

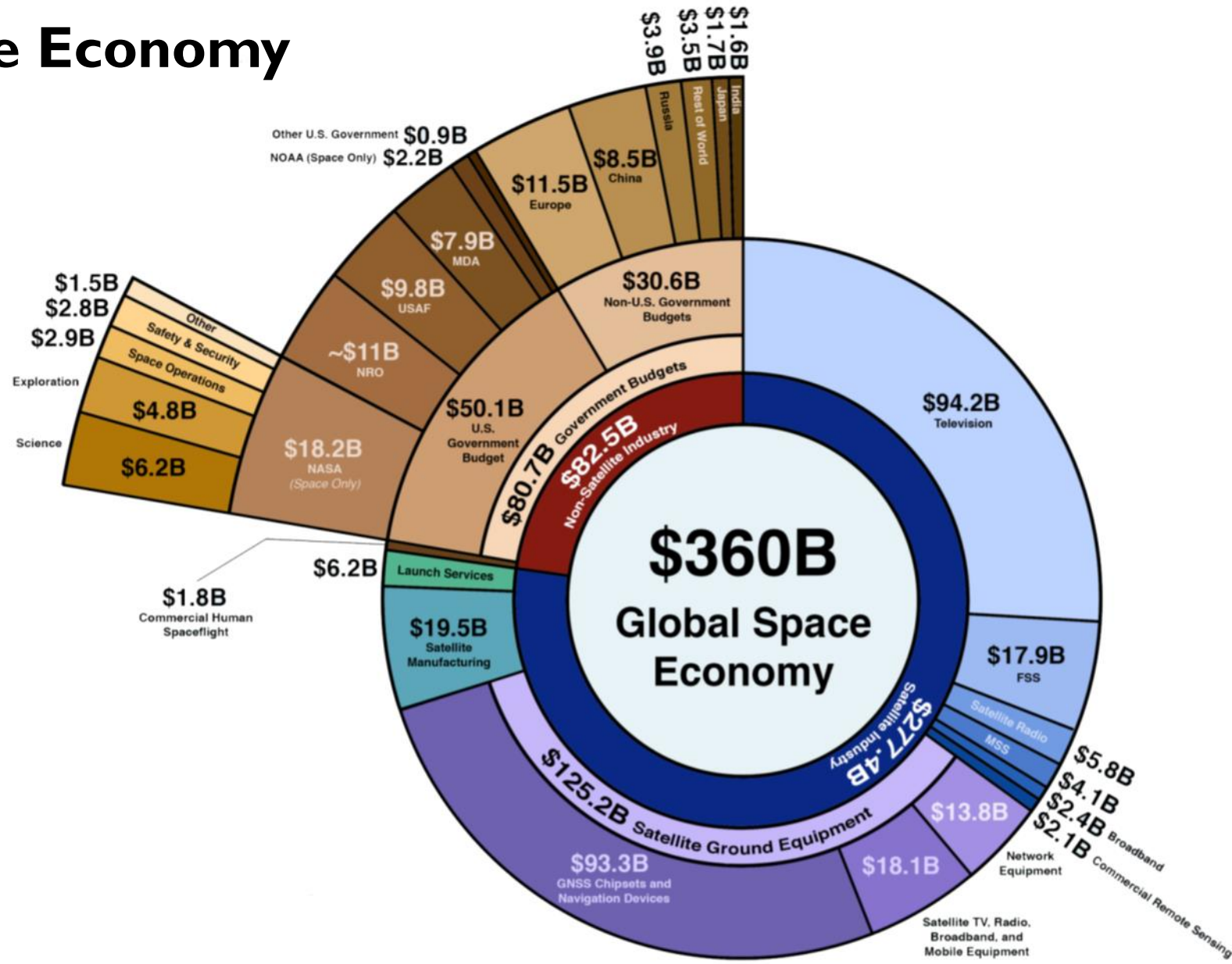
Asset-based Financing in the Space Industry

**Harmonised system of secured transactions law for space assets:
The Space Protocol of the Cape Town Convention**

United Nations/Turkey/APSCO Conference on Space Law and Policy
Istanbul, Turkey, 23 - 26 September 2019

