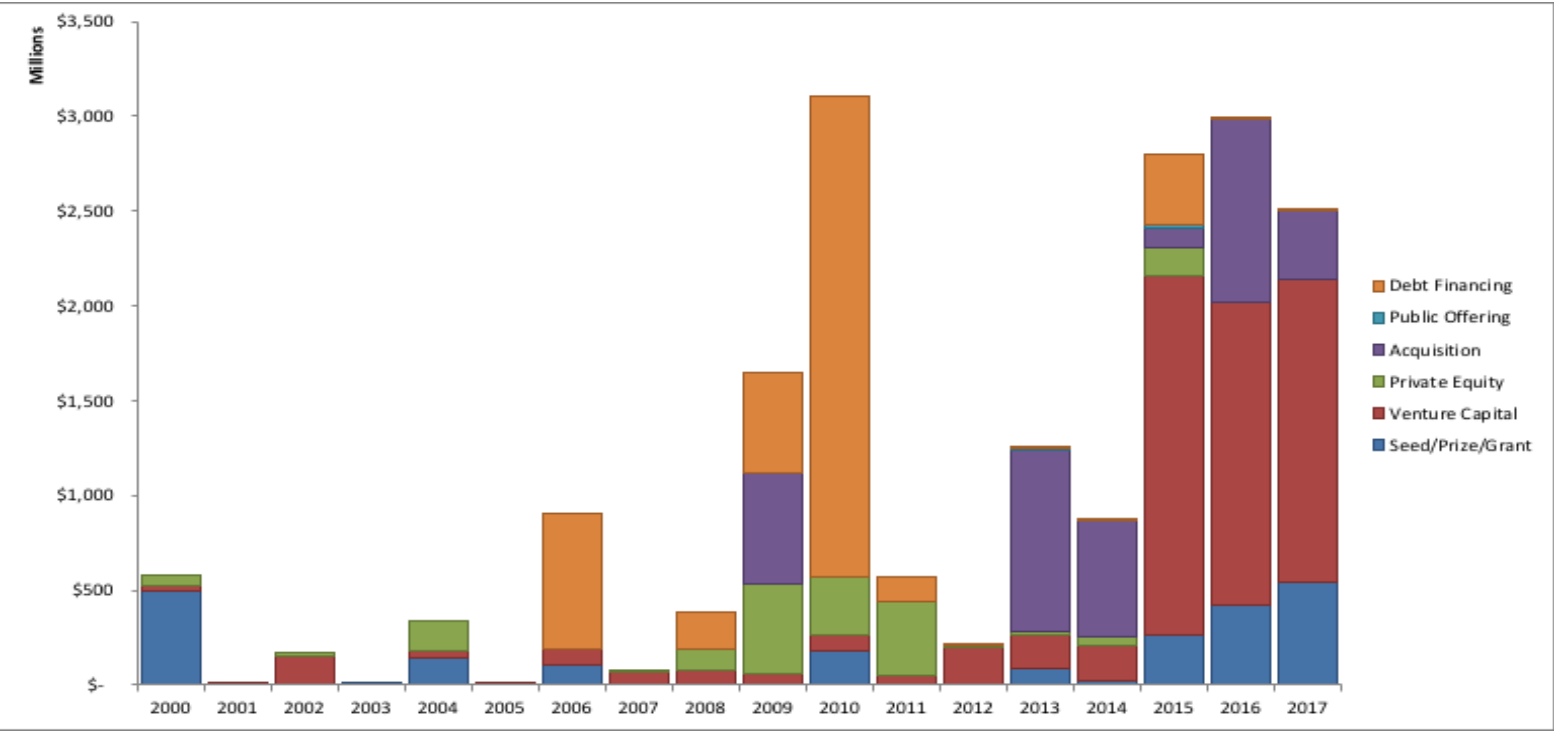
The Satellite Industry in Context

(2017 revenues worldwide, in billions of U.S. dollars)



Source: Bryce Space Report on: 2018 State of Satellite Industry

Present Private Investments in Space Activities



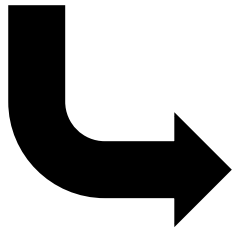
Source: Bryce Space Report on Start-Up Space: Update on Investment in Commercial Space Ventures 2018



Present Private Investments in Space Activities

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:

