



# High Speed Railway System Implementation Handbook

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## Introduction

- **UIC High Speed Department** launched this study to provide the **guidelines** to be considered for any member-owner who would like to **implement** a High Speed Railway System-Network.
- The Handbook has been structured in **five Phases**. Each of these Phases have been divided in **Stages**, considering all the aspects that should be taken into account from the starting decision to final construction and operation.
- The main output for each Stage is the **empowerment** (considering functional, economical, technical, political and social aspects) **to go further in the process** before incurring in additional expenses.
- All the stages can be **customized** to the requirement of each particular case but in essential all of them must be considered.



HIGH SPEED RAILWAY SYSTEM IMPLEMENTATION HANDBOOK

# Structure of the handbook

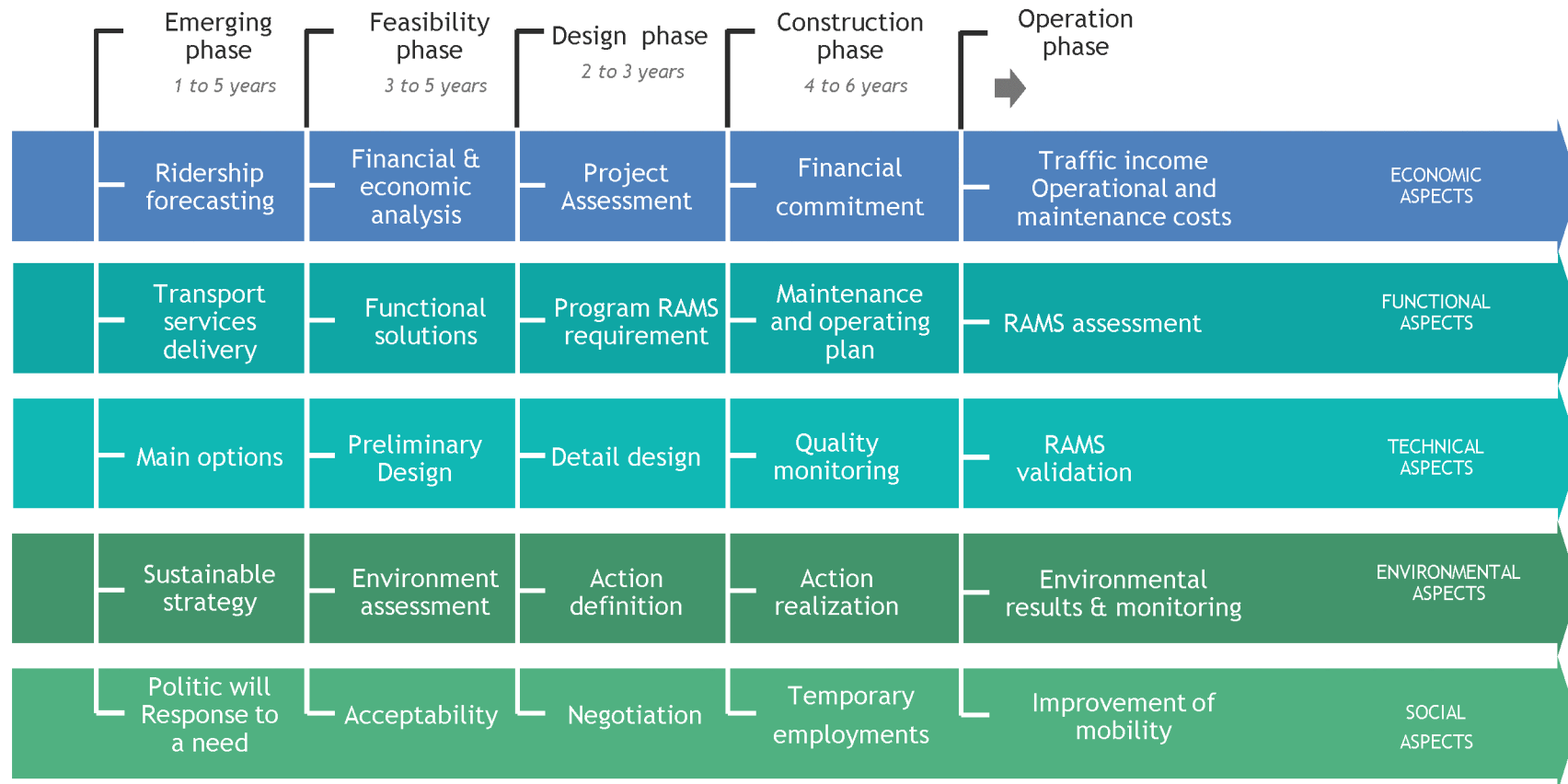
EMERGING PHASE	FEASIBILITY PHASE	DESIGN PHASE	CONSTRUCTION PHASE	OPERATION PHASE
<ul style="list-style-type: none"> <li>• <b>Stage 0.</b> Emergence</li> <li>• <b>Stage 1.</b> Pre-feasibility Studies                             <ul style="list-style-type: none"> <li>• 1.1. Ridership forecasting and transport services delivery</li> <li>• 1.2. Planning and Master Plan (including empowerment to continue)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Stage 2.</b> Feasibility studies</li> <li>• <b>Stage 3.</b> Environmental Assessment</li> <li>• <b>Stage 4.</b> Financial &amp; Economic Analysis</li> <li>• <b>Stage 5.</b> Multicriteria Analysis</li> <li>• <b>Stage 6.</b> Preliminary Design</li> <li>• <b>Stage 7.</b> Empowerment</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Stage 8.</b> Operation and Maintenance Planning</li> <li>• <b>Stage 9.</b> Detailed design (including empowerment to continue)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Stage 10.</b> Construction Planning</li> <li>• <b>Stage 11.</b> Construction</li> <li>• <b>Stage 12.</b> Testing &amp; Commissioning (including authorization to open to revenue service)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Stage 13.</b> Operation and Maintenance</li> <li>• <b>Stage 14.</b> Ex-post evaluation</li> </ul>





