



# Workshop on Responsible Space Behavior and the Democratization Of Space

**Singapore – February 5<sup>th</sup>, 2020**

## **Summary Report**

On February 5, 2020, Secure World Foundation (SWF), in partnership with the Singapore Space and Technology Association, organized a workshop on the topic of “Responsible Space Behavior and the Democratization of Space.” The workshop was held on the day prior to the 2020 Global Space and Technology Convention (GSTC) in Singapore. The workshop included presentations on general trends in commercial space, presentations from space-related start-ups on the challenges of operational space sustainability, a keynote from OneWeb on that company's Responsible Space Initiative, and a panel of representatives involved in space-related investment and finance activities. Joerg Kreisel of JKIC served as co-moderator for the event, along with Ian Christensen, Director of Private Sector Programs at Secure World Foundation.

Key themes emerging from the discussion included the role of investors in identifying start-up teams that include sustainability and responsibility concepts from the onset of the business; the importance of workforce development and training as a method to share best practices, and the natural links between many space applications businesses and impact-motivated investing.

This event was held under Chatham House Rule and was not for attribution. This report summarizes the key discussion themes and questions raised by the workshop. The views expressed in this summary report do not necessarily reflect those of Secure World Foundation, or of the individuals in attendance or their respective institutions, organizations, or governments.

## Summary

### Objective

As the space start-up community continues to grow internationally, and the investment/finance community becomes more involved, SWF is working with partners to organize the “Space Investing & Responsible Behavior” workshop series; this workshop was part of that series. In a growing and diversifying community of space-interested investors, this discussion series seeks to raise awareness of the importance of responsible operations practices in light of the unique challenges to the sustainability of the space domain. This workshop aimed to examine the context through which the investor community can work with industry to encourage and implement responsible space operations practices.

### Panel Synopsis

The workshop featured an introductory panel focused on trends in the space domain, a keynote presentation covering one firm’s commitment to responsible operations practices and a concluding panel composed of investors and corporate governance consultants (a complete agenda can be found in the Appendix of this Report).

In the first session key trends in commercial space were discussed in order to provide all workshop participants a common starting point for discussion. Topic discussed in this panel included:

- high level presentation of the types of commercial activities we are seeing in the space domain, and trends in sources of funding & investment for those activities;
- discussion of the importance of workforce development and training;
- discussion of the emergence new business models for operating in the space sector from the perspective of an early-stage company;
- and, presentation of efforts to respond to the space debris and satellite end of life services challenges as a commercial service including experience building a commercial business based on address space sustainability concern.

Following the initial panel a keynote presentation from OneWeb introduced that company’s Responsible Space Initiative as an example of firm-level commitments towards responsible space operations. The Responsible Space Initiative is a set of steps and commitments OneWeb is taking as it designs and deploys a large constellation of small satellites in Low Earth Orbit (LEO) to provide broadband connectivity services. This includes design and operational practices focused on safe constellation operations and end of life satellite disposal; actions to support broad space ecosystem development of technologies that support sustainability of the space environment; and efforts to encourage industry collaboration on best practices and coordinated regulatory frameworks. The presentation emphasized that this Initiative was driven by corporate culture, rather than investor requirement or direction, but that responsible business and operations practices support a sustainable operating environment that in turn helps to support the longevity of space business and return on investment.

The concluding discussion panel focused on introducing perspectives from the venture and investment community in response to the trends, challenges, and firm-level initiatives introduced in the earlier portions of the workshop. It considered how investor interest in environmental, social and corporate governance (ESG) relates to investment rationale and company behavior. The session began with an

introductory presentation on responsible business, sustainable finance, and sustainability management. This included discussion of global commitments to Principles for Responsible Investing (PRI) and Principles for Responsible Banking (PRB) and how they relate to global sustainability initiatives such as the Paris Agreement on Climate<sup>1</sup>, and sector-level ESG efforts, such as the Sustainability Accounting Standards Board (SASB) Metals & Mining Sustainability Accounting Standard.<sup>2</sup> This presentation was followed by remarks by investment professionals and venture capitalists (VCs) on their role and interest in space-related ventures; the role of ESG factors in their investment decisions; and the relationship to responsible & sustainable space activities.

### **Key Theme – Culture & Sustainability**

Discussion during the workshop raised a number of key points and issues to consider in understanding the role that the investing community might play in supporting or encouraging responsible space behavior. The key theme raised during the discussion session with venture and investment community was that of the importance of culture in establishing responsible operations approaches early in the development of a company. This theme was similar to a core theme of the workshop held in Tokyo in July 2019: that of the importance of establishing responsible behavior early in the culture of a company; and the role investors and existing companies can play in spreading that operations culture across a growing and diversifying space community.<sup>3</sup>

Investors participating in the Singapore workshop noted a trend that in general start-up founders are coming in with the motivation to both do good and make money (e.g. addressing SDGs and/or ESGs). Sustainability outcomes are increasingly integrated at the beginning of early stage company lifecycles. Similarly, sustainability can be a desired outcome of investing decisions. ESG factors can be a performance metric, and increasingly investors are recognizing that you do not have to accept lower returns to have social impact (in contrast to the green investment movement in the 1990s). Similar to the motivation of start-up founders, it was noted impact and sustainability are increasingly at the top of mind for family offices and pension funds (key upstream source of capital for venture funds). In particular, it was noted the UN Sustainable Development Goals (SDGs) are becoming widely known, accepted and taken into consideration by the global space community and investors alike.

