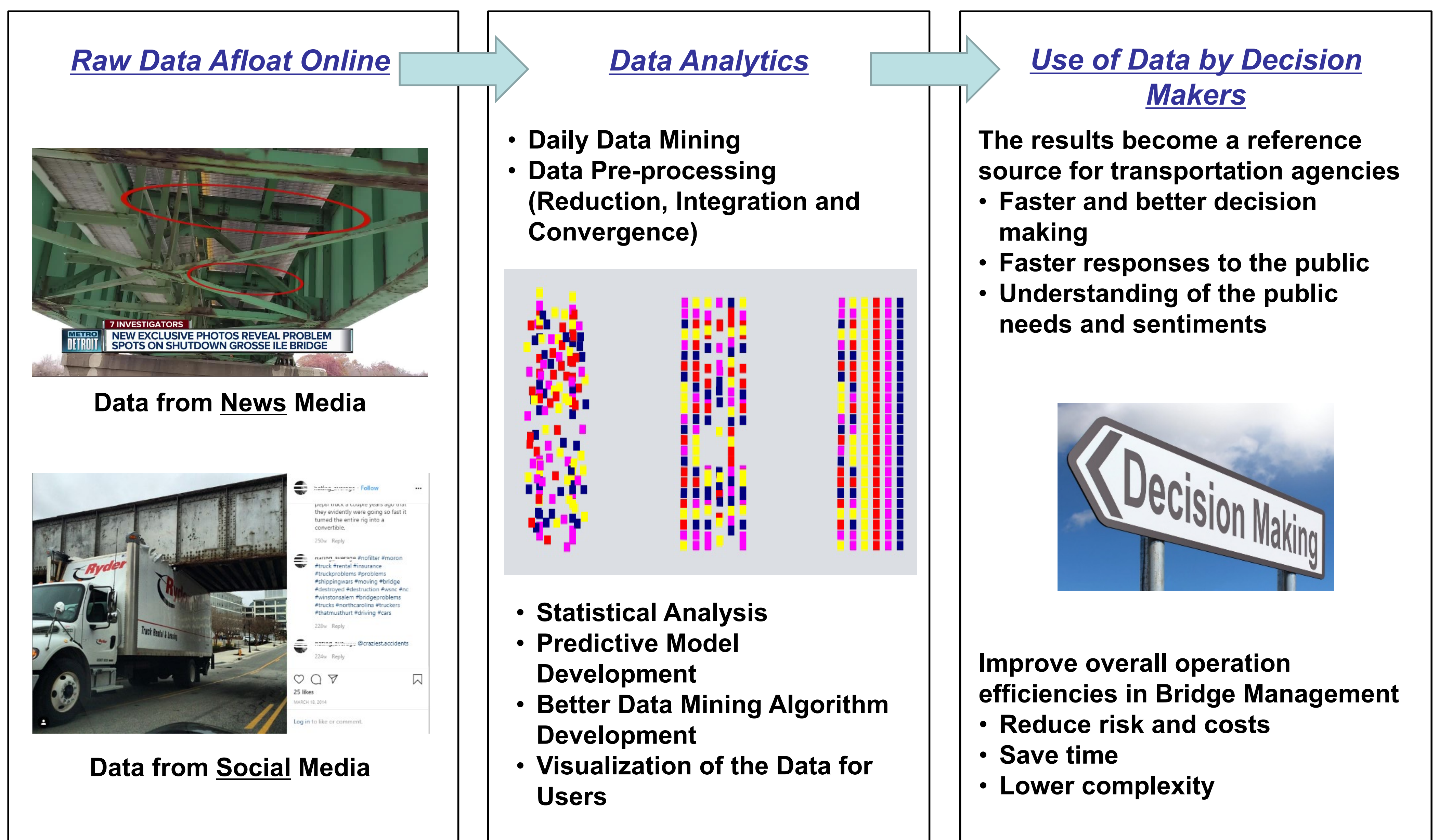# Media Data Convergence System for Bridge Management

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Research Need, Significance, and Objective

- Current bridge management programs utilize the physical data obtained from annual or biannual bridge reports for bridge condition evaluation. Decision making on bridge management, for example, budget allocation for repair, replacement, or expansion of existing bridges, is mostly based on the physical data. This practice causes ignorance of the public requests, slow responses to immediate needs, and a lack of understanding of the public sentiment on the bridge.
- Objective of this research is to develop a prototype media data convergence system to support the existing bridge management which will help stakeholders make a better decision.

Research Design and Method

Raw Data Afloat Online

Data from Underlined News Media

Data from Underlined Social Media

Data Analytics

- **Daily Data Mining**
- **Data Pre-processing (Reduction, Integration and Convergence)**

- **Statistical Analysis**
- **Predictive Model Development**
- **Better Data Mining Algorithm Development**
- **Visualization of the Data for Users**

Use of Data by Decision Makers

The results become a reference source for transportation agencies
- **Faster and better decision making**
- **Faster responses to the public**
- **Understanding of the public needs and sentiments**

Improve overall operation efficiencies in Bridge Management
- **Reduce risk and costs**
- **Save time**
- **Lower complexity**

Innovation in the System (Research On Going)

	Traditional Bridge Management	New Bridge Management w/ Proposed System
Data Type	Physical Data	Physical Data + Cyber Data
Data Source	Inspection Report	Inspection Report + News and Social Data
Data Collection Frequency	Annual or Biannual	Annual or Biannual + Daily
Data Collection Location	On and Around Bridge	Field + Web Space
Decision Making	Mostly based on bridge condition from inspection report	Inspection Report + Public Opinions
Response Time to the Public	Slow	Slow to Fast depending on issues

Research Impact

- Highly beneficial to the federal and state highway agencies in properly managing bridges
- Reinforce the current bridge management program by gathering meaningful data from the public
- Better decision making with useful references