

Software package applications for design rail freight interchanges

According to the Strategic Rail Freight Interchanges (SRFI) Policy Guidance, the aim of an SRFI is to optimise the use of rail in the freight journey by maximising rail trunk haul and minimising some elements of the secondary distribution leg by road, through co-location of other distribution and freight activities.

It needs to consider multi stakeholder requirements covering three dimensions to sustainable development: economic, social and environmental. The increased involvement of different stakeholders in the logistics suggests a need for new tools for terminal/interchange decision. Multi-Objective optimisation is a challenging task with the existing software applications. The tools on the market for rail yard planning focus mainly on the rail movements, not covering the three dimensions to sustainable development. The process of designing rail ter-

minals and interchanges also could be difficult to visualise and time-consuming, requiring several steps on the software applications. The IDT (Interchange Designing Tools) in development is a family of software applications programmed in C# and Unity3D for designing and evaluating rail freight interchanges considering multiple stakeholders decision.

The user-friendly menu enables users with no experience in rail simulation to design the interchanges, dragging and dropping rail elements in the canvas. Additionally, genetic programming algorithms enable the user automatic designing through the procedural generation and evolutive process (Genetic Algorithm). Virtual reality module also enables the user to visualise the designs in the “first person” in order to help understand the freight movements on the interchange •

