

# NewSpace, Old Rules: An Empirical Approach to Understanding the Needs of Young Space Businesses in Relation to Current Space Regulation

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## Abstract

In this paper, we examine the relationship between space business, innovation and regulation by evaluating the driving factors behind each of them and investigating the perceptions and requirements of young companies in the space market. This study sheds light on current trends among new space businesses and their evaluation of current regulatory frameworks. Based on 50 concluded interviews with founders and executives of small and start-up space companies 18 countries worldwide, it was found that a significant proportion of the respondents found the current regulation of space technology frustrating and a large group of interviewees underestimated the amount of 'red-tape' and the expenses associated with navigating the legal landscape of space. Based on our findings, we will make actionable recommendations on the adaptation of legal training, law making and consulting for actors in the NewSpace industry to better facilitate the development of their innovative space technologies.

**Keywords:** NewSpace; Start-ups; Regulation; Legal Services, Space Market; Space Technology.

## 1. Introduction

The space industry has been attractive to private actors since the early 1980s as a potential new frontier for commercial activity.<sup>1</sup> Currently, the

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1 F. Tronchetti, *Fundamentals of Space Law and Policy*, Springer, New York (2013) 61-62.

involvement of non-governmental entities in space activities is growing exponentially and, accordingly, industry and policy makers must assess the suitability of the regulatory environment for private space activities, including whether it properly facilitates the establishment and growth of new start-up commercial entities.

It is a common thread in the preceding literature that, for the NewSpace economy and the young entrepreneurs who try to compete in this sector, an establishment of or changes to the international and national legal instruments is a requirement. The international regulatory environment of the space sector was designed predominantly as a security instrument for the powers of the Cold War period and, therefore, makes little effort to adequately accommodate private entities, let alone industry start-ups and their respective nascent technologies. National law, implementing substantive regulation with regards to space activities, has only been enacted in a handful of states and is often piecemeal in its application.

This paper will explore the current trends among new businesses in the space market and their evaluation of present regulatory frameworks in order to highlight the need to create a set of rules able to facilitate the access of young companies in the space sector.

This paper will first analyse the perceptions of the public and academia with regards to space to better contextualise the perspective of entrepreneurs in the space industry. It will then present empirical research from the start-ups themselves. Our investigation is based on data gathered from 50 live interviews with founders and executives of small and start-up space companies from 18 different countries. In this section, we will outline the insights and conclusions offered from our start-up participants, evaluate the impediments experienced or perceived by the participants in their access to the space market, and aim to pinpoint what legal rules and contexts translate into the commercial disincentive for these entrepreneurs. The paper concludes with some recommendations for the optimisation of the regulatory environment for space activities to facilitate the entry and full operation of new players.

## **2. Perceptions of the Space Industry**

### **2.1. The Public Perspective**

The participation of entrepreneurs in space activities is dependent on a number of factors, including the technological, regulatory and social circumstances of the country in which the private entity has chosen to operate. Often, the necessary social circumstances are assumed by commentators and the literature has tended to neglect the discussion of the social sphere and its interactions with the space economy. However, when civil society is mobilised, it has the capacity to influence political agendas and the actions of businesses, and is therefore a key driving force in the establishment and maintenance of healthy national space ecosystems.

In the American context, it is generally believed that public support for the space industry wavered after a “Golden Age” of space exploration in the 1960s and 70s. However, as Launius describes, public support for NASA and the wider space industry has remained consistently favourable at around 70%.<sup>2</sup> Indeed, this general public support for government spending on space also exists in the European context according to research conducted by Detsis and Detsis.<sup>3</sup> Whilst in the Asian context the link between space exploration and socio-economic benefits holds less political influence, there are signs of improvement as documented by Ansdell et al with the recent space missions by India and China.<sup>4</sup>

Whilst public support has the capacity to provide an impetus for the funding and creation of national space programs, it also has the capacity to introduce a more favourable regulatory environment for entrants to the NewSpace economy. However, there must at least be a basic degree of knowledge and insight with regards to the space industry which Launius found to be lacking. This requirement will be discussed further in the section titled ‘*Recommendations*’.