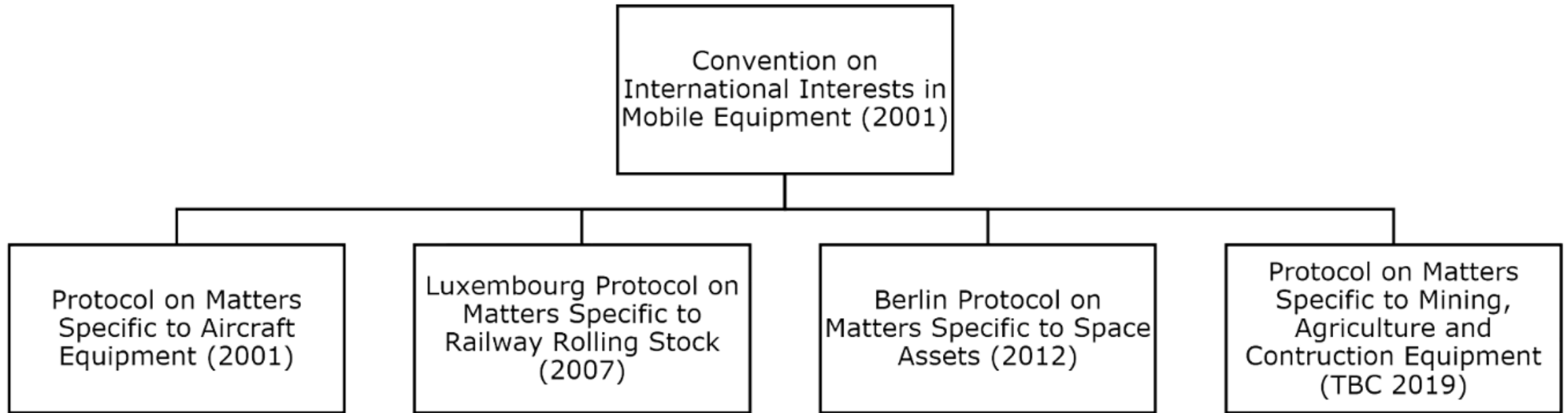
- Equity Finance, mostly through venture capitalists or angel investors;
- Unsecured lending, based usually on the creditworthiness of the entity;
- Project Finance, primarily through debt financing, hence creating a situation whereby lenders buy the debt, or the cost of a project and then are paid off 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.

