DE TILIÈRE Guillaume

Civil engineer EPFL (1997)
PhD Transport EPFL (2002)

Position

Head of the Transport Group at BG Consulting Engineers
Associate Professor at Paris-East University in Transport (IFU-LVMT)

Profile & competences

After a PhD at the transportation institute at EPFL Lausanne and an experience at ITS-Berkeley, he specialized in transportation systems, urban projects studies related to rail or metro stations, and intermodality. After several years in ALSTOM transport were he worked for international rail projects as well has the new European rail standards, he joined BG Consulting Engineers in 2009 to lead transport consulting activities.

In parallel of its expert and consulting activities, he is Associate Professor in Transport at Paris-East University and keeps on being Involved in several teaching programmes related to transport and rail station design in master courses (master II or postgraduate) in France (ENPC, ESTACA) and Switzerland (EPFL).

As main references in rail projects, he worked for new line projects and studies in France (RFF) and Switzerland (SBB), for both high-speed or regional lines. Concerning Rail stations; he worked recently on the functional studies of 16 stations for the Orange Line of the Grand Paris Project (STIF) and 5 stations of the Red Line of the Grand Paris (SGP). His work focused on general studies, station design, intermodality and functionalities; in collaboration with Architects and urban planners.

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Summary

Rail stations: the link between typology, design process and level of service

Objective :

This presentation aims at presenting the design process of rail stations and its driving parameters. This process will be illustrated through the presentation of a typology of stations based on their function in the transport network and the urban landscape.

From the simple passant station to the complex multimodal one, the typology of rail stations underlines their differences in the functional implications or the service level, leading to strong impacts on the design.
Some comparison and benchmark will be done, such as between Swiss and French methods.
For instance, the analysis of the design process will stress how comfort and safety choices affect the design and the project costs, outlining how the criteria of level of service or other requirements made by the rail station operator, the transport authority as well as standards or norms may affect such projects.

Introduction:
Rail stations are an entry point in the City, a front window of the Railway world as well as a critical node for intermodality. Rail stations crystallize the stakes of the urban and territorial development.
The definition of a clear typology for Rail Stations is a useful tool for an Efficient planning and project management as complex multi-stakeholder projects. It is also interesting for decision makers and station operators to understand clearly the link between Typology, service level and design process: Typology can be used as a guidance.

Typology of rail stations
They can be based on could be based on Frequentation, Level of service and their role in the

transport and Urban network.

The presentation presents different typology of rail stations, such as the one in France done by SNCF, in Switzerland by CFF or in Germany by DB.

A second part presents how urban planners can enrich this rail station typology such as in the case of the PDUIF (Urban Development Plan in Ile de France), providing a systemic approach: INFRASTRUCTURE ; OPERATION; LEVEL of SERVICE; MOBILITY MANAGEMENT.
The case of the rail station typology is then analyzed in the case of the Grand Paris Project (Metro line with more than 60 stations).

Level of service:

The cased of three type of stations in analyzed:
- Simple rail station (1): "Effective"
- Multimodal station, connected to city or regional transport modes (2): "Connected"
- Multimodal and multi service stations; with important facilities & services inside (3): "life place"

Then the link between the level of service and investments costs in discussed, linking the investments with transport volumes and level of service:
The level of investment of Rail Stations is linked to :
- the level of service defined by the railway / station operator
- the type of station linked with the realization methods (surface, underground etc)
- the type of functionalities and services.

Conclusion

A clear typology and the identification of functions are key for the design process and provide coherence for transport networks and urban development.
Typology of rail statiuons shall support a coherent vision of the stations: mixing transport, services, architectural and urban values.

As typology is linked to the project structuration, this can help the actors to be better coordinated in the first steps of the conception (stakeholder process & financial plan according to the numerous stakes and goals).
Rail stations are crystallizing various ambitions where typologies can support a coherent debate among the project stakeholders.

Typology of rail stations as a tool for decision makers (infrastructure owner, operator or urban planner):
- Helping to differentiate stations, their level of service and urban or landscape integration.
- Providing better apprehension for project management (complexity of stakeholder involvement, political and societal issues)
- Helping to anticipate political and financial debates through established procedures related to each type.