## 2.2. The Academic Perspective

Of course, not only does society have influence over the trajectory of space funding and regulation, but the perspective of academics and specialists in the industry also hold weight in their ability to influence government actors. For the purposes of our research, the view of specialists was essential to understanding the experiences of entrepreneurs within the context of public policy and that specific NewSpace actor's regulatory environment.

The previous literature on the topic of space regulation specifically has focused on to what extent the subjugation of commercial entities to their state counterparts through Article VI of the Outer Space Treaty 1967, and other provisions of public international space law, act to the detriment of new commercial space actors. Numerous scholars submit that the OST's requirement of appropriate national regulation, including a suitable regulatory framework for the supervision and control of commercial entities, has not been fully realised and lets down international space start-ups from the offset. Indeed, as Von der Dunk highlights, only 19 states in total have enacted comprehensive national space laws which meet the requirements of the treaties.<sup>5</sup> Therefore, for an emerging space start-up outside of these

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2 R.D. Launius, *Public Opinion Polls and Perceptions of US Human Spaceflight*, Space Pol. 19(3) (2003) 163-175.

3 M. Ansdell, L. Delgado Lopez, D. Hendrickson, *Analyzing the Development Paths of Emerging Space Nations: Opportunities or Challenge for Space Sustainability?* (2011) Secure World Foundation, 3.

4 B. Detsis, E. Detsis, *The Benefits Brought by Space - General Public Versus Space Agencies Perspectives*, Acta Astronaut. 88 (2013) 129-137.

5 F. von der Dunk, *An Advanced Introduction to Space Law* (Elgar, 2019) 118.

territories, the lack of national space law realising the provisions of public international space law provides an impetus to either register in another state (with all the ‘flags of convenience’ problems that this raises) or suffer the financial and bureaucratic ambiguity that comes with their territory.

Moreover, there is a strong academic consensus that elements of international space law operate to the detriment of some specific NewSpace actors. For example, the burgeoning small satellite industry is said to be sensitive to both delimitation issues between air and outer space and the lack of consensus surrounding space debris mitigation,<sup>6</sup> commercial space resource utilisation projects must well define their uses and resources to avoid frustrating some innate elements of international space law<sup>7</sup> and debris remediation industries are tangled in a continuing ownership problem.<sup>8</sup> These industries represent the future of commercial space initiatives and, if meritorious private entities are impeded from the start, questions must be raised around whether the instruments of space law are fit for the purpose they serve.

Whilst, as Hobe highlights with regards to space, it is impossible, and even undesirable, to develop a framework that caters for all the future possibilities of space technology due to the risks of stifling innovation,<sup>9</sup> the pendulum swings both ways in that the uncertainty fostered by open-ended regulation has a disincentivising effect on business. Therefore, at least according to academia, it seems a pragmatic approach is needed by regulators to rectify the elements of space law which act to the detriment of specific NewSpace initiatives.

Our research seeks to test this academic consensus by interviewing the emerging space actors themselves, understanding the perceived impediments to space industry access, and then recommend industry-wide adaptations to better enable these innovators to operate.

### **3. Empirical Study Background and Methodology**

#### **3.1. Data Collected**

For the purposes of this study we conducted online semi-structured interviews with founders of 50 space start-ups, based in 18 countries.<sup>10</sup> The total revenue of all companies represented in the study was estimated to be

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6 B. Cheng, *Studies in International Space Law* (Clarendon Press, 1997) 467.

7 F. Tronchetti, *Legal aspects of space resource utilization* ELEC D 260 (2015); in von der Dunk, *F Handbook of Space Law* (Edward Elgar Publishing 2015) 76.

8 B. Weeden, *Overview of The Legal and Policy Challenges of Orbital Debris Removal* 27 *Space Policy* 1 (2011) 41.

9 S. Hobe, *The Impact of New Developments on International Space Law* (New Actors, Commercialisation, Privatisation, Increase in the Number of Space-Faring Nations), 15 *Unif. L. Rev.* 869 (2010) 880.