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# Implementation process





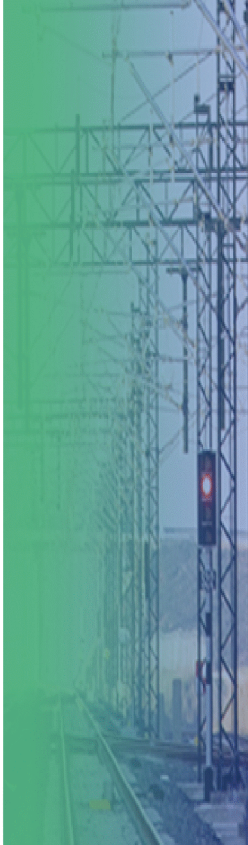
## Structure for each Stage

- **GENERAL PURPOSE**
  - Objectives of the stage: what is to be achieved in the stage
  - Key points: main aspects to be treated
  - Inputs of the stage: Data, studies, regulations, etc... Maybe different from those coming from the previous stages.
  - Outputs of the stage: Maybe different from those needed from the former stages.
- **SCHEDULING**
  - Position in the general process: flow chart of the process, identifying the stage and the relations between the others stages.
- Duration of the stage: evaluation of the medium, shorter and longer delay
- **MANAGEMENT**
  - Actors involved: Stakeholders- identify with positive and negative action
  - Empowerment: How decision are taken and validated by whom.
  - Risk: Main risks of the process and the mitigation measures.



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# Example: Stage 3. Feasibility Studies

	OBJECTIVES	KEY POINTS	INPUTS	OUTPUTS	ACTORS INVOLVED	DURATION
	<ul style="list-style-type: none"> <li>Identify corridors</li> <li>Geotechnical investigation</li> <li>Cost estimation</li> <li>Identify possible founds</li> <li>Identify opportunities for local/regional Governments</li> <li>Define potential stations</li> <li>Identify possible interoperable systems</li> </ul>	<ul style="list-style-type: none"> <li>Design Criteria</li> <li>Right of Way</li> <li>Systems</li> <li>Stations &amp; terminals</li> <li>Rolling Stock</li> <li>Procurement Strategy</li> <li>Safety</li> <li>Risk</li> <li>RAMS</li> </ul>	<ul style="list-style-type: none"> <li>Railway acceptance for Planning and Master plan</li> <li>Data collection</li> <li>Roles and responsibilities for all participants</li> <li>Requirements and programme information and approvals schedule</li> </ul>	<ul style="list-style-type: none"> <li>Land acquisition</li> <li>Funding</li> <li>Feasibility design</li> </ul>	<ul style="list-style-type: