Seamless Data Transfer Saves Time and Improves Quality

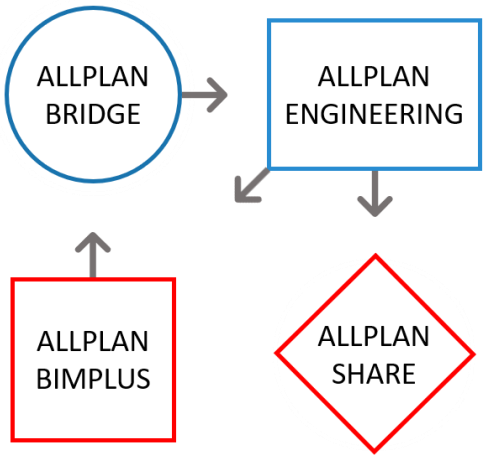
Usually quite a lot of different organizations are involved in planning, design, construction and maintenance duties for bridges. Each party needs a certain set of information to be able to perform the required tasks. Normally, each work results in a new or upgraded set of information to be considered in further planning phases.

Despite the general trend to digitalization, the information exchange between independent parties involved in a bridge project is often still performed in the traditional way based on digital or paper drawings and reports. In this process the person in charge must evaluate the drawings and reports and re-enter the required information in an appropriate form (as needed by the software tool he uses) before the actual work can start. Any updates of the project end up in new drawings and reports to be evaluated anew in a further stage. Apparently, this workflow is time consuming and error prone, which at the end results in high costs.

We must also be aware that especially in big and complex bridge projects the different parties are not only involved subsequently, but in parallel, needing the most recent set of data at any time during processing. Considering the amount and frequency of required information transfer between different parties, a smooth and seamless data exchange becomes a very important aspect of the process.

This essentially requires data being stored in a common format in a database, which can be accessed by different software tools. The 3D bridge model generated in the new bridge modelling product of ALLPLAN, ALLPLAN Bridge, is based on a commonly understandable set of parameters tailored for bridge engineering. The actual – often complex – model geometry is automatically developed from this parameter set.

ALLPLAN Infrastructure GmbH
office@allplan-infra.com



The model is hierarchically organized, first related to the defined road axis, which may either be defined manually or imported from common data exchange files. E.g. an axis definition described in the LandXml format can be imported into ALLPLAN Bridge via BIMPLUS.

The geometry of the superstructure is aligned with this axis and based on typical cross-section(s) described by a set of constant or variable parameters. The variability of these parameters along the alignment is described by formulas or tables which are part of the model and used for evaluation whenever modifications are applied. Substructure elements are aligned with the superstructure and similarly defined with appropriate geometrical parameters. Non-geometric parameters like material constants and strength values may also be attached to the model, allowing for transferring data also to structural analysis applications for strength calculations.

Using this intelligent 3D digital model throughout the design process and even later for maintenance and any refurbishment works can considerably improve the data exchange process. Taking over required data is fast, and errors are avoided when the model is always kept up-to-date. The whole bridge planning and maintenance process can be considerably improved by this strategy.

ALLPLAN Infrastructure GmbH
office@allplan-infra.com