10 List of countries: Brazil, Bulgaria, Canada, England, Finland, Germany, Greece, Hungary, India, Iran, Mexico, The Netherlands, Poland, Singapore, Scotland, Sweden, The Netherlands, United States of America.

around \$76 million, equalling roughly 1.33%<sup>11</sup> of the global investment in space start-ups.<sup>12</sup> The nationality of the participant was not taken into account when conducting the interviews and cultural differences in the background of the participants were not accounted for in this research.

The predominant educational and professional background of the participants was engineering, accounting for 69% of all participants. The alternative backgrounds presented were science (15%), business and management (15%) and “any other background” (1%). 59% of the participants were already working in the space industry in some capacity before starting their own companies. 21% of the interviewees considered themselves “serial entrepreneurs” and were running more than one company at a time.

### **3.2. Analysis Methods**

The participants were asked a set of questions relating to their personal experiences as entrepreneurs in the space industry. The questionnaire contained topics such as background, idea formulation, budgeting, investment plans and perspectives on the current state of the industry. Whilst the initial intention of the study was to provide a picture of the average space entrepreneur and advise on business planning for aspiring space founders, certain trends emerged in the interviews that raised our interests in the implications of space regulation on future private space activities.

The interviews were analysed using qualitative methods attempting to uncover and track patterns regarding the regulation of space activities and their relationship with starting businesses and their finances.

## **4. Findings**

The vast majority of respondents named time as the most frustrating factor, specifically the time it takes to process certain paperwork. As noted above, the majority of the participants came from a technical background which decreased their ability to understand and interpret legal documents and terminology. As expected, their academic or professional training was profoundly different from what is required of them in order to secure the legal compliance of their businesses and technologies. This is seemingly the overall entrepreneurial landscape, with the majority of jobs being held by technical personnel and engineering specialists. Further analysis of the interviews established that those founders coming from technical fields into the sphere of business couldn't be expected to be well versed in all business aspects, and even more so in legal jargon.

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11 Bryce Space and Technology, ‘Startup Space: Update on Investment in Commercial Space Ventures’ (2019).

12 It is important to mention that out of the total global investment in commercial space ventures, which was estimated to be \$5.7 billion in 2019, a little over 52% has been invested in SpaceX and OneWeb.

Another of the main struggles that participants identified was the complexity of legal regulations. Starting from trivial matters like tax and registering a limited company all the way to international regulation and multilateral agreements, the perception that the law is against or lagging behind their endeavours was identified as predominant in almost all interviews.

Notwithstanding the general sense of desperation that most respondents expressed, those coming into the space industry with previous business experience seemed better equipped to tackle legal challenges attached to the space industry and their specific companies and projects. In almost half of the interviews, participants agreed that ideally a good start-up team should consist of a good technical lead and someone who has already walked the entrepreneurial path so they can handle any negotiation and administrative matters when the need arises.

#### **4.1. Lack of Accessible Information**

When asked if they have budgeted for lawyers, the majority of respondents stated that they tried to handle legal matters on their own initially, and only about 19% confirmed that they have contacted legal specialists. The main reason for avoiding hiring a lawyer was established to be the cost. Founders of start-up companies often work for other companies when starting their businesses and they are very likely to want to save money for the long run.

What was found based on the interviews is that, whenever these founders search for any legal information online, they tend to become even more confused given the lack of repositories or online libraries specifically targeted at space companies. This is in opposition to the technical side of a space business, where those researching a question are more likely to find synthesised information in one place. One respondent stressed the importance of having clearly indexed information by stating that they just “*opened an online library and read the technical papers*” before designing their prototype. When asked where they found their practical information about regulation of their satellite propulsion technology, the interviewed founder said they were not able to find anything online that carried a particular meaning.