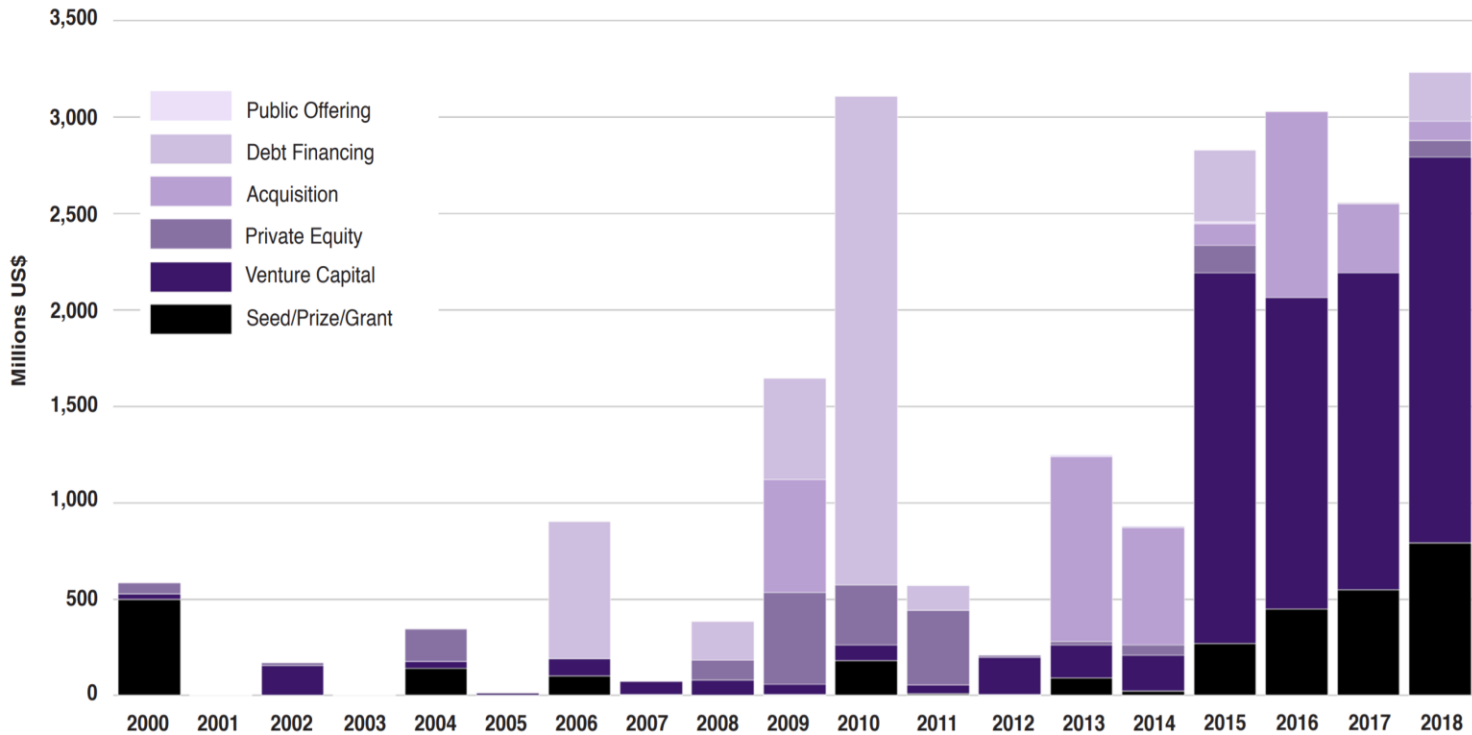
**Hamza Hameed
UNIDROIT**

The Space Economy



Source: Bryce Space Report on: 2019 State of Satellite Industry

Types of private investment in the space sector

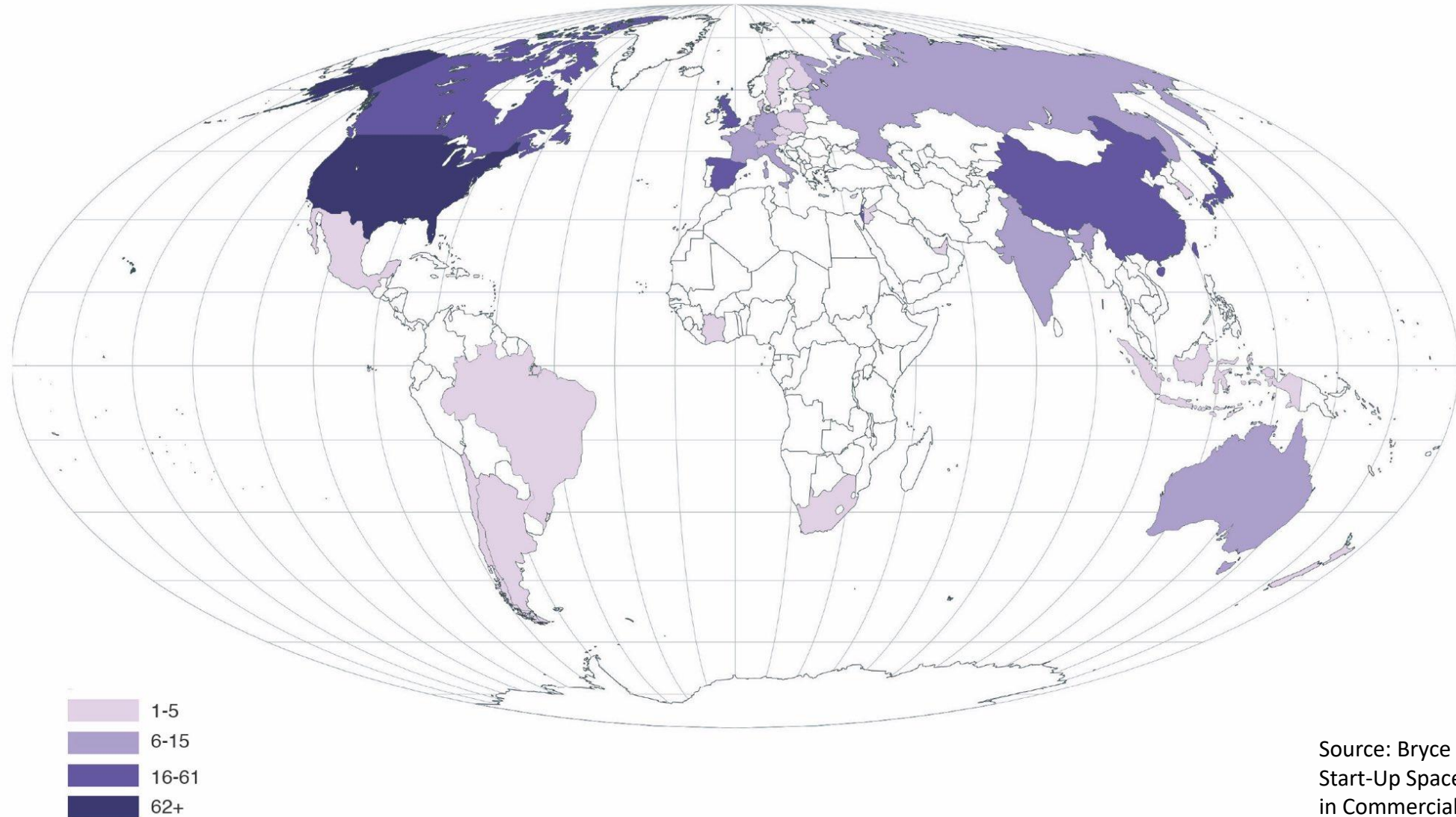


Investment Type	2000-2006 (millions)	2007-2012 (millions)	2013-2018 (millions)	Total 2000-2018 (millions)
Seed/Prize/Grant	\$742.0	\$201.9	\$2,170.3	\$3,114.2
Venture Capital	\$327.9	\$519.6	\$7,543.5	\$8,390.9
Private Equity	\$234.2	\$1,300.8	\$301.0	\$1,835.9
Acquisition	\$0.0	\$584.0	\$3,098.3	\$3,682.3
Public Offering	\$0.0	\$0.0	\$23.4	\$23.4
Total Investment	\$1,304.1	\$2,606.3	\$13,136.4	\$17,046.8
Debt Financing	\$710.0	\$3,388.4	\$637.8	\$4,736.2
Total with Debt	\$2,014.1	\$5,994.6	\$13,774.2	\$21,782.9

Source: Bryce Space Report on Start-Up Space: Update on Investment in Commercial Space Ventures 2019



Where private space investors come from?

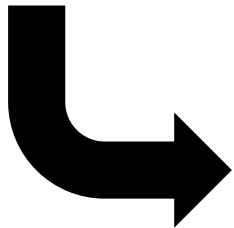


Source: Bryce Space Report on Start-Up Space: Update on Investment in Commercial Space Ventures 2019

The rise of NewSpace

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.