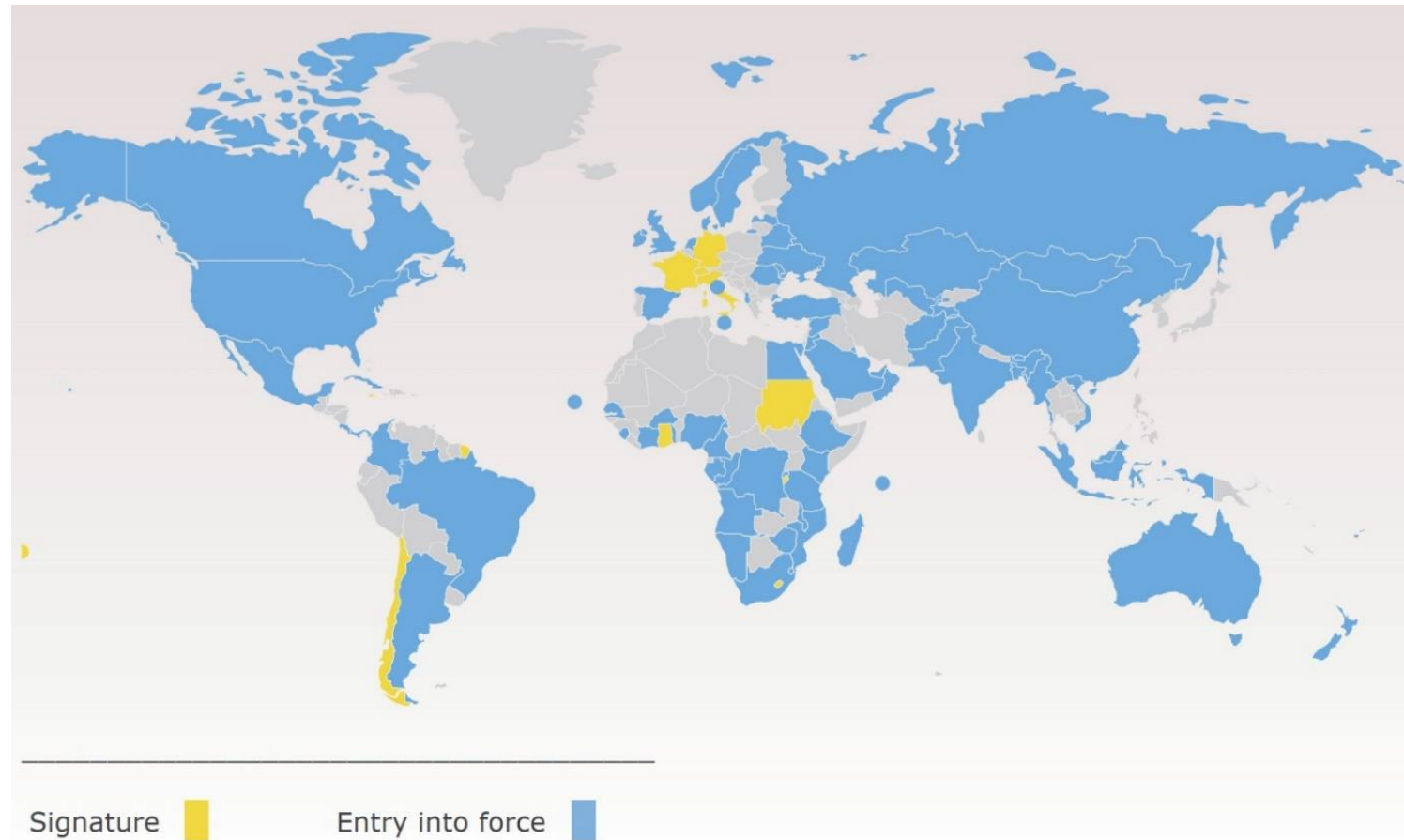
The Cape Town Convention

The Cape Town Convention treaty system's primary aim is to facilitate asset-based financing and leasing for the manufacture, acquisition and use of specific high value equipment. This is accomplished through a two tier umbrella structure with the Convention being supplemented by individual Protocols for specific industries:



The Cape Town Convention

- The Convention currently has 77 contracting states and has been approved by the European Union.
- The Aircraft Protocol, which was negotiated alongside the Convention, is the first and most widely adopted of the existing Protocols with 73 contracting states.



The Cape Town Convention

The Cape Town Convention System does not aim at replacing existing methods of attaining finance, rather its designed to add another opportunity, taking into account the needs of developing and emerging economies, and the likely decrease or unavailability of governmental financing.

This is done by introducing the practice of asset-based financing through an international system of secured transactions law into the space industry.

Main Objectives

