**Digital Data and Information Flow Design**

**during the Life Cycle of transportation assets**

**Research Problem:**

The rapid development of information technologies is making a transformative change in how project data and information is produced, exchanged, and managed throughout the life cycle of a transportation project. This transformative change from analog to digital based system is being accelerated by the availability of 3D digital models and by the pressing need of better, faster, and smarter ways of delivering projects and managing constructed assets. With ample evidence and success stories from the vertical construction industry and some promising case study results from the highway industry, the significant improvement of data and information sharing between project participants and across various project development stages is possible with a model based project delivery process, and electronic and digital data transfer systems, which will in turn translate into increased productivity, efficiency in project delivery, accountability, and asset management.

DOTs want to have a better understanding and guidance on digital data and information flow in order to maximize the benefits of rapidly growing digital data. Making better and smart decisions will be possible by clearly linking the flow from data to information to decision makers throughout the project’s life cycle. The current workflow process developed in the analog data and information era may also need to be modified and updated to fit into the changing business environments.

**Research Goal:**

The goal of this research is to develop a data and information delivery process manual during the life cycle of various transportation assets including pavements, bridges, culverts, signs, guardrails, etc. A proven theory of the social network diagram will be used to visually map the flows from data to information and decisions by clearly showing the relationships of project participants who create, consume and benefit from data and information. Also, this research will address how the data and information should be supported by various software solutions. The vertical industry sector’s information delivery manuals can be used as a benchmarking model. The research output is expected to make a significant impact on facilitating DOTs’ transition into digital project delivery and asset management systems.

**Funding:**

The research team has secured $80,000 from the Midwest Transportation Center (MTC). This funding requires 1 to 1 match at minimum. We are working with other DOTs (Wisconsin and Michigan) to seek research participation with their matching funds. We would like to ask Iowa DOT to participate in this project with a matching fund of up to $50,000.

**Research Team Members:**

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