When venture investors are considering investment in a company, the culture and personal backgrounds of management and founding team are important – that is often where investors start in the investment decision evaluation process. At this workshop the view was expressed that - as far as sustainability and responsibility goes – if it is not part of team/founders’ mindset from the beginning, investors cannot do much to influence.

Other general aspects touched on in the discussions included the uncertainties associated with emerging activities as space exploration and resources with yet incomplete legal frameworks and ethical

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<sup>1</sup> <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

<sup>2</sup> [https://www.sasb.org/wp-content/uploads/2018/11/Metals\\_Mining\\_Standard\\_2018.pdf](https://www.sasb.org/wp-content/uploads/2018/11/Metals_Mining_Standard_2018.pdf)

<sup>3</sup> [https://swfound.org/media/206820/tokyo-workshop-2019-report\\_072219.pdf](https://swfound.org/media/206820/tokyo-workshop-2019-report_072219.pdf)

guidelines as well as questions over the potential dual-use capabilities of certain space technologies and systems.

## Conclusions and Next Steps

Discussion during the final session of the workshop raised a number of points related to the connection between investors and encouraging responsible operations practices. These ideas include:

- *The importance of a “chief compliance officer (CCO)” as a core part of the management team:* It was noted that VCs are increasingly coming to view this role as a key aspect of a start-up’s management team, and one that is of particular importance in the space sector, which is viewed as a highly regulated sector. Regulatory risk is a significant factor in establishing a successful business, and dedication to a chief compliance officer function is viewed as a mitigation strategy that will also support firm cultural commitment to responsible practice.
- *Lack of an accepted – or consensus – set of principles for what space industry responsible behavior is:* During discussion of the PRI and PRB initiatives, it was noted there is no widely accepted standard of responsible space operations that could be used to align with the global PRI and PRB guidelines. In efforts to develop any such accepted principle and/or in broad efforts to develop risk mitigation actions in response to space sustainability challenges, it would be beneficial to include financial and investment sector representatives in the conversation. However, the role of emerging industry-consensus initiatives such as the Space Safety Coalition, CONFERS, or the European Operational Framework (EOF) was not discussed at this event, and should be included in future workshops where this theme is considered.
- *The rise of impact investing:* The investors participating in the workshop both noted the importance of positive social impact (possibly measured through contributed to addressing the SDGs) in their firms’ investment thesis; and recognized that impact investing is a growing trend in the venture sector. The discussion also noted the natural connection between space applications and social impact. This natural linkage recalls findings from a prior SWF workshop on the topic of responsible space investing that suggested it might be possible to establish specific investment funds be focused on technology or service areas that might help address space sustainability challenges.<sup>4</sup>
- *Industry Transparency and Investor Knowledge:* The space business can be seen as secretive and difficult to understand for investors from outside the sector – and vice versa. Investors participating in this workshop noted a need for more transparency and open-source activities in the commercial space sector. It was suggested that this would help investors to approach the sector and to think about responsibility and sustainability.

Secure World Foundation will continue exploring these concepts through further regional workshops on this topic. At the conclusion of the workshop series a further detailed report will be produced.

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<sup>4</sup> [https://swfound.org/media/206820/tokyo-workshop-2019-report\\_072219.pdf](https://swfound.org/media/206820/tokyo-workshop-2019-report_072219.pdf)



## Workshop on RESPONSIBLE SPACE BEHAVIOR and the DEMOCRATIZATION OF SPACE

**February 5, 2020**  
**Grand Hyatt, Singapore**

*As the space start-up community continues to grow internationally, and the investment/finance community becomes more involved, SWF is working with partners to organize the “Space Investing & Responsible Behavior” workshop series. In a growing and diversifying community of space-interested investors, this discussion seeks to raise awareness of the importance of responsible operations practices in light of the unique challenges to the sustainability of the space domain. This workshop at GSTC will examine the context through which the investor community can work with industry to encourage and implement responsible space operations practices.*

**08:30 Registration**

**09:00 Welcome and Overview**

*Workshop Overview, Introduction, and Objectives*

Ian Christensen, Secure World Foundation

Joerg Kreisel, CEO, JKIC

**09:15 Discussion 1: Key Trends in the Space Domain**

Speaker 1: Luigi Scatteia, Partner and Space Practice Group Lead, PWC

Speaker 2: Bidushi Bhattacharya, CEO, Astropeneurs Hub & Advisor GEN Space

Speaker 3: Rod Mamin, COO, Spacebit

Speaker 4: Chris Blackerby, COO, Astroscale

*Moderator: Ian Christensen, Secure World Foundation*

**10:00 Keynote: OneWeb: Responsible Space Initiative**

Earl Han, Senior Engineer, OneWeb

**10:30 Break**

**11:00 Discussion 2: Responsible and Sustainable Space Investment**

Speaker 1: Kenji Fuma, CEO, Neural Inc.

Speaker 2: Lisa Enckell, Partner, Antler

Speaker 3: Tytus Michalski, Managing Partner, Fresco Capital

*Moderator – Joerg Kreisel, JKIC*

**12:00 Networking Lunch – Workshop Concludes at 13:00**