



RESEARCH PROJECT CAPSULE [13-3SS]

October 2012

TECHNOLOGY TRANSFER PROGRAM

Development of Performance Measurement for Freight Transportation

JUST THE FACTS:

Start Date:

July 1, 2012

Duration:

18 months

End Date:

December 31, 2013

Funding:

State: TT-Reg & RITA

Principal Investigator:

Peter Kelle, Ph.D.,
Ourso Family Distinguished Professor of
Business Analysis
Louisiana State University

Administrative Contact:

Mark Morvant, P.E.
Associate Director, Research
225-767-9124

Technical Contact:

Kirk Zeringue, P.E.
Senior Research Engineer,
Special Studies
225-767-9169

Louisiana Transportation
Research Center
4101 Gourrier Ave
Baton Rouge, LA 70808

Sponsored jointly by the Louisiana
Department of Transportation and
Development and Louisiana State
University

POINTS OF INTEREST:

Problem Addressed / Objective of
Research / Methodology Used
Implementation Potential

This project is associated with the Louisiana Transportation Research Center (LTRC) partnership with the National Center for Intermodal Transportation for Economic Competiveness (NCITEC). The NCITEC is a University Transportation Center housed at Mississippi State University funded by the Research and Innovative Technology Administration (RITA) of the U.S. Department of Transportation (DOT).

PROBLEM

The new Moving Ahead for Progress in the 21st Century Act (MAP-21), passed by the U.S. Senate and pending at

the U.S. House of Representatives, requests the national freight network to "incorporate concepts of performance and accountability into the operation and maintenance of the national freight network" and requires the U.S. Department of Transportation (USDOT) and all states to "establish performance measures for freight movement." Currently, the major freight modes have different metrics that can be used to neither measure a freight network with multiple modes nor select freight improvement projects from an intermodal perspective.

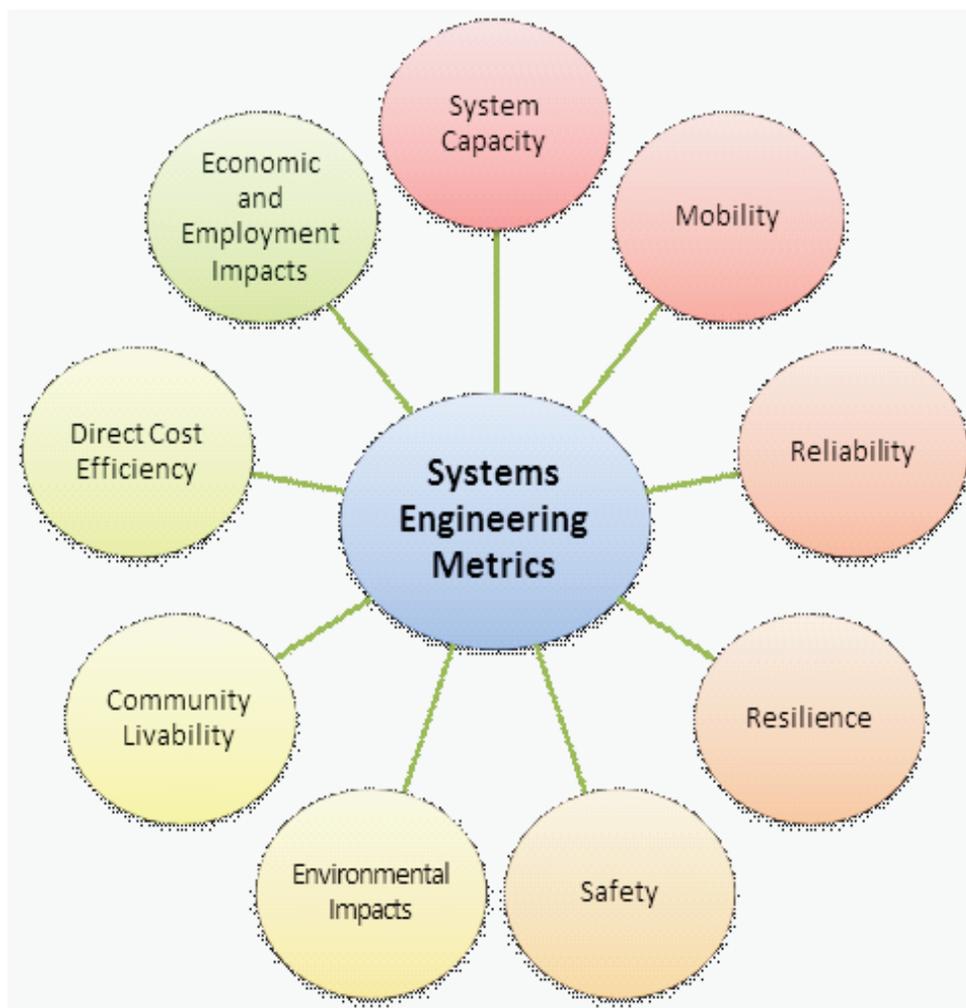
OBJECTIVES

The objective of this research are to build a set of performance measures that are unified, user-oriented, scalable, systematic, effective, and calculable for intermodal freight management and to develop methodologies to calculate and use the measures. To demonstrate practical applications of the proposed performance measures, a case study will be conducted to evaluate the freight network of Louisiana and the benefits of potential freight improvement efforts.

METHODOLOGY

The first task required for this project is to summarize existing intermodal freight transportation measures. Next, performance measures using systems engineering approaches must be identified and procedures for calculation, data collection, and application developed. Lastly, a case study, demonstration, and technology transfer must be performed.





Systems engineering metrics

IMPLEMENTATION POTENTIAL

This research mainly targets state DOTs, who need the developed metrics for selecting freight network improvement projects and demonstrating the benefits of investment on freight management. The results could also benefit the USDOT for transportation planning and promotion of intermodal solutions and the Department of Homeland Security for transportation resilience and protection. The private sector, such as Class-I and short line railroads, may use the metrics to guide their investment and seek government supports.