This phenomenon is not entirely unpredictable, of course. Regulation often varies on local and international level and laws aren't always translated into languages that the respondents speak. In an international context, a whole team of lawyers sometimes must be brought together to tackle one single issue, and the interpretation of certain rules may vary depending on their training, legal traditions and professional background.

Another frustrating factor the entrepreneurs we interviewed often mentioned is the lack of general information about how to properly structure and run a business in the most simple sense. Sometimes, their worries were not directly related to space regulation as such but more practical matters of how they would be compensated for their work on their own company.

#### **4.2. Lack of Harmonisation**

Further to the significant discrepancies in local and international laws, there is a certain need to bring together international regulation and intra-agency dealings which will ultimately facilitate the development of NewSpace technologies and their timely market launches. When discussing their frustrations with the lack of consistency in regulations, the respondents expressed further dissatisfaction of how it influences the time it takes for them to launch their products on the market.

Sometimes discrepancies in legislation are evidenced in all jurisdictions and especially in emerging space nations which are catching up with legislating for space activities on a national level. The time it takes to pass a certain law, its implementation and practical applications catch businesses by surprise. A general understanding of the difficulties that underpin the lack of a harmonious legal system for space was expressed by multiple respondents in the research. Some of them acknowledged the needs for regulation at all levels due to security considerations and governmental involvement. The political context of space operations was also discussed by many participants as this is often one of the pre-requisites of running a business in a borderless area. Nonetheless, understanding alone was not enough for most participants to justify the hurdles they often need to overcome in order to run their businesses. The need for enhancing and organising better space regulation was stressed by virtually all respondents.

As discussed, there is a certain stereotype that lawyers and legislators are often lagging behind tech companies and entrepreneurs, something that is not supported only by anecdotal evidence. When reading through the interviews it became evident that the legal regulation of space is often frustrating and confusing for founders and operatives. Sometimes technology moves faster than regulation and, unfortunately, this is not a new phenomenon. A combination of these factors along with the complexities of space financing and investment resulted in significant delays in launching a product to the market, creating revenue and ultimately applying the innovative technologies these NewSpace companies created.

#### **5. Importance of the NewSpace Players' Perceptions of Space Regulation**

Whilst it is understood that local and global space policy and law do not depend only on the interests of private enterprises, the economic significance of the NewSpace movement cannot be ignored or denied. The trend of increasing investment and financial benefit coming from smaller space companies is continuing to influence the market and shows no signs of slowing down. The flexible opportunity to run a small business in a highly technological sphere like space has given access to many new and innovative ideas to take off the ground.

An important discussion is what can be done to support this growth and ensure its sustainability in the long run. As some of our respondents noticed, sometimes “red tape” is necessary to ensure the highest level of national security, however, it is often perceived that there are rules and regulations that serve no practical purpose and thus hinder faster development of crucial technology.

Furthermore, public policy consultations often do not reach small business owners and their voices are not heard when performing the necessary checks and balances for new regulations to be pushed forward. Space makes no exception. If lawmakers are serious about stimulating a sustainable global space economy, the respective rules and regulations must be adapted to cater for everyone entering the market - governmental bodies, multinationals, space agencies and small local businesses. At the moment, as observed in the literature review and according to the responses of our interviewees this is certainly not the case.

There are, of course, many positive examples of inclusive policy and lawmaking as well as business and citizen initiatives that help tackle the legal discrepancies and shortcomings of space regulation.

New space legislation is coming into force on the domestic level regularly and more and more states choose to regulate the field with specific provisions corresponding to the elements of the space industry. Some new regulations, however, have been commented to restrict investment opportunities in commercial space start-ups<sup>13</sup> whilst others have been praised for their innovative approach to practical matters such as dispute resolution.<sup>14</sup>

Taking into consideration our findings from the empirical research we conducted, the next part of this paper will examine some of these examples in the context of NewSpace business.

## **6. Recommendations**

NewSpace actors are an important source of innovation for the space sector, and our research suggests that more support is needed. We have identified a number of aspects that deserve attention, the implementation of which could be the key to structuring an inclusive space market which will support the development of young businesses.

