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USING REAL OPTIONS TO SEE THE EFFECT ON SOCIAL NEEDS OF SPACE VISUALIZATION  
TOOLS

**Abstract**

We have long talked about how space programs create technology seed corn for society. Yet social investment in space programs suggests they are undervalued in government budgets as a source of technology.

Space Visualization Tools are like that rock thrown into the pond. They send out concentric ripples. The close in ripples are traditional applications, like other observation and surveillance from spacecraft and aircraft. As we move farther out, the ripples are other fields for imaging (e.g. medicine, industrial process control). Still farther out are other applications, such as cleaning up voice and data transmissions. While challenging, these applications can be found through searching technology roadmaps and needs statements in terms of the functional capabilities being sought.

Real options are well known as a method of measuring the economic benefits to a firm from having the right to exploit a new technology. Underlying real options is the realization that assets have value even if they are not exploited. Option value is tied to an economic component, the discounted net present value of the technology when embodied in products and services. It also is tied to a strategic component, which is the volatility in the value of the assets. In a corporate setting, volatility is a consequence of the long-term growth potential of the firm as reflected on its balance sheet and thus its stock price.

We examine the option value Goddard SFC's Wavefront Portfolio. After a brief overview on real options, we shall see that real option value provides a systematic framework for presenting the value of space technology to policy makers and the public. It highlights the role of space flight centers like Goddard for the development of virtual RD and product development clusters. This same framework can provide a means for targeting commercialization efforts and accomplishing more productive negotiations with potential licensees and funders of sponsored research and development.