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 the creditor 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.

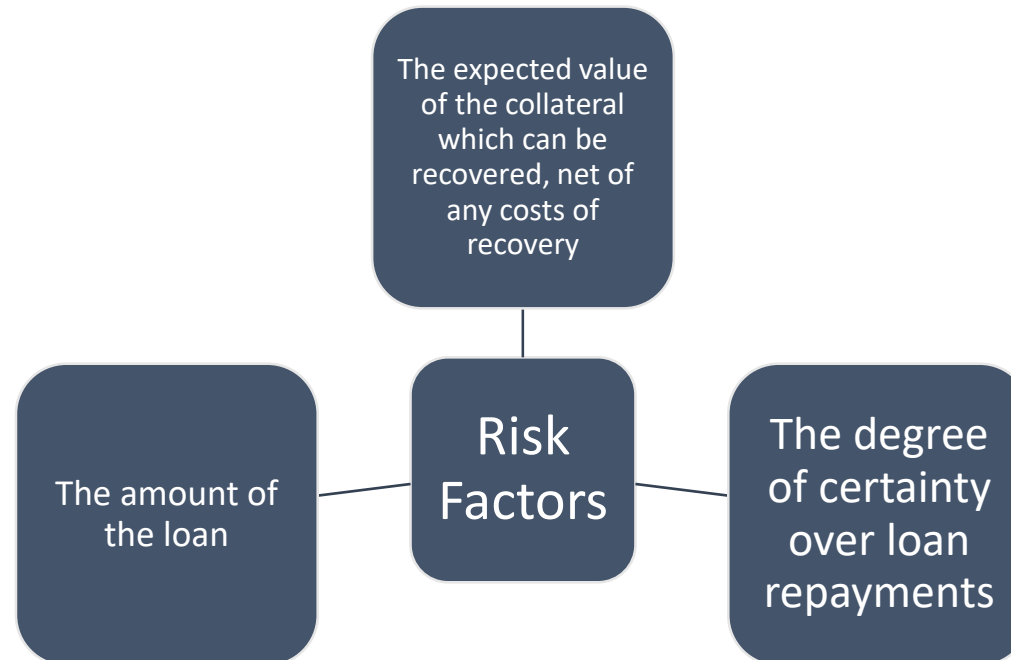
What is the Space Protocol

- The Space Protocol's aim is to adapt the Cape Town Convention model to the specific characteristics of space assets and space activities.
- Concluded in Berlin on 9 March 2012. The Space Protocol deals with the rights of private parties to transactions involving space assets. The treaty does not affect the existing treaties governing State rights and obligations in outer space.
- It **enhances legal predictability** in financing transactions regarding high value, uniquely identifiable mobile equipment, reducing creditor's risks and thereby lowering the cost of credit.
- This goal is achieved by allowing parties to a security agreement, a conditional sale or a leasing agreement to create **autonomous interests** on the equipment, which are **internationally enforceable** in States parties to the Convention and a relevant Protocol.
- Creditors may register their interest in an **electronic international registry**, 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.
- The Convention and Protocols provide the creditor 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.

