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SPACE OCCURS IN YOUR ENVIRONMENT

Abstract

NASA's enabling legislation requires the Agency to consider ways for how its research and development (RD) can be applied for common use within society. This has proven to be pivotal to ensure the continued support and buy-in for space research from the public and private sectors. In this way well-managed space programs can offer countless benefits, by sharing information and encouraging broader utilization of space-based RD and technologies.

We in the space community, both public and (more recently) private, have developed an increasingly transparent relationship with other groups within the broader scientific, engineering, and technical community. We disclose our RD findings, and seek help from others for addressing our technical challenges. This approach highlights two critical components of a very complex technology transfer function: (1) sharing and (2) acquiring intellectual property (IP). This generally involves two primary audiences. The first consists of new niche industries, such as the emerging space industry, which are presently small but poised to grow. The second audience is the general consumer and industrial product markets – broad, diverse, and offering unlimited prospects. The former audience triggers a rebound affect for government and industry space organizations; the latter provides more reasons for investing in space exploration.

As with any large-scale RD program, the priority for a government-funded technology transfer strategy should be to first assess, and then protect, the intellectual assets it produces – in other words, its IP. Within NASA, IP is managed as an asset that can lead to spinoffs in many commercial markets. In some cases potential spinoff opportunities are identified early in the IP development process by the researchers themselves. On other occasions spinoff interest in the IP comes from outside NASA. And potential spinoffs are frequently identified during regularly scheduled “C Suite” level reviews of asset management in collaboration with the technology transfer staff. Once the IP's spinoff potential has been identified, the IP can be optimally positioned to provide tangible public benefit and value.

This paper offers a perspective on how “Space Occurs in Your Environment.” We focus on technologies required for space-based applications by NASA, other government agencies, and industry; and then consider how these technologies can be leveraged for terrestrial applications. In particular, we examine technology transfer activities related to newly identified space applications in arenas with broad social impact such as renewable and sustainable energy, materials, and hydrology.