### **6.1. The Adaptation of Legal Training**

Proper legal assistance, which helps companies to navigate their bureaucracy and the regulatory environment of space correctly, is essential for the effective development of a start-up or small business.

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<sup>13</sup> *Supra* n. 11.

<sup>14</sup> Agence France Presse, ScienceAlert.com, 21 February 2021 <https://www.sciencealert.com/dubai-announce-it-will-create-a-space-court-for-settling-off-earth-disputes> (accessed 1 June 2021).



The space sector is a multidisciplinary sector, with a wealth of professions needed to build and sustain healthy space ecosystems. This in turn requires a more comprehensive understanding of the peculiarities of the space market from legal professionals. Indeed, the entrepreneurs we interviewed clearly expressed their dissatisfaction with the gap that exists between the legal services industry and the actual dynamics of activities in the space sector, a lack of synergy that results in a loss of entrepreneurial skills and time.

A good starting point to bridge this gap would be to act directly on lawyer training, with clinical modules in law schools that work with innovators and focus on creating lawyers who are better suited to entrepreneurial environments.<sup>15</sup> Moreover, the process of entrepreneurship should be introduced more explicitly into law school curriculums and wider extra-curricular programs offered in a way that enhances a lawyer's understanding of the complementarity between legislation and entrepreneurship. Building in these modules and courses to law school curriculums allows future lawyers to appreciate the difficulties of the entrepreneur, to better guide start-ups and small businesses through the regulatory hurdles associated with space activities.

What is desirable is the appreciation of start-ups as key stakeholders who deserve to be heard by lawyers, regulators and policy makers in the structuring of the dynamics of space trade. As described in our research, this has not always been a fact.

## **6.2. A Focus on Digitisation**

Another means of facilitating new private actors in the space industry might be the digitization of legal services, restructuring the way in which legal services are traditionally offered from a rigid lawyer-client relationship to one focused on dynamism and the best means of assistance.

The legal services industry has already witnessed a significant digitisation in due diligence, contract review, legal research and document automation, while tools like intranet-based collaborative platforms are becoming increasingly sophisticated. The use of these technologies permits space start-ups some autonomy in the regulatory process, especially in the initial phase of their development, making them more aware of the correct bureaucratic paths to follow in the conduct of their activities and less dependent on law firms. In fact, by automating processes that do not require the direct intervention of a lawyer, the costs charged to the customer are reduced, making them more accessible to new entrepreneurs who bear significant costs in starting up their businesses.

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15 M. Suchman, *The Contracting Universe: Law Firms, Venture Capital Funds and Institutionalization of New-Company Financing in Silicon Valley*, Working Paper, University of Wisconsin -- Madison (1995) 970.

### 6.3. Law Making: The Benefits of Soft Law

It is useful to make some observations on the benefits that regulation can bring to the needs of new players in the space market and identify which regulatory options are most responsive to their entry and survival. A brief historical overview of the evolution of legislative methods will follow.

From the very beginning, the international community was aware of the urgency of identifying appropriate rules and principles that could govern and adapt to the peculiarities of the space environment and activities carried out within it.<sup>16</sup> The chosen instrument for pursuing this goal was the United Nations and thus, in 1958, shortly after the launch of the first artificial satellite, the General Assembly adopted Resolution 1348 (XIII) and established an ad hoc Committee (Committee on the Peaceful Uses of Outer Space; COPUOS) with the aim of organising international cooperation in this area, ensuring the peaceful use of space and preventing legal problems which might have arisen in the development of space programmes by nation states. The approach chosen by States for the initial development of space law was to establish a body of non-binding principles and subsequently incorporate them into the treaties. Therefore, the General Assembly adopted the first resolution directly concerning space, the Declaration of Legal Principles governing States' activities in the exploration and use of Space,<sup>17</sup> then later incorporated into the first Outer Space Treaty in 1967 (OST). The agreement of the OST initiated the most prolific period of regulatory production, ranging from the mid-sixties to the early eighties. During this period, within the framework of COPUOS, five treaties were negotiated and entered into force, constituting the so-called *Corpus Juris Spatialis*.

