Rail stations: Typology, level of service and design process
Content

- Introduction
- Typology of rail stations
- Level of service
- Design process
- Conclusion
Introduction

- Rail stations are:
  - An entry point in the City
  - A front window of the Railway world
  - A critical node for intermodality

- Rail stations crystallise the stakes of the urban and territorial development.

- A typology for Rail Stations:
  - Efficient planning and project management as complex multi-stakeholder projects
  - Link between Typology, service level and design process; Typology as a guidance.
Typology

- Typology of rail stations could be based on
  - Frequentation
  - Level of service
  - Role in the transport and Urban network

- Typology based on frequentation: Passenger traffic volumes

  - Case of Rail stations in France (SNCF typology)
    - Type 1: very large stations; > 50,000 incoming passengers/day
    - Type 2: > 30,000 incoming passengers/day
    - Type 3: 10,000 - 30,000 incoming passengers/day
    - Type 4: < 10,000 incoming passengers/day

  Other factors of differentiation: national, regional traffic or mixed
Typology

- **Case of Switzerland: (CFF-SBB)**
  4 types based on service level for the 800 stations,
  Service level directly linked to the traffic volumes:
  - Very large stations "RAIL City" (9)
  - Large stations (21),
  - Medium stations (217)
  - Small stations (550) – case of stops without shops or commercial activity

- **Case of Germany (DB)**
  6 types based on traffic range: National, Regional and local
  with definition of clusters: (1) Very large stations, (2) long distance traffic,
  (3) long distance and regional traffic, (4) high regional traffic, (5) medium
  regional traffic and (6) small regional traffic.
  - Level of service defined for each type (tailored with clusters
    defined by customer categories).
Typology

Typology including urban/territorial criteria:

- RFF in France introduced in his typology the links with urban and landscape patterns
  - Segmentation according to volume & nature of traffic, number & nature of shops and geographic location of stations.
  - 7 types of rail stations with this mix of criteria: 6 large Paris stations, 7 very large regional stations, 38 large regional stations, 14 HSL Stations, 135 medium regional stations, 2,600 small regional stations and 370 "franciliennes" regional stations.

- Typology used by the urban transport planners in France: case of the PDUIF
  - Provide a systemic MANAGEMENT
  - 3 types of stations:
    - Main connection hubs (43) > 15,000 pass/day
    - Rail service stations of dense urban areas (184) > 2,500 pass/day
    - Access to the rail service from inhabited areas (218) < 2,500 pass./day
Typology

- Typology for new stations, based on urban characteristics
  Grand Paris Express: ~60 stations
  - Central stations (city centres)
  - Stations of new central areas
  - Emblematic stations of the railway service
  - Stations as metropolis gate (airport, HSL etc)

- Typology of stations based on services
  Types proposed by urban planners for the Grand Paris Express,
  - 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"
Effective and functional station

Identifiable
Fluid
Safe
Practical welcome space
Cultural activities
Information
Services
Commercial
Piers
Welcoming
Accessible

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Level of service – Multimodal station

(2)

Easy & Convenient

Intermodal

Digital

Connected station

Métrie

Railway exchanger

Communication broadband

Intermodal door

M. RER

BUS

P

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Level of service – Multi-modal/-service station (3)

- **Lively**
- **Practical**

A station as living place

- Urban, architectural and historical value
- Real estate value
- Commercial value
- Digital value
- Cultural and artistic values

Transport Mode (Railway, Metro)

- Attractive
Level of service & investments

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 realisation methods (surface, underground etc)
- the type of functionalities and services.

Investment cost magnitude according to the level of service (in term of density in passenger/m²).

<table>
<thead>
<tr>
<th>Level of service</th>
<th>Density illustration</th>
<th>Investment costs (index 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td>&gt; 130</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>115 - 130</td>
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<tr>
<td>C</td>
<td></td>
<td>100 - 115</td>
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<td>D</td>
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<td>65 - 100</td>
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<tr>
<td>E</td>
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<td>&lt; 65</td>
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<td>F</td>
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</tbody>
</table>
Typology and identification of functions are key for the design process and provide coherence for transport networks and urban development.

Typology 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.
Conclusion

- 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
...Thank you

for your kind attention

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