What is the Space Protocol

If a loan is granted, secured on a piece of equipment, the risk to the lender depends on a number of factors.

The Space Protocol impacts on the 'collateral value' factor by seeking to increase the expected value of the recovered asset, firstly by **making recovery more certain and quicker** and secondly **by allowing the creditor to realise that asset value by redeploying it wherever there is demand**.



Scope

It defines the term ‘space asset’ in Article II(2) 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 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.”*

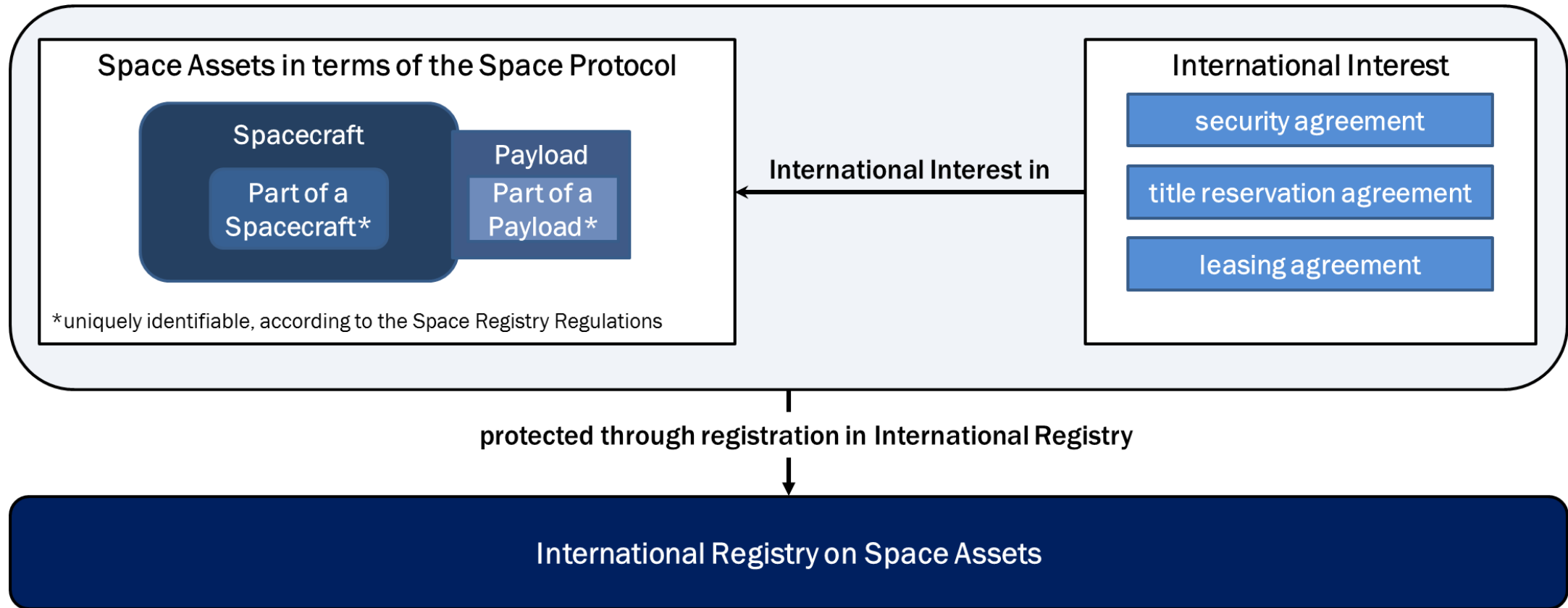
Scope of the Protocol

Space Assets in terms of the Space Protocol

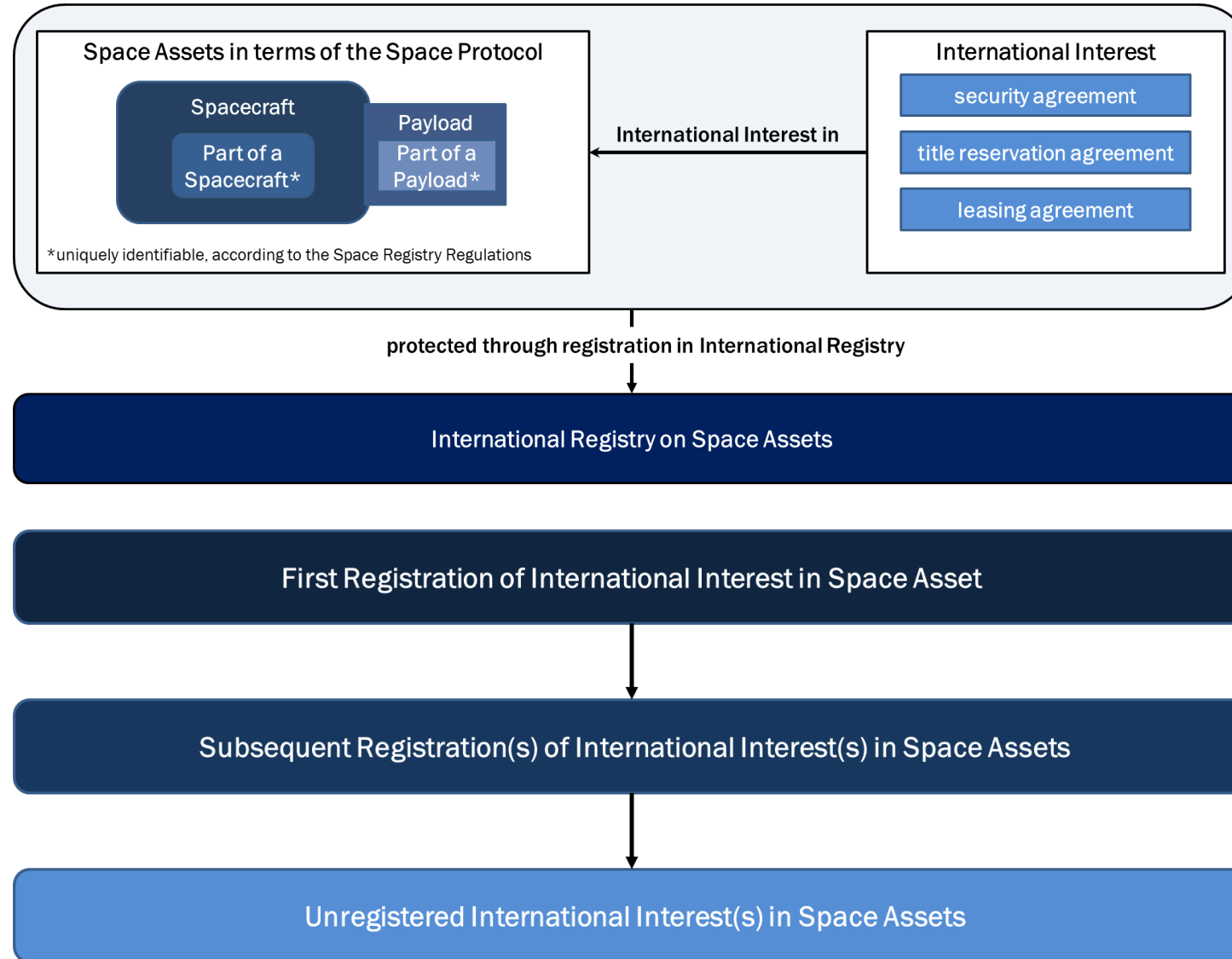


*uniquely identifiable, according to the Space Registry Regulations

How does it work?



System of Priority



Insolvency Mechanism

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.



defaulter

Insolvency Mechanism

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 Protocol 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.

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.