At this stage, having already considered in the treaties the fundamental issues on which the States were prepared to assume international legal obligations, there was a deadlock in legislative production. Nevertheless, there was a pressing need to regulate more substantive sectors and categories of space activity, and an alternative form of regulating issues concerning the use of outer space was identified: the soft law. It was decided, in particular, to opt for the adoption of declarations of principles by the UNGA,<sup>18</sup> considered as a

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16 For an in-depth study on the subject, see: Hobe, S., *Historical Context of the Negotiations*, in Hobe, Schmidt-Tedd, Schrogl (ed.); Goh (assist. Ed.), *CoCoSL Cologne Commentary on Space Law*, Vol. 1, *Outer Space Treaty*, 2009, 3-4.

17 Resolution 1962 (XVIII), adopted on 13 December 1963.

18 Resolution No 37/92 (197) adopted on 10 December 1982 on the principles governing the use by States of artificial earth satellites for international direct television. Resolution No 41/65 of 3 December 1986, on Principles relating to the activity of Earth remote sensing from space; Resolution 47/68 of 14 December 1992 on the Principles relating to the Use of Nuclear Energy Sources in Space; Resolution 51/122, Declaration on International Cooperation in the Exploration and Use of Space for the Benefit and Interest of All States, taking particular account of the needs of developing States, adopted on 13 December 1996.

more appropriate solution for the future development of space law compared to treaty law.<sup>19</sup>

The law-making technique of soft law could be particularly suited to current market needs. It is well-known that the development of binding and comprehensive rules in this area is complex, especially from a political point of view, but it is nevertheless necessary to provide rapid responses to the needs of the market. In this respect, soft law, despite its obvious weaknesses such as its non-binding nature,<sup>20</sup> could be a valuable and adaptive regulatory tool.<sup>21</sup>

Perhaps the most interesting aspect of soft legal mechanisms is the possibility of implementing legislative-bureaucratic paths that are marked by flexibility and simplicity which can be adapted to the transnationality of space activities. From this point of view, it is worth considering the opportunities that soft law can present for optimising and simplifying the bureaucratic process that start-ups and small businesses must engage with before any space activities take place.

#### **6.4. Expanding Networking: Positive Examples From Around the World**

Another action that could support NewSpace companies is to encourage international partnerships among space agencies and companies, supporting collaboration between networks and industry and expanding on the current networks of bi- and multilateral agreements between countries and companies.

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19 For a deeper conversation, see: Terekhov, D. Andrei, UN General Assembly Resolutions and Outer Space Law, in Proceedings of the Fortieth Colloquium on the Law of Outer Space, 6-10 October 1997, Turin, pp. 97-105.

20 Monserrat Filho and A.F. Santos., Is There a Future for Space Law Beyond “Soft Law”?, IAC-10-E7.4.2, 61st International Astronautical Congress, Prague, Czech Republic, 27 September-1 October 2010.

21 As Monserrat and dos Santos have noted, “[...] in space law, soft law has played a singular and virtuous role as a recommendation, an orientation, a point of reference for voluntary conduct by the States and the international intergovernmental organizations”, in J. Monserrat Filho and A.F. Santos., Is There a Future for Space Law Beyond “Soft Law”?, IAC-10-E7.4.2, 61st International Astronautical Congress, Prague, Czech Republic, 27 September-1 October 2010.

In particular, its use seems useful to address the problem of regulating space activities with specific regard to the issue of space debris; already, there are ‘soft’ instruments attempting to do this including the UN Long Term Sustainability Guidelines For Outer Space Activities; Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space; IADC Space Debris Mitigation Guidelines; European Code of Conduct for Space Debris Mitigation; ISO Space Systems; ITU Recommendation. Although none of these documents are legally binding, it is customary to adhere to them. It must also take into account that these guidelines are an implementation of the provisions of the United Nations treaties and only develop principles on outer space and that most of the Governmental entities already abide by.

