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COMMERCIAL ON-ORBIT SATELLITE SERVICING: POLICY CONSIDERATIONS RAISED BY RECENT INDUSTRY PLANS

Abstract

The international space community has long recognized the potential benefits of servicing and refuelling satellites on orbit. However, technological and economic factors have posed obstacles to the servicing of satellites on a commercial basis.

This situation may soon change. Several commercial entities could be developing capabilities that will enable cost-efficient in-space servicing and refuelling in ways previously thought unfeasible. For example, in the spring of 2011, two commercial space actors, MacDonald, Dettwiler and Associates (MDA) and Intelsat, announced plans to develop a commercial servicing vehicle and took steps in this direction. Other commercial players have also announced servicing programs. These companies' plans have the potential to revolutionize the economics of satellite manufacturing and operations and to affect related industries, including space launch and insurance.

Commercial servicing capabilities will co-evolve with their policy, legal, and regulatory environment. Plans announced by companies such as MDA and Intelsat are only among the first to raise concrete policy considerations for decisions makers in national governments and international fora. Others are prepared to follow. Commercial servicing for the first time presents itself as a pressing policy issue in several countries.

The policy choices of national governments, acting either individually or in concert, will determine whether a commercial servicing industry develops. Policy choices will also affect whether and how easily an emergent satellite servicing industry could evolve to provide new services for new customers. This is important because finding new markets for commercial servicers could prove critical to sustaining this budding industry in the long term. Factoring these possible evolutions into policy responses today will ensure that policy environments are supportive of applying industry's servicing capabilities toward other ends in the future.

This paper begins by describing what is commercial on-orbit servicing and its potential to serve goals beyond the servicing and refuelling of communications satellites. It then examines recent and proposed efforts at developing commercial servicing capabilities from technical and business perspectives. In the second part of the paper, we discuss the national and international policy choices that will shape whether and how a viable commercial servicing industry develops and whether and how it could pursue other business opportunities. Among the new opportunities we consider are space debris removal services for governments and international consortia.

This paper is based on original research, including interviews with servicing experts in government, industry, and academia in Canada, Germany, and the United States.