Space: The Final Frontier for Products Liability Law

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The Legal Intelligencer
February 11, 2014

Space exploration and the commercialization of space activities are creating the next frontier for legal regulation. Travel beyond the Earth's atmosphere was once the province of only the most powerful sovereign entities, but now private enterprise is involved in launching satellites into space and stands at the forefront of commercial human space flight. Moreover, the number of nations engaged in space activities has increased substantially, and the evolution in space travel that will occur within the private sector during the 21st century will be extraordinary.

Consider what is occurring today. Private entities manufacture rockets, satellites and spacecraft; they are poised to acquire launch platforms, such as the space shuttle launch pad at Kennedy Space Center; and they are already providing opportunities for space travel on government-operated space flights. The current legal structure of space law does not regulate these activities in a manner similar to other industries and commercial enterprises, raising the question of whether principles of products liability law can and should serve as a basis to regulate risk, provide consistency and predictability in resolving legal disputes, establish safety standards, and serve as the means for compensation in the unfortunate event of damage or injury.

A Brief History

Space travel represents one of the pinnacles of human ingenuity and achievement. From the earliest days of space exploration, the establishment of safety standards was driven primarily by the need to protect the lives of astronauts and to ensure that launch and recovery activities were sufficiently distant from the public to avoid any risk to safety. (Even the rocket boys of Coalwood, W.Va., in the late 1950s knew that the launch site for their homemade rockets should be far enough from town to avoid a mishap.)

Because space exploration was initially and almost exclusively a government activity, undertaken by the United States and the former Soviet Union, the legal structure that resulted was based on United Nations treaties, including the Outer Space Treaty and its companion treaties. Negotiated five decades ago, these treaties embody compromises between the United States and the Soviet Union, and even though their general principles still remain in force, they are insufficient to address the vastly expanding area of space activities and the legal disputes that will result.

Space for the Private Sector

Fast forward to 2001, the year in which Space Adventures, a company founded in 1998 and whose mission is to open the space frontier to private citizens, placed the first private space explorer into orbit for seven days. Space Adventures is presently planning to launch a circumlunar mission in 2017 using a Russian spacecraft on which two private citizens and one cosmonaut would travel. Even though the mission would not land on the moon, this will be the closest humans will come to it since 1972.

Garnering more attention are the activities of Virgin Galactic, which is planning to launch the first commercial human spaceflight in December. The eight-seat suborbital vehicle will depart from Spaceport America in New Mexico for a two-and-a-half-hour flight, during which four minutes will involve weightlessness. Although the fare for the inaugural flight is significant, Virgin Galactic predicts that, like most commercial endeavors, the future cost will eventually decrease.

What has been happening more quietly since the mid-1990s, though, is the ascent of private industry in placing satellites into orbit. Even though private industry was involved with a small number of satellite placements as early as the 1960s, the realization of commercial gain from this activity did not occur until the very end of the 20th century. Space activities, those initiated by sovereign nations and by commercial operators, have caused a unique problem: the proliferation of orbital debris, which creates a risk for future space missions and sets the stage for significant legal disputes.

Products Liability as Regulation

Generally, regulation of a field occurs when there is a need (perceived or actual) to ensure that an actor's conduct—whether the provision of a service or the manufacture and distribution of a product—does not present a risk of harm to others. The authority and means to regulate conduct are just as important as the actual norms that are eventually established.

In the area of space law, the Outer Space Treaty and its companion treaties establish the basic rules and legal framework in this field, but they only go so far. In general, these treaties embody the following principles: the exploration and use of outer space shall be carried out for the benefit of all countries; space shall be the province of all mankind; the moon and other celestial bodies shall be used exclusively for peaceful purposes; nuclear weapons shall not be placed in space; and outer space is not subject to any claim of sovereignty.

Even though these treaties assign liability to a sovereign nation for certain conduct, they are limited in their ability to serve as the basis for developing a cohesive legal regime for commercial space activities, a subject that remains largely unaddressed in the treaties. The technological developments in space exploration and the commercialization of space activities will present challenges not governed by the treaties' broad principles—namely, regulating conduct for which a commercial actor can be held legally liable.

The regulatory landscape in the United States has, to a limited extent, foreseen the need to ensure that there is adequate financial responsibility for those entities engaged in commercial space activities. Since the 1980s, the federal government has vested authority to regulate these activities with the Office of Commercial Space Transportation, a "line of business within the Federal Aviation Administration" generally referred to as the AST. The mission of the AST "is to ensure protection of the public, property and national security and foreign policy interests of the United States during commercial launch or reentry activities, and to encourage, facilitate and promote U.S. commercial space transportation."

Notwithstanding concerns about agency capture, a situation that occurs when an agency becomes dependent upon the industry it is charged with regulating, the AST has promulgated regulations "applicable to the authorization and supervision ... of commercial space transportation activities conducted in the United States or by a U.S. citizen." To that end, an entire subpart of the regulatory framework "establishes financial responsibility and allocation of risk requirements for any launch or reentry authorized by a license or permit issued" by the AST. The requirement for financial responsibility recognizes the significant risk that space activities pose; however, the legal void

that exists between the treaties and domestic AST regulations will, by default or even separate initiative, require resort to established legal theories, including products liability.

In the United States, tort law serves as a powerful regulating force. Even among jurisdictions, though, there are differences in the degree of accountability that exists with regard to products and the potential harm they may cause. Courts in various U.S. jurisdictions refer to principles of products liability law, particularly strict liability, as focusing on the product itself and not on the actions of those engaged in designing, manufacturing or distributing it. Even though there are difficulties associated with this doctrine, it has generally not presented an impediment to holding legally accountable those responsible for placing products into the stream of commerce.

Products liability theories, and even general principles of negligence, though, may cede the desire of individual states to attract commercial spaceflight activities within their borders. For example, Virginia, Texas, Florida, California, Colorado, New Mexico and Oklahoma have all enacted spaceflight immunity and liability laws, which relieve "spaceflight entities," a defined statutory term, from liability for injuries sustained by one engaged in spaceflight activities. One consequence of these laws is that a purchaser of a seat on a commercial spaceflight could be required to consent to a choice-of-law provision (and likely a forum selection clause), which would result in immunity from liability for the spaceflight entity.

These statutes generally have exceptions for conduct that is grossly negligent or intentionally causes injury and also for situations where the spaceflight entity has knowledge of a dangerous condition that results in harm. By enacting these statutes, each of the foregoing jurisdictions recognizes the right of injured parties to claim recovery through tort remedies.

In light of this recognition, these statutes, with the exception of California, also extend immunity to manufacturers of spacecraft and their components. Even though these statutes place significant restrictions on the ability to pursue tort recovery for commercial human spaceflight activities, they do not reach other products liability issues arising from space activities, such as the problems associated with orbital debris and launch failures for nonhuman commercial space transport.

Space exploration will continue to evolve, and so should the legal regime called upon to regulate it. With the first commercial spaceflight planned to occur later this year, the limitations associated with the treaty regime, the enactment of spaceflight immunity statutes, and the continuous launch of satellites by the private sector, products liability law will soon encounter its final frontier.

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