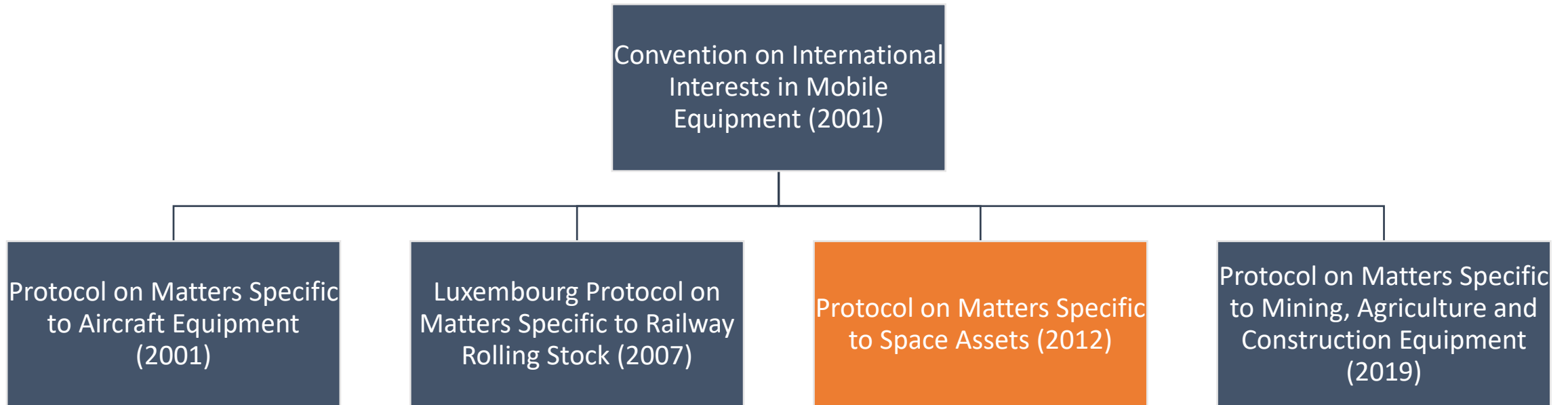


- Traditionally, the space industry has comprised of triple-A rated companies which have relatively easy access to capital due to their financial stability and creditworthiness.
- Companies which have relied on obtaining either equity or project finance from lenders at an acceptable rate keeping their 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

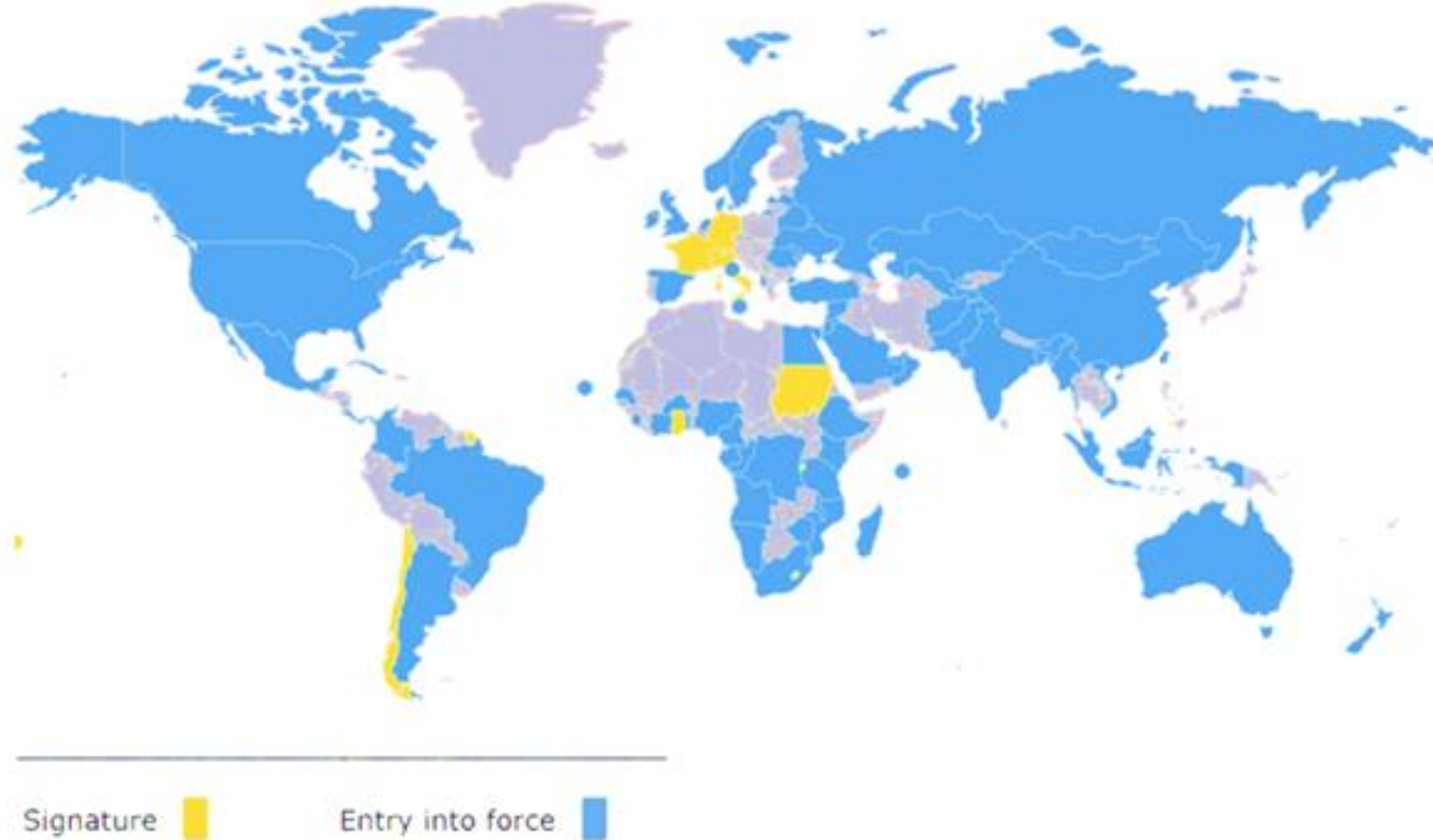
The Cape Town Convention treaty system's primary aim is to facilitate asset-based financing and leasing for specific types of high value, mobile, and uniquely identifiable pieces of equipment.

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 79 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 76 contracting states.



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.

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.

