

# Managing data workflow from concept to commission – BIM for bridges

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## Abstract

BIM in bridges is a new challenge. Managing data from concept to Commission can only be done if we well understand the different phases of a project, each of them needing its own special data, its own required accuracy and specific geometry, leading to different models and often to different type of data. Transmitting common data from phase to phase must be done with a minimum loss. On the other side, it is useless to transmit data that will not be used by following phases, and an intelligent selection must be done.

**Keywords:** BIM, CAD, Analysis, Fabrication, Operating, Maintenance, IFC, Exchange format.

## 1 Introduction

Bridge engineering has adopted computer aid for many years. Mainly, the analysis side has been developed since computer appeared in the engineering to a point that a proper design can't be achieved any more without computer. Modelling became also an important part for visualization (Figure 1) with the particularity of bridge that requires at the same time architectural modelling tool but also mechanical ones. But in the global process we still can observe a manual workflow in most engineering firms between the different phases. Is that related to the specificity of work or is it a too small market for large computing editor to invest in it?

Engineers have tried to use the usual BIM tools provided for structural and building departments with no success, reaching the limits of such tools for a very singular domain.

What is it different from other departments. Why is a bridge so specific? We will see in a first part, why a bridge is different from any other engineering creation. We will also describe the

actual process of designing, building, delivering and maintaining bridges. We will see the particular logic of bridge modelling. Bridge, a name that includes so many different types, that may not be covered by a unique modelling and analysis process.

Then we will propose in a second part how we can apply a BIM process in bridge study, what it requires and what is available now.



Figure 1. Modelling was done for visualization

As we live in an open world, we cannot expect that one tool will satisfy everyone. A unique tool may also restrain engineer's creation in the space of what can be done. We will see that exchange