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# THE USE OF ON-LINE DATA MINING TOOLS IN TECHNOLOGY READINESS AND RISK ASSESSMENTS

**Abstract**

Timely and accurate technology readiness and risk assessments are critical to the cost-effective incorporation of advanced capabilities within new space system development projects. Traditionally, large space systems development organizations have been able to rely on the advanced technology expertise of in-house personnel in planning and implementing both such systems development efforts. Increasingly, however, it has become apparent that no single organization can comprise within its own staff all of the technology subject matter expertise that are required to make good decisions in a timely way, and to resolve critical questions: What technologies are available, and with what levels of performance? How mature are those technologies? What degree of uncertainly remains in inserting a given technology into a specific system development effort?

Fortunately, a wide range of new on-line tools has emerged that facilitates the discovery of needed information about new and promising technologies from various on-line sources, including government reports, on-line data feeds, and large databases (e.g., patent datasets). However, these tools must be appropriately integrated with the organization's technology and systems management practices if they are to be used to greatest effect.

This paper presents a high-level summary of the new web-based data-mining tools that have emerged in recent years, with particular emphasis on NEWTON (the New Technology Opportunities Network) approach. Key challenges for these capabilities are identified and discussed, including: how the meaningful fusion of data from hundreds of thousands of records may be best accomplished; how quantitative data may be visualized and presented to technology data "explorers"; and how collaborative teams might use these data to achieve the technology and systems management goals of an organization—particularly with respect to technology readiness and risk assessments. The paper concludes with selected observations regarding the future of such tools and methods, and their role in assuring that space systems development organizations can best accomplish their advanced technology goals in a cost-effective and risk-appropriate fashion.