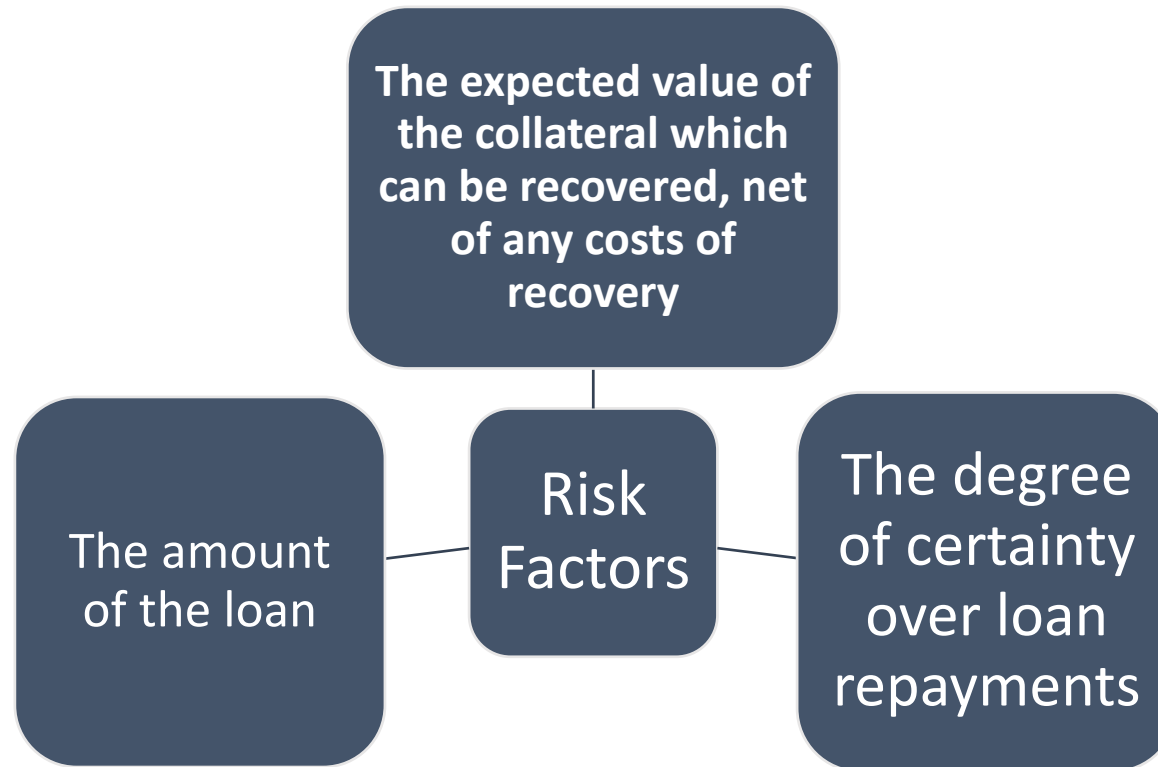
What is the Space Protocol

- 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 effect the existing treaties governing State rights and obligations in outer space.
- The Space Protocol **enhances legal predictability** in financing transactions regarding space assets, 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.