Public Service Exception

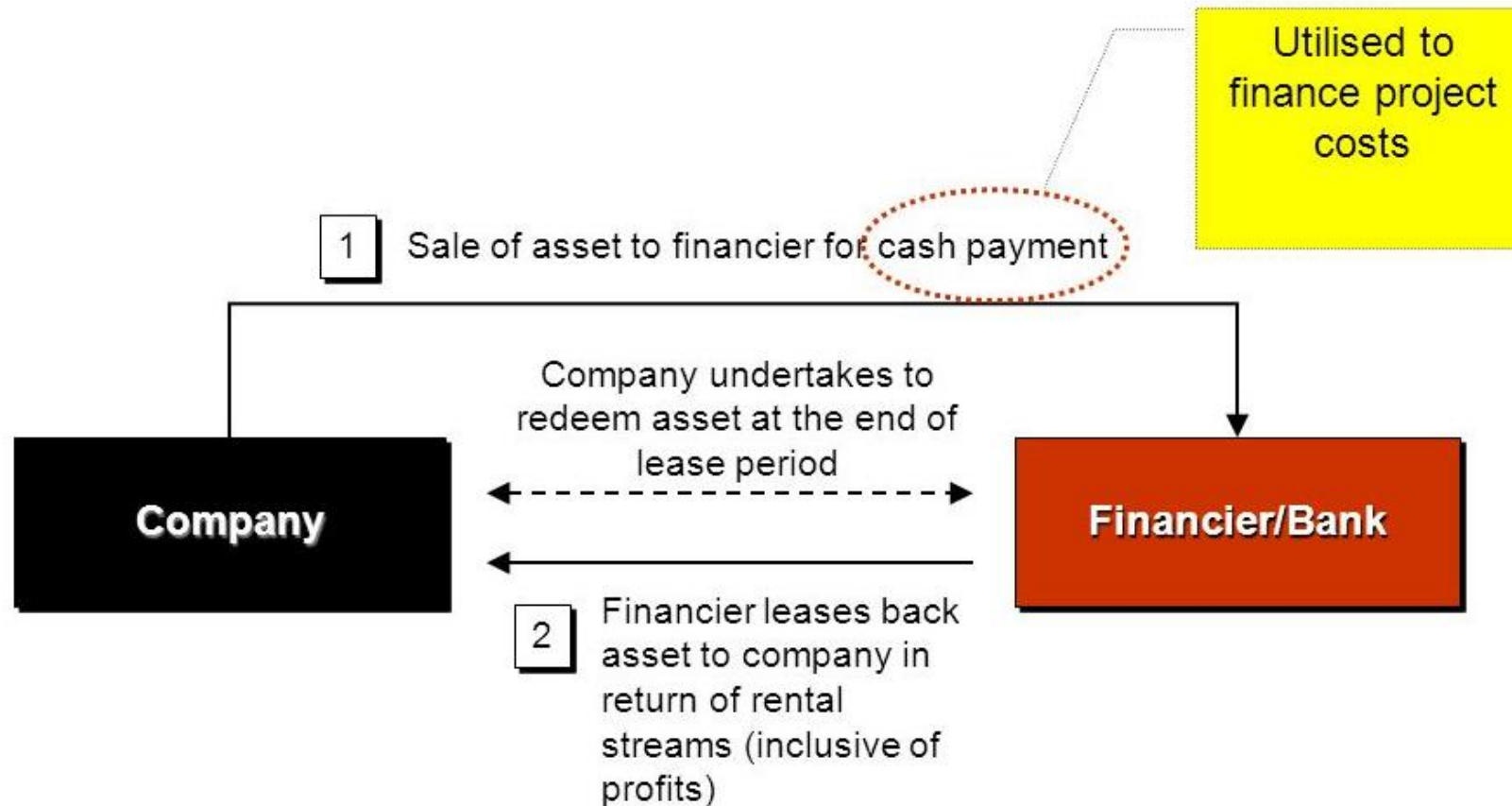
Upon the registration of a public service notice, a creditor **may not exercise remedies which would make the space asset unavailable during the 'suspension period'**, which begins with the registration by the creditor of a default notice which states that it will or may exercise default remedies of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

Example transactional structure (2)



The Space Protocol highly 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; and that the creditor reduces their burden of monitoring the debtor absconding with the credit, because the creditor now only has to monitor the asset securing the loan, and not the overall business and profitability of the debtor's enterprise.

Example transaction (I)

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 ABC bank for more than two months.

Source: BHO Legal

Example transaction (2)

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.

Source: BHO Legal

Example transaction (3)

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.

