On Dec. 23, 2004, U.S. President George W. Bush signed into law the Commercial Space Launch Amendments Act of 2004 (CSLAA). Meant to promote the development of the emerging commercial spaceflight industry, the CSLAA made the Department of Transportation and the Federal Aviation Administration responsible for regulating commercial human spaceflight. It gave the FAA authority to regulate commercial human spaceflight safety only for the aspects of uninvolved public safety, but forbade FAA to levy any safety regulation for the safety of crew and flight participants on board for a period of eight years, unless an accident happened before. The CSLAA requires operators to provide prospective customers with written information about the risks of spaceflight and a statement of the fact that the U.S. government has not certified the vehicle as safe for carrying crew or spaceflight participants.

The rationale behind the CSLAA moratorium and subsequent extensions was to allow industry to acquire experience to create future regulations. The CSLAA moratorium is a gross mistake — not because it prevents the FAA from intervening, but because it does not require instead that industry develops its own initial safety program and rules. By not requiring industry to establish safety rules up-front, in line with the experience gained through government space programs, the unintended effect of CSLAA has been to discourage industry to set the clock of its safety practices back to the early 1960s. The CSLAA may have planted the seeds of the first suborbital flight accident, the Oct. 31 2014 fatal crash of Virgin Galactic’s SpaceShipTwo. By not setting requirements or establishing guidelines for safety, the CSLAA allows each company to apply to the design whatever level of failure tolerance and any safety factor they like. Correspondingly, the CSLAA does not establish requirements for compliance assessment.

Due to the fact that the law does not relieve manufacturer and operator of any responsibility for gross negligence, obtaining an independent (government or industrial) safety certification is very much in the interest of a commercial human spaceflight manufacturer and operator in case of future litigations. Furthermore, the insurance community may become not comfortable in signing policies for completely unregulated and potentially risky businesses

During a February 2014 hearing of the U.S. House Science space subcommittee, George Nield, FAA associate administrator for space transportation, said that industry’s plea for a longer learning period ignores government expertise about crewed space systems gathered by NASA’s long-running human exploration program. It would be “irresponsible” to ignore the lessons from those programs and force regulators to collect a new set of data, Nield said. Another bold message often echoed is that of the technological novelty and superiority of commercial suborbital vehicles compared with government programs. This is just marketing!

Then, President Obama signed the Spurring Private Aerospace Competitiveness and Entrepreneurship Act on 2015, November 25th, extending U.S. participation in the International Space Station and setting the stage for the next several years of cooperation between the commercial space sector and NASA. The newly enacted legislation extends through 2023 the moratorium on new regulations affecting commercial space enterprise. It also extends through September 2025 indemnification provisions covering commercial launch contractors. Senator Marco Rubio was among elected officials from states with commercial space interests to laud the new law: “Throughout our entire economy, we need to eliminate unnecessary regulations that cost too much and make it harder for American innovators to create jobs,” Rubio said. “The reforms included here make it easier for our innovators to return Americans to suborbital space and will help the American space industry continue pushing further into space than ever before.” Yes, a well-crafted statement! Unnecessary regulations are for sure a burden and everybody would agree to remove them. But when we replace the word ‘unnecessary’ with ‘minimum safety’, which is what we are talking about, then who can truly believe that eliminating minimum safety regulations would help any industry (including suborbital spaceflight) to expand? From a safety standpoint, this law doesn’t improve the situation because it’s still very permissive (as explained before) for known business, and doesn’t set any new standard for upcoming business of commercial space till 2023. It will be too late when all the companies will have set up their business models, built their vehicle and began their commercial exploitation… One must notice that there is no knowledge outside the companies about the level of

TIME TO CHANGE THE CSLAA!

Isabelle Rongier
President, International Association for the Advancement of Space Safety
safety really embedded in these new projects, especially suborbital commercial human flights, and if, and how, and which (valuable) lessons learned from past government programs have been taken into account.

Yes, space travel is a risky business and for that exact reason the most modern and proven safety practices must be applied and continuously improved. Industry can propose rigorous self-regulation as an alternative to government regulation. The safety practices developed by NASA could be formally adopted as reference and further adapted, updated and improved as industry accumulates operational experience and knowledge.

No! no-regulation is not a viable option. The return to the old-fashioned “Fly-Fix-Fly” approach can bring only the terrifying prospect of a stream of incidents and accidents possibly exhausting any residual public faith in the future of human spaceflight. Believing that space travel risks are forever inevitable, that substantial improvements are almost impossible, and relying on public acceptance of high levels of risk while society is increasingly risk-averse is a recipe for failure.

Since 2006 the International Association for the Advancement of Space Safety has published a collection of heritage safety rules in a standard which is included as special topic of this issues of the Journal of Space Safety Engineering. With the exemption of two quantitative safety goals, of a crashworthiness requirement, and of a requirement on data collection, all other requirements in that standard are identical or similar to those applied by past and current government space programs, and by ISS commercial service vehicles. This issue of the Journal includes also two articles. One explaining in the detail the ‘heritage’ genesis of the IASS safety standard and the implementation process during the design. The other is a discussion of various models of government or government-industry partnership in the field of safety regulations adopted in other fields from aviation to Formula-1 car racing.

Industry needs to take a proactive attitude. To paraphrase the finding of the U.S. Presidential Committee that investigated the Deepwater Horizon oil spill disaster of 2010 in the Gulf of Mexico: “The commercial human spaceflight industry must move toward developing a notion of safety as a collective responsibility. Industry should establish a Safety Institute as … an industry-created, self-policing entity aimed at developing, adopting and enforcing standards of excellence to ensure continuous improvement in spaceflight safety”.

It is time to change the CSLAA to stimulate on one side industry to become proactive, and on the other side FAA to reach international agreement on public safety issues related to commercial human spaceflight such to help expanding operations worldwide! Because “A life without adventure is likely to be unsatisfying, but a life in which adventure is allowed to take whatever form it will is sure to be short.” — Bertrand Russell, 20th century’s philosopher, Literature Nobel Prize award in 1950.
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