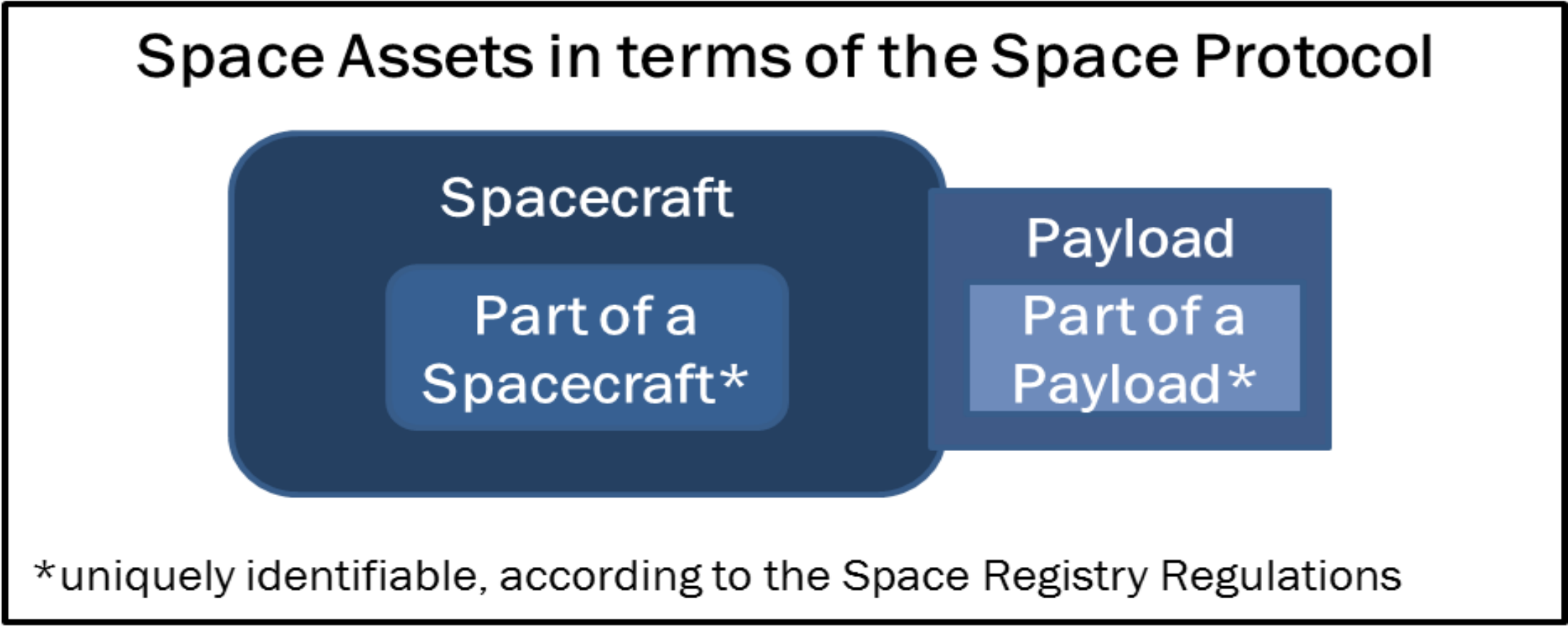
What is the Space Protocol

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

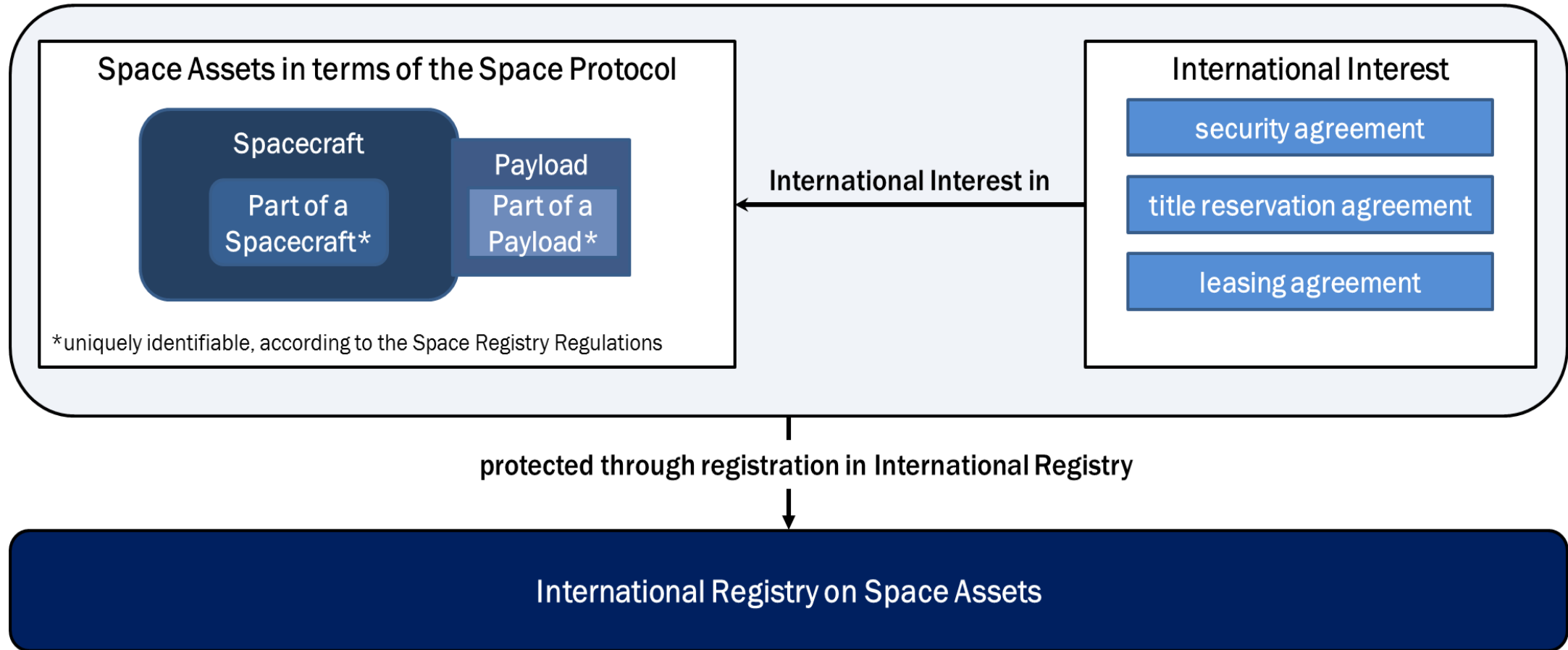
The Space Protocol impacts on the 'collateral value' factor by seeking to increase the expected value of the recovered asset, firstly by **making recovery more certain and quicker** and secondly **by allowing the creditor to realise that asset value by redeploying it wherever there is demand**.



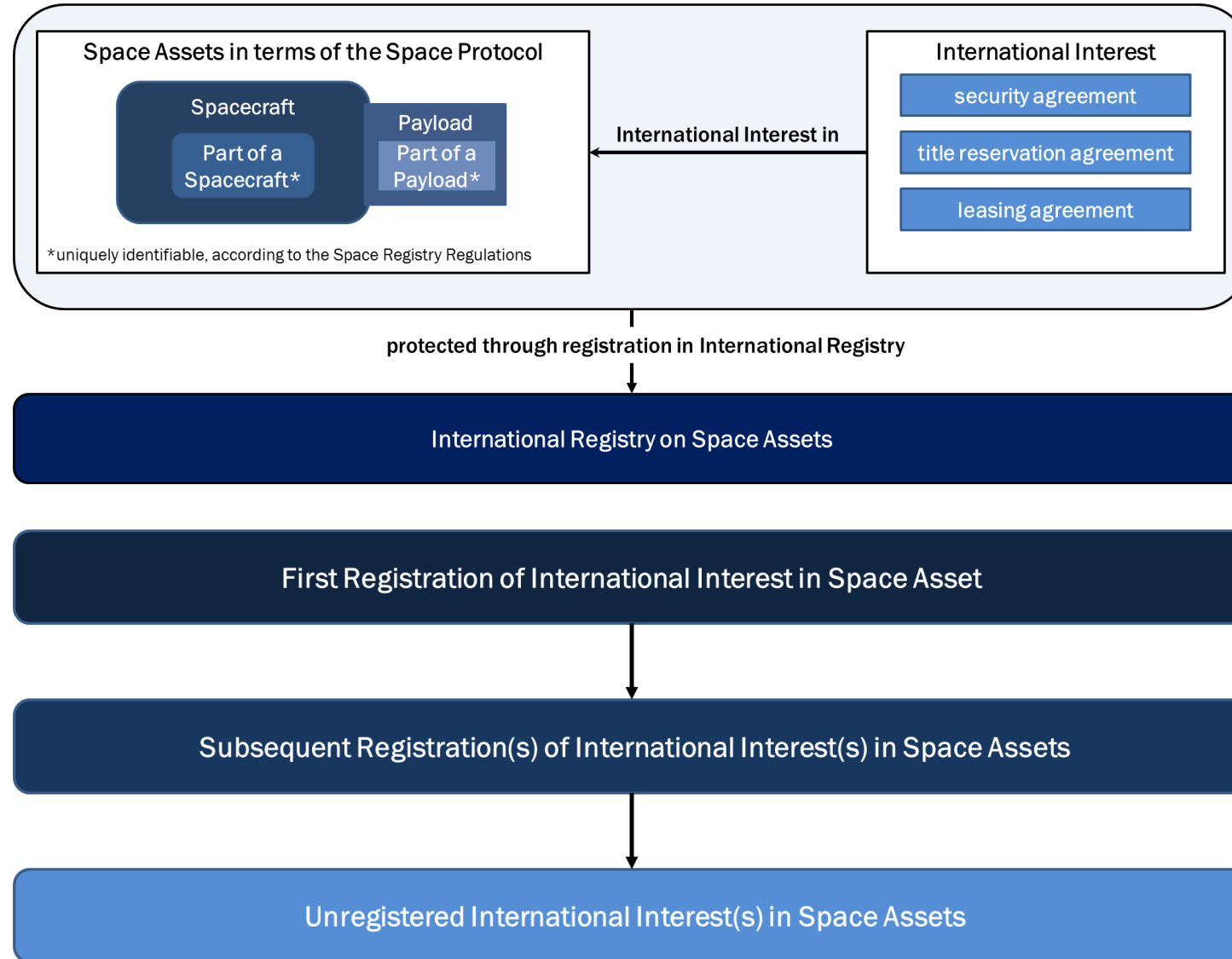
Scope of the Protocol (Article II (2))



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 Space 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 any space asset (encryption keys which give control over the satellites).