Source: BHO Legal

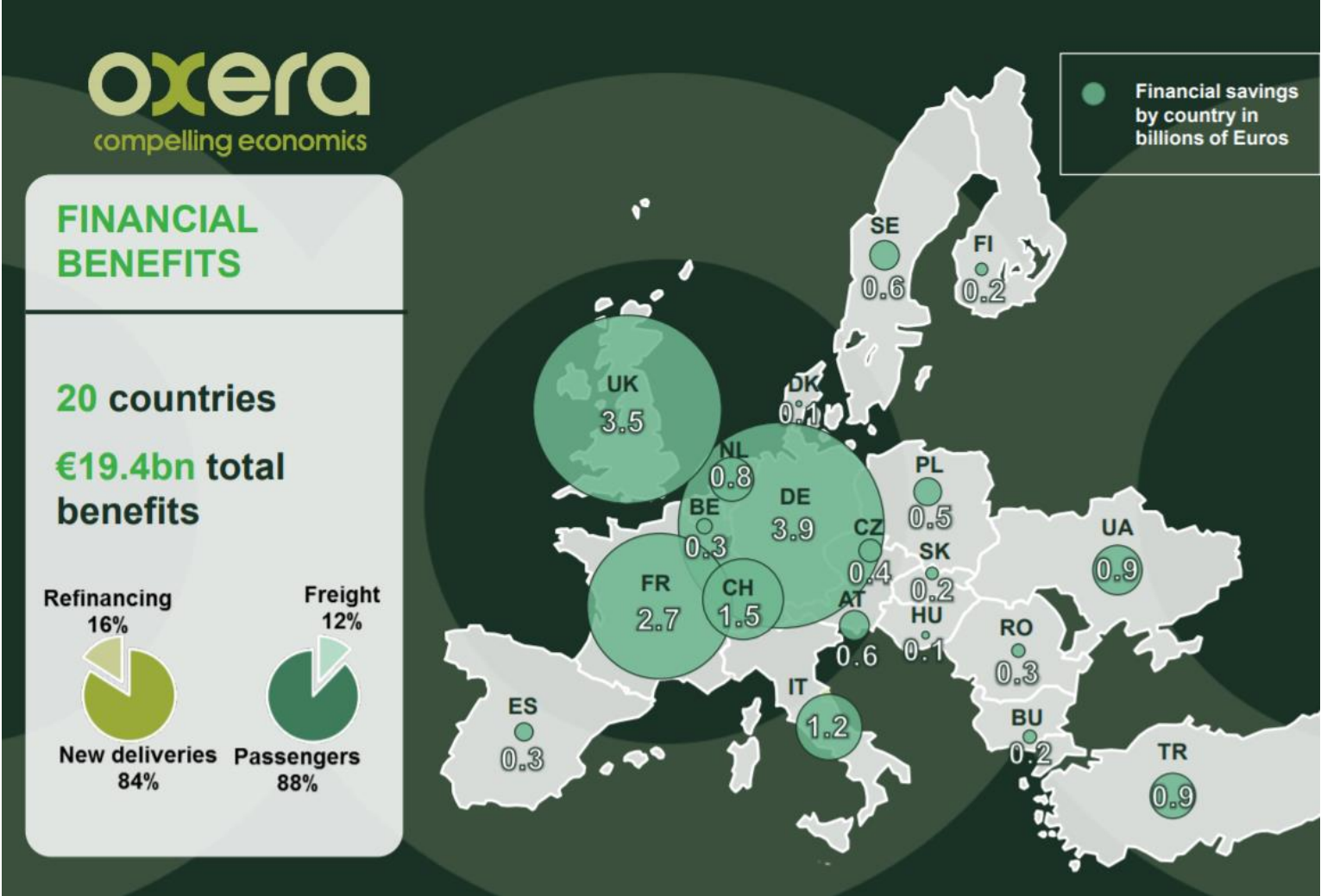
Possible Benefits to NewSpace Financing

The Aircraft Protocol of the CTC 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**.
- Presently there are over 200,000 international interests created, and over 750,000 registrations in the International Registry against more than 250,000 aircraft objects.

- An economic assessment recently concluded for the MAC Protocol estimates that over a ten year period, the MAC Protocol may increase the **stock of MAC equipment in developing countries by \$90 billion**. 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**.

Possible Benefits to NewSpace Financing



Source: Oxera 2017

Possible Benefits to NewSpace Financing

Asset-based financing allows for actors within the space industry to create a **‘new level of risk for financiers’** and the Space Protocol greatly facilitates this. It creates **‘a uniform regulatory regime for the recognition and protection of security interests in space assets,’** – this ensures that issues such as those of conflict of laws or differing insolvency remedies, that are normally encountered in asset-based financing, are surpassed.

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**. In this manner, the creditor will be paid back some of the credit they have extended to the debtor. This is more desirable to a creditor as compared to offering the profits of the enterprise, especially when the enterprise fails and the creditor would therefore receive little or no return on their investment.

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; and that the creditor reduces their burden of monitoring the debtor absconding with the credit, because the creditor now **only has to monitor the asset** securing the loan, and not the overall business and profitability of the debtor’s enterprise.

