

# Using Simulation to Evaluate Funding Models for SDI Implementation

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## SUMMARY

As Spatial Data Infrastructures (SDIs) evolve and the nature of government spending policies changes, it is evident that current funding arrangements for SDI implementation and maintenance will no longer be adequate. Funding from the budgets of national mapping agencies and 'one-off grants' will no longer be capable of funding the efficient implementation and maintenance of the next generations of SDIs. Efficient implementation and maintenance of future SDIs will require structured long-term funding models.

Authors (e.g. (Rhind, 2000); (Urban Logic, 2000); and (Giff and Coleman, 2003)) have proposed different sets of funding models for the financing of future generations of SDIs as a solution to this problem. One of the drawbacks of these models is that they are generally conceptual in nature. That is, they were designed for a generalized implementation environment and, therefore, may not be specific enough for an individual environment. The problem facing program coordinators is the selection of models that are most suitable to their implementation environment. A possible solution to this problem is the design and or selection of methodologies to evaluate the application of the models in specific implementation environments.

The authors propose the usage of *System Dynamic Simulation Modelling* (SDSM) as a possible technique for the evaluation of SDI funding models applied to a specific implementation environment. SDSM will enable program coordinators to track the application of the models in a particular implementation environment over time and also, observe their reaction to changes in key variables operating within the implementation environment. This technique (SDSM) allows program coordinators to replicate their implementation environment and manipulate variables they deemed to have the most effect on the funding of an SDI. The aim of this paper is to discuss the concept of the application of SDSM to the evaluation of funding models.

This paper will briefly review the proposed conceptual funding models and categorize them based on the type of SDI they are most suited to fund. The second section of the paper will then discuss the concept of SDSM and its application to the evaluation of the funding models. This is followed by examples of system dynamic simulation models for different SDI implementation environments.

This paper is geared mainly towards program coordinators and members of the SDI community interested in the economic issues associated with an SDI. The information presented in this article will greatly assist these managers in selecting, customizing, designing, and evaluating specific funding models for SDI implementation in their environment.