Benefits of future space program are intangible

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(PhysOrg.com) -- As someone deeply involved in the American aerospace industry since its inception in the late 1950s, Norman Augustine says that the United States may need a "jolt" similar to the 1958 launching of the Russian satellite Sputnik to propel itself down the path of continued and sustainable space program success.

Augustine, retired chairman and CEO of [Lockheed Martin](#) Corp. and former member of the President's Council of Advisers on Science and Technology under Presidents Bill Clinton and George W. Bush, shared these thoughts with a packed Upson Hall audience in a talk, "Are We Lost in Space?" Oct. 29. Augustine was the Sibley School of Mechanical and Aerospace Engineering's 2011 Sears distinguished lecturer.

Learning about Sputnik in 1958 "was like a body blow" to industry insiders, Augustine said, but it prompted the U.S. government to pursue "one of the greatest accomplishments in the history of humankind": the American space program.

NASA, though still "the finest space institution in the world, without a doubt," is a "large, mature, successful organization without a clear competitor," which from a business perspective, he said, is "one of the most dangerous things that can occur."

Without Cold War competition to rally Americans around a generously funded [human spaceflight](#) program, what direction this very costly endeavor should take has become a controversial issue over which

"reasonable and conscientious people disagree," including experts in the field, said Augustine.

While establishing a permanent presence on the moon would be exciting for lunar scientists, many Americans today -- young people specifically -- don't share that vision, said Augustine. A [space program](link) along the lines of "give us $100 billion and we'll land on the moon again" simply does not have the appeal it used to, he said.

After the 2008 financial crisis, Augustine was appointed by newly elected President [Barack Obama](link) to chair a commission tasked with reviewing "Constellation," NASA's human spaceflight program that was established by Congress in 2005 with a long-term goal of renewing manned lunar missions.

One of the strongest recommendations Augustine's commission made to the president was to eliminate mismatches between the scope of space programs and their funding -- a recurring plague of NASA projects, according to Augustine. He explained that Constellation was unsustainable in that regard, and that drastic changes either in funding or program goals would have to be made.

The commission, Augustine said, did not conclude that the economic and commercial benefits from technological spinoffs alone justify the vast sums of money spent on the program.

Obama's 2010 decisions to cancel Constellation in favor of a more flexible human spaceflight program with a midterm goal of a manned asteroid mission and a long-term goal of manned orbital missions to Mars were based in large part upon the commission's conclusions, Augustine said.

Indeed, the human spaceflight program can't be justified on the basis of

"dollars and cents," he said. Rather, it is the "intangible" benefits like establishing a platform for human civilization to expand into space, or inspiring Americans and nations around the world by venturing into uncharted territory, that provide the best justification for a vibrant human spaceflight program.

"Just like it's hard to calculate the value of Shakespeare's writing or Beethoven's music, or great art … to some extent a spaceflight program falls into that category," said Augustine.

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