



Use of Functional Silos to Optimize Agency Decision-Making

tech transfer summary

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RESEARCH PROJECT TITLE

Use of Functional Silos to Optimize Agency Decision-Making

SPONSORS

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The Midwest Transportation Consortium (MTC) is part of the Center for Transportation Research and Education (CTRE) at Iowa State University. The MTC is the University Transportation Centers Program regional center for Iowa, Kansas, Missouri, and Nebraska.

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Functional silos are groups of expertise within state transportation agencies (STAs). Research shows that these functionally focused units are most effective when they use performance indicators to balance resources between silos.

Objective

Within STAs, functionally focused units, or silos, are organized as groups of expertise in specific areas of project management (e.g., the Office of Bridge Development, the Office of Maintenance, the Office of Traffic Engineers). The goal of this research project was to take a snapshot of STAs' current practices regarding functional silos to examine how STAs are able to bridge effectively across these units of expertise to reach a desirable allocation of resources.

Problem Statement

While useful, silos tend to breed misallocations of resources when the groups don't optimize their resources among the units. For example, while a bridge maintenance office uses its funding to fulfill the needs for the STA's bridge system, simultaneously the pavement system may lack the funds it needs to finish its project. Thus, while goals are met in one silo (the bridge system), other silos in the system remain unfunded, resulting in an agency-wide, sub-optimal allocation of resources.

Technology/Technique Description

Research to evaluate current STA practices of bridging silos consisted of three steps:

First, extensive telephone interviews were conducted with STA representatives from sixteen states that were considered to have good silo-bridging practices. Questions focused on each agency's various funding sources, asset management, resource allocation, oversight, and examples of each STA's best practices.

Second, in-depth case studies and on-site visits were conducted of STAs with effective asset management practices. The purpose was to better understand the agency's process for allocating resources and bridging functional silos. These STAs included the states of Ohio, Maryland, Florida, and Missouri. This phase of the research involved interviews with an identified lead STA representative in each state.

Third, to understand the problems and experiences of bridging silos dealt with by local and regional governments, upper managers from various STAs were invited to attend a workshop at the 2005 American Association of State Highway Transportation Officials' (AASHTO's) annual meeting. The purpose of the workshop was to discuss

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opportunities for and experience with bridging silos when making asset allocation decisions across functional and geographical silos. This forum provided a unique setting for STA managers to explore how communication between silos can be fostered to ensure that the large picture is understood and that each un-optimized silo function results in expense to the larger system.

Key Findings

Most of the STAs reported the lack of discretionary funding available to them to varying degrees. For example, one STA had financial difficulties so deep that it was required to use bonding funds to support routine operations. In other cases, STAs with great flexibility in focusing their funds had very little opportunity to re-direct funding priorities from historical patterns.

The following conclusions further describe the state of current practices within STAs' functional silos.

- Currently, performance measurements only deal with the abstract measurement of the condition of assets and not the actual goals of agencies (e.g.,

the International Roughness Index as a measure of condition for roads and a health index for bridges). Therefore, more advanced performance measures need to be developed and used for more holistic resource allocation.

- Each STA uses its own methods to manage, finance, and measure performance. However, uniformity in resource allocation would provide STAs with stronger, more consistent standards and thus improve resource distribution while lowering costs. Further research development in highway financial management would provide needed guidance for STAs.
- State and federal categorization of funding did not pose a large problem for the STAs, although most would prefer to receive federal funds in one category and then allocate the resources themselves with federal oversight.
- STAs reported restrictions in their being able to toll on existing or previously-free facilities during major improvements. Therefore, a more consistent and flexible tolling process needs to be developed for STAs to toll for projects involving new capacity and the maintenance and operating costs of major highway facilities.