If it is true that international trade in general is characterised by interconnections between international economic operators and a dichotomy between national and transnational legislation, this is even more applicable when looking at the space market. This is why it is appropriate that young companies establish strong international partnerships, which can be an important resource allowing for the construction of an inclusive business and mutual support network with the ability to multiply the potential of each individual company and create new channels of information exchange.

There are various model examples of a multi-disciplinary regional network, and a few will be offered below which offer support projects for young space entrepreneurs.

### **6.5. The ESA BIC Sample**

The first example is the one put in place by the European Space Agency (ESA). The ESA Technology Transfer and Business Incubation Office initiated its ESA Business Incubation Centres (ESA BICs) in 2003 to inspire and work with entrepreneurs to turn space-connected business ideas into commercial start-up companies. Over 700 start-ups have now been fostered throughout Europe and more than 180 new start-ups are taken in yearly at the ESA BICs.<sup>22</sup>

The primary purpose of ESA Bics is to support start-ups in their development, providing them with all the support they need and encouraging their successful integration into the market, as well as their permanence in the market. The program is structured on the specific needs of these new players by providing personalised advisory services (business, technical); assistance with finding partners and potential inventors; networkings with national and international partners; support in investment readiness and financing search. The project is proving to be extremely effective and promising for the development of the entrepreneurial capacities of small and medium-sized enterprises.

### **6.6. The NASA SBIR Sample**

Further positive examples of start-up facilitation are the NASA Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs,<sup>23</sup> which aim to enhance the talent and potential of small businesses, offering the know-how of NASA. This collaboration allows new players to enter the market by financing research in the space sector and supporting the development of new technologies. This model of promoting young businesses is one of the most promising means of

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22 European Space Agency, ESA Business Incubation Centres, [https://www.esa.int/Applications/Telecommunications\\_Integrated\\_Applications/Business\\_Incubation/ESA\\_Business\\_Incubation\\_Centres12](https://www.esa.int/Applications/Telecommunications_Integrated_Applications/Business_Incubation/ESA_Business_Incubation_Centres12) (accessed 23 September 2021).

23 National Aeronautics and Space Administration, SBIR, <https://sbir.nasa.gov/>(accessed 23 September 2021).

facilitating the development of the entire space sector, representing a good springboard for new actors to develop their skills and entrepreneurial intuition.

### **6.7. The Astropreneurs Accelerator Program**

Another interesting example is the Astropreneurs Accelerator programme<sup>24</sup> which is aimed at supporting start-ups with business planning and financing through investor networking and a mentoring service. The programme lasts three months and is capable of giving a decisive boost to small companies that want to enter the space market. The networking focus is perhaps the most significant aspect of the project, and presents an invaluable source of information and collaboration.

## **7. Conclusion**

Early-stage start-ups in one of the fastest growing and cutting-edge industries have demonstrated an understandable dissatisfaction with the maze of legal rules applicable to their industry, the lack of affordable legal services and the availability of information.

This paper has sought to illustrate the inadequacy of the current regulation of space activities in relation to the needs arising from the proliferation of these new players, which often makes their entry into the market and their development opportunities complex and frustrating.

Entrepreneurs are the driving force of innovation in this sector and should not be ignored. For states with space capabilities and those looking to develop such capabilities, establishing a permanent collaboration with entrepreneurs and collecting their opinions in relation to the space regimes may be the key to ensuring a development of the legal framework more in line with the needs of these key innovators and, therefore, the key to a more effective and prosperous space sector.

Thanks to the interviews we conducted, we were able to highlight how further actions on lawyer training to improve the accessibility and flexibility of legal services, strengthening business incubation projects and more adaptable legal instruments are among the tools the international community can utilise to improve the legal landscape for the benefit of emerging space businesses around the world.

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<sup>24</sup> Astropreneurs, <https://astropreneurs.eu/>(accessed 23 September 2021).