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The space economy: what are the socio-economic impacts? (3)

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A NEW PERSPECTIVE ON INNOVATION IN SPACE AND ITS IMPLICATIONS ON THE TOOLS AND MEASURES USED TO ASSESS THE INDIRECT IMPACTS OF PUBLIC INVESTMENT IN THE SPACE SECTOR

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Abstract

SSince the 1960s, various methods have been used by major space agencies to measure the economic returns to space-related research and development. A number of approaches have been taken, including microeconomic analyses of specific technologies and macroeconomic modelling of long-term productivity gains. Most of these approaches have estimated very positive returns to investments in space. The problem is that these approaches have generally been carried out in an economic context, which no longer characterizes today's open economy, this calling for new ways to measure the tangible benefits in return for the considerable sums invested. The way to conceive technological transfer, RD policies, collaborative modes, and evaluation procedures have changed in an open context. Such a context offers an opportunity to revisit and update the main methods and tools used to measure the economic, societal and environmental benefits from space (in particular with regards to industry-government-university partnerships, user communities, collaboration within and between these communities, and so on). The wide variety of assumptions behind existing models often limit the range of results. Moreover, many controversies remain as to the interpretation of these results. In this paper, we present the preliminary results of a three-year study, carried out on behalf of the Canadian Space Agency, on the state of the Canadian space sector. We focus on the limitations of the methodologies used to assess the indirect economic and societal impacts of public investment in space in an open innovation context. We present a new perspective on innovation in space in which innovation is not so much driven by spin-offs from the space industry, as it is by spin-ins from various terrestrial industries. This finding impacts strongly the way we measure indirect economic impacts and calls for new metrics. These new metrics should be helpful for governments and national space agencies to support long-term planification of public investments in the space sector, in order to protect and develop a national competitive advantage in niche markets with an emphasis in commercialization of space technologies on Earth and space applications.