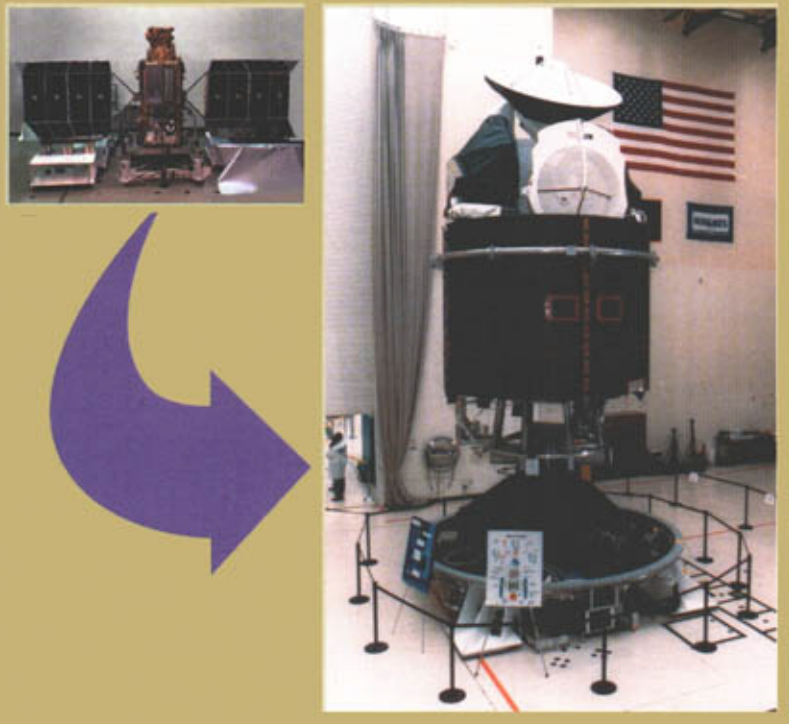
DOCUMENTED BRIEFING

RAND

The Application of Best Practices to Unmanned Spacecraft Development

An Exploration of Success and Failure in Recent Missions

Liam Sarsfield



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PREFACE

This documented briefing summarizes research into recent trends in the development of space systems, with emphasis on the reemergence of small spacecraft. The report takes a broad look at some of the initiatives that have been undertaken to reduce the cost and increase the performance of spacecraft. The findings suggest that small spacecraft have intrinsic value and provide government and commercial firms with flexible options for meeting mission needs quickly and effectively. Beyond their intrinsic value, however, small systems remain very complex and for this reason incur a premium price. Additionally, many of the initiatives to streamline the management and engineering of space systems have actually increased risk disproportionately to savings. The documented briefing concludes that efforts to trim cost and schedule from spacecraft projects must be enacted with great care. Initiatives promising to increase performance and reduce cost and risk are emphasized in the document, and recommendations are provided.

The research grew out of previous RAND research on small spacecraft, as well as on trends in defense acquisition reform. The insights presented in this document are related to many elements of current civil and military space policy and should be of interest to government officials in oversight and policy positions. It is also hoped that the report will serve as a useful reference for program officials charged with implementing future space missions.

This study was conducted at the request of the National Reconnaissance Office (NRO). The research was accomplished in the Acquisition and Technology Policy Center of RAND's National Security Research Division.

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