Article XIX of the Space Protocol allows the parties to specifically agree to the placement of TT&C and related data and materials with a third party so that the creditor may establish control over or operate the space asset upon debtor default..

As a safeguard, however, laws and regulations of Contracting States may prohibit, restrict, or attach conditions to the placement of TT&C 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. 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.

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.

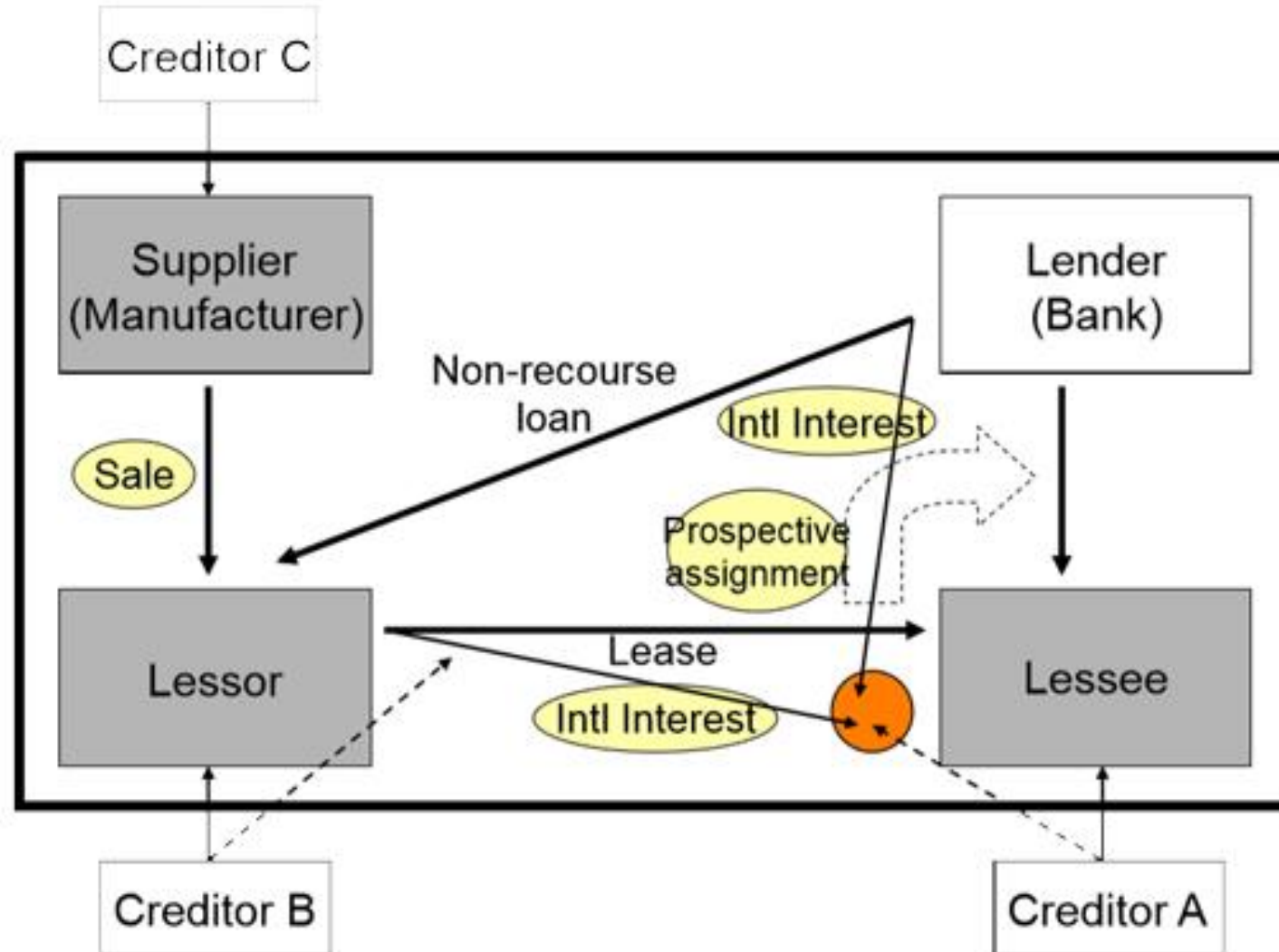
The creditor’s consent is not required to register a public service notice, however, since the debtor will be party to the public service contract, the creditor will be able to make a contractual provision restricting the debtor’s right to consent to the registration of a public service notice. Upon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