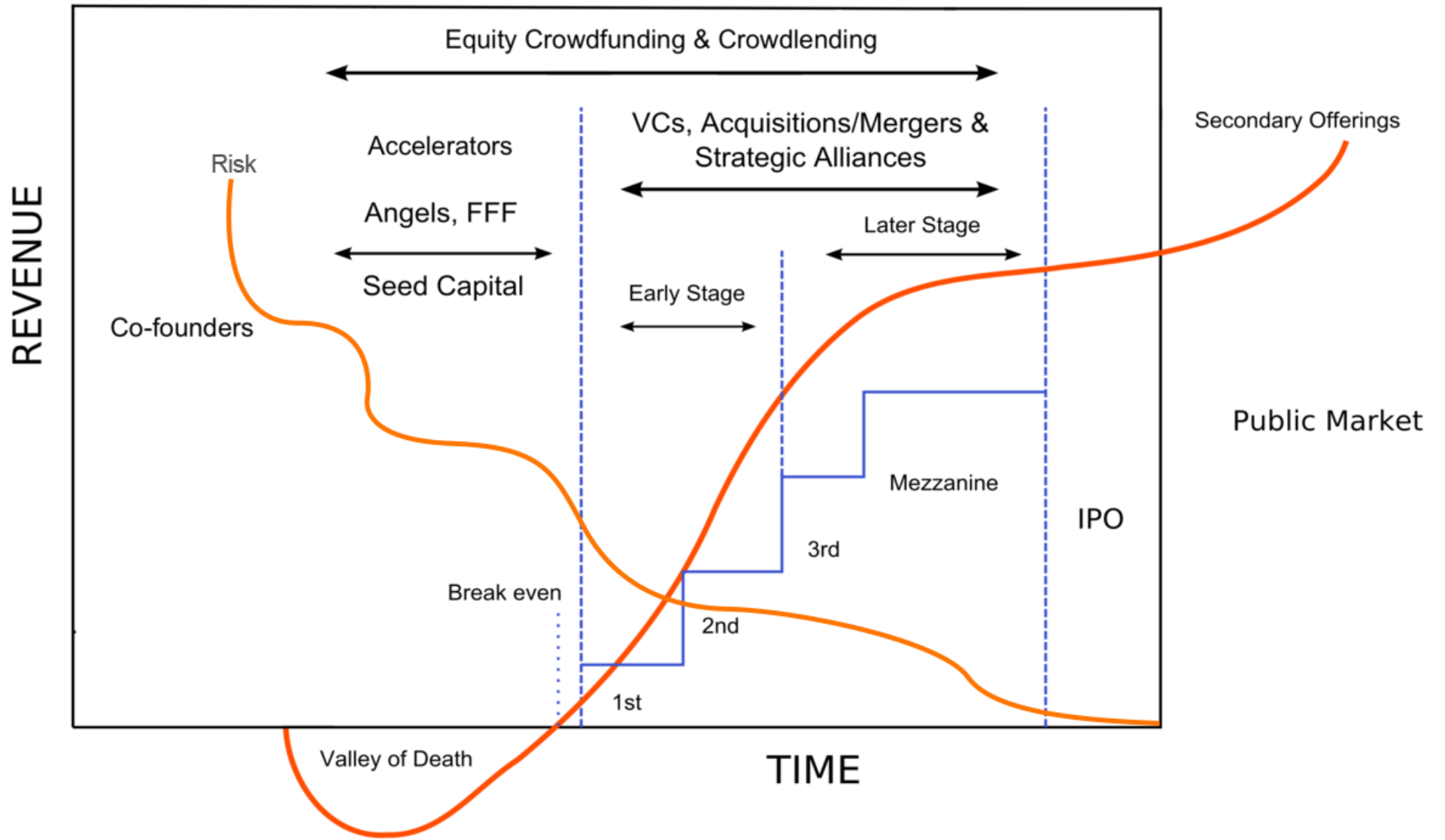
Possible Benefits to NewSpace Financing

By creating an international registry where interests in space assets can be recorded and perfected, the Space Protocol offers **increased security and confidence to lenders** to invest in the space industry. The fact that the Space Protocol additionally introduces a strong set of remedies in the case of a default further secures the investment and allows the creditors from across the world to invest capital in space assets.

The Space Protocol ensures that **a standard set of international rules apply to such secured transactions**. This ensures that the creditors do not have to vary of a multiplicity of rules when internationally investing in space industry projects. Moreover, this also ensures that the presence of the asset in space has no substantial legal bearing on the financing contract.

The primacy and safety of their interests in space assets, alongside the application of a strong system of remedies makes asset financing an attractive option for investors looking to contribute capital to the space industry. Moreover, the provisions also ensure that **future creditors within the same asset can also easily search the online registry to ensure that their investments are free of already existing third party interests**.

Startup Financing Cycle



Note: Risk line is not plotted consistent with revenue – risk decreases as revenue increases

Conclusion

With many NewSpace companies being unable to get access to the typical forms of space financing, especially at later stages in their development, **the ability to leverage assets in exchange for favourable lending terms may prove to be very important to allow companies within the NewSpace sector to get access to capital.** Furthermore, as most start-ups only have their idea or asset to leverage, and set as collateral, **it allows companies to rely upon their work and technology to secure financing as opposed to divesting their stocks or securing loans with very high interest rates.** This offers many benefits to NewSpace companies, and entrants into the space industry from developing countries who have trouble accessing the traditional types of funding available for space related ventures.

The use of new technologies within NewSpace results in the production of innovative products meant for use in outer space, most of which may fall within the broad definition of 'space asset' noted in the Space Protocol, this allows these innovative technologies to be the sole basis for attaining finance as opposed to having to rely upon creditworthiness which at times may not be present due to the volatile and high-risk nature of spatial projects and the inherent characteristics of new business entrants within any industry.

Conclusion

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**.

To facilitate this growth and allow for access to space to be open to all sorts of companies from developing and developed States, it is important to allow access to finance to companies of all sizes and capacities. The Space Protocol seeks to do this by allowing for **capital to be injected into a company based primarily upon its work**.

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.

At present, UNIDROIT is working towards finalisation of the framework for the operation of the International Registry. Ratification by States will allow the Space Protocol to start benefitting the space industry as it was originally drafted to do so.



**Thank you for your attention
Any Questions?**

h.hameed@unidroit.org

[@hamzahameed007](https://twitter.com/hamzahameed007)