

Use Case 4a: Technical Visualization

Purpose

A 3D technical multidisciplinary visualization is used for communicating design solutions between project partners, to infrastructure owners and future operators, and third parties including the public.

Moreover, the technical visualization is useful to optimize all phases of the project, from design to maintenance phase, and keep a record of the past steps (traceability of variants, and decisions made in favour of the option chosen) . Transparency is frequently used as a visualization strategy in target visualization software.

The exchange scenario must support the exchange of models from the Design software to Visualization software.

The Use Cases 4b and 4c, related to Realistic and Safety Visualization, provide an important basis for this use case.

Requirements for IFC-Tunnel:

- Parts (as objects or solid volumes) require the assignment of simple materials, which visually classify based on the purpose (e.g., not realistic colours, volumes,...)
- Quick visualization during design, prepared views/sections/perspectives

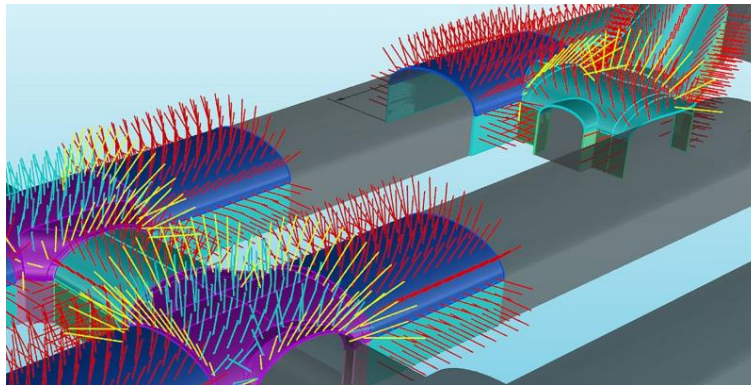


Figure 1. Visualization criteria based on purpose or properties. Source: Amberg Group

Geometry: Typically, geometry can be represented by explicit geometry representations (such as triangulated face sets). Free-driving space / kinematic envelope / clearance must be visualized, even though it is not a physical object.

Semantics: Semantics (types and attributes) should be visualized alongside the geometry in form of lists and tables. Types may be used for colouring of objects.

In order to involve all project phases in this process, it is necessary to add maintenance and historical data too.