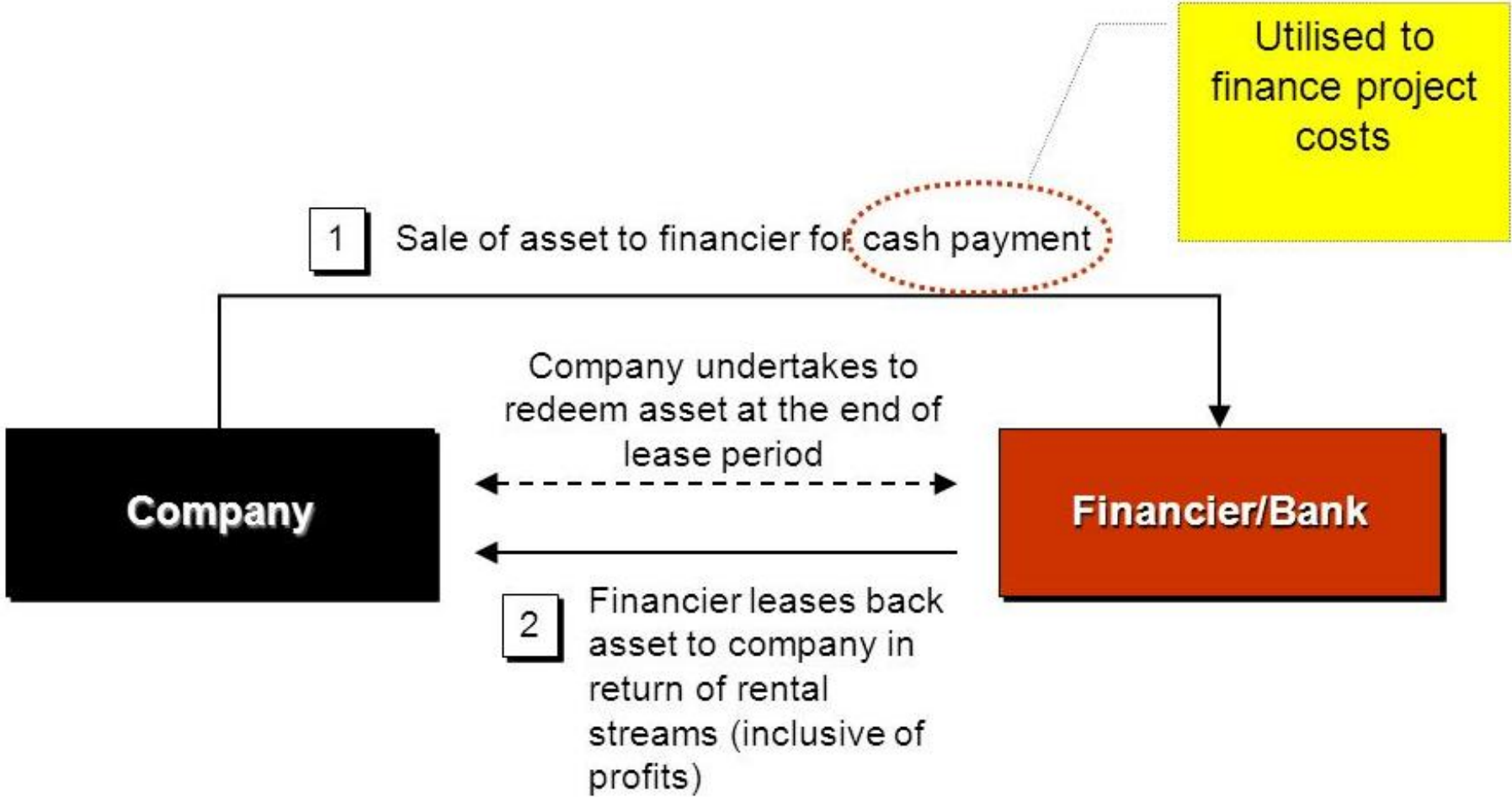
Article XXVII(9) provides an exception to suspension of remedies under a public service notice, in the unusual circumstances that:

- (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.

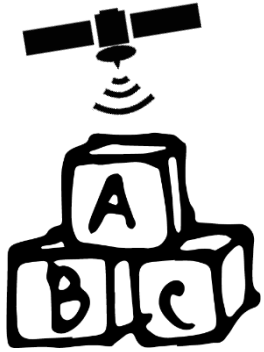
Example transactional structure (I)



Example transactional structure (2)



Hypothetical



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 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.

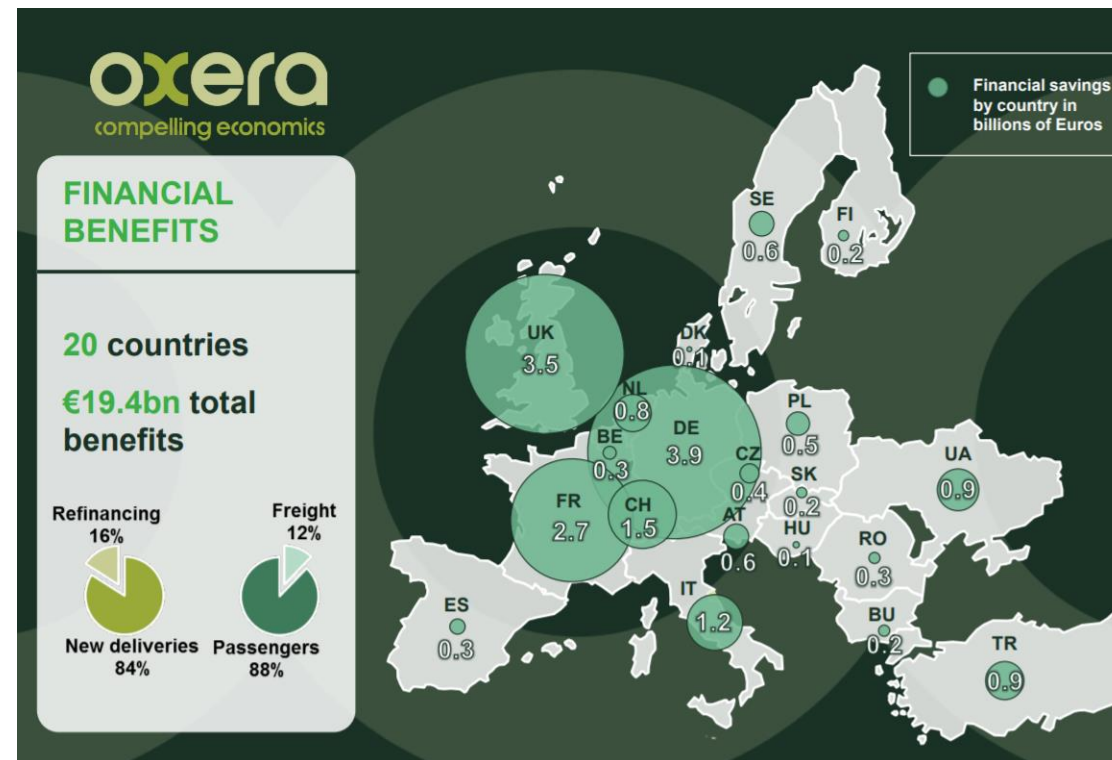
XYZ Bank may take control through the documentation and data to be provided by ABC, namely including TT&C command codes and operational procedures, and by taking operational services from commercial ground control service providers or by terminating the debtor's right of use on a contractual basis.

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.

Economic Benefits 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**.
- Presently there are over **250,000 international interests** created, and over **1 Million registrations** in the International Registry against more than **250,000 aircraft objects**.
- An economic assessment of 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 of the Space Protocol 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-based financing allows companies to **leverage their assets** and **attain finance by giving creditors’ rights in those assets**. The benefit of asset-based 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.

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.

Idea

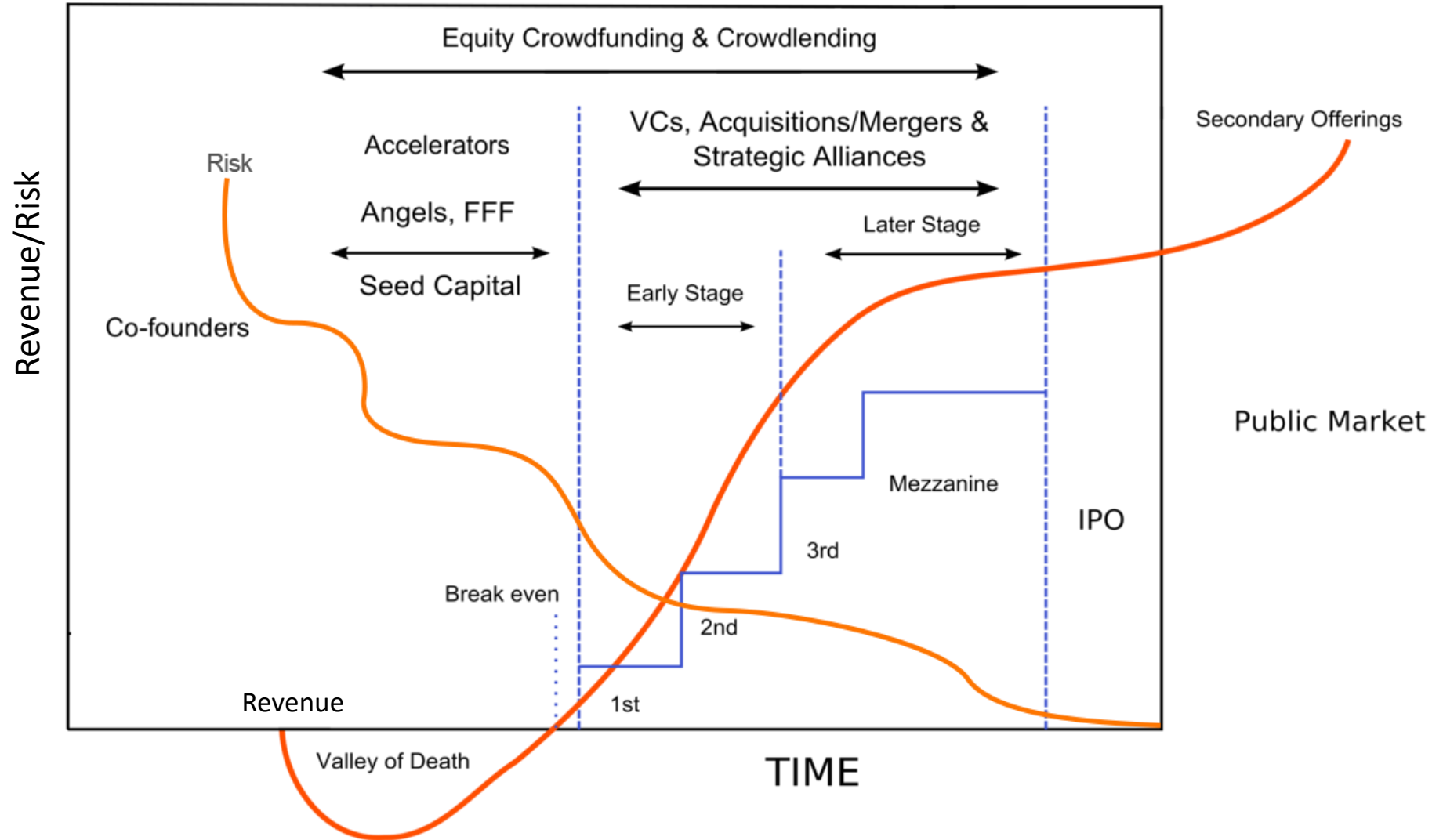
Development

Testing

Deployment

Operational

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 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.**

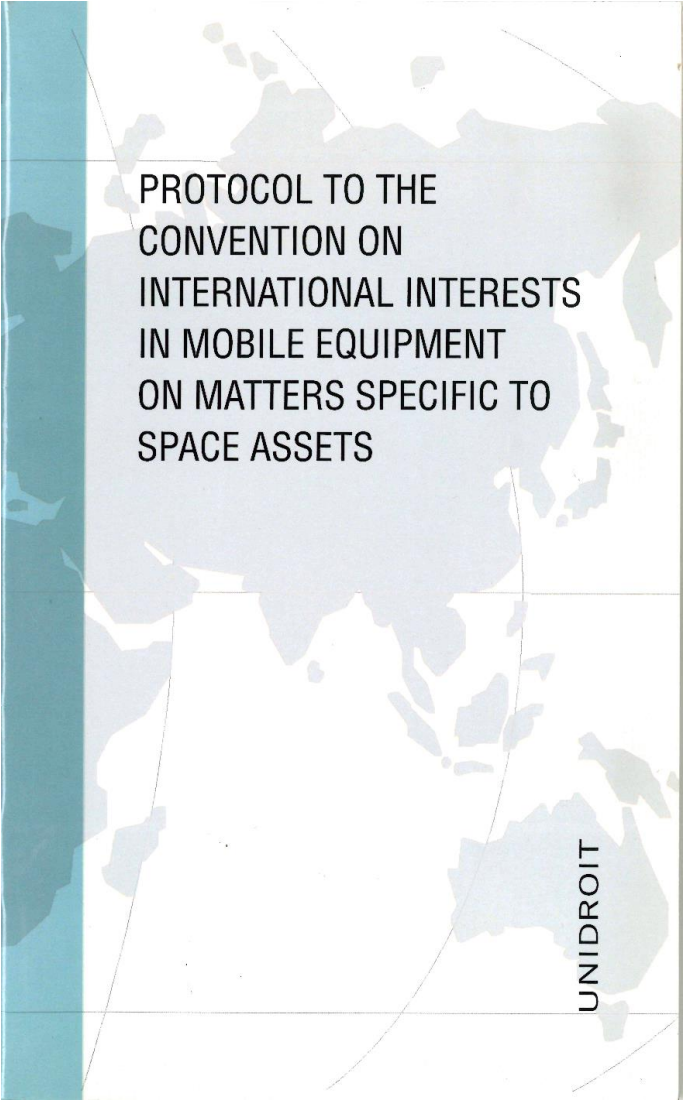
Prior to the Space Protocol, there existed no international legal framework providing for asset-based financing within the space industry. To assist in the development of the space industry, **an efficient international regime needed to be developed and this is exactly what the Space Protocol provides.**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

Way forward

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

We are closely working with Governments, International Organisations, Experts, and Industry to increase the understanding, and use of asset-based financing in the space industry.

Ratification by States, and greater involvement by industry will allow the Space Protocol to start benefitting the global space economy, and creating a more inclusive space industry, as it was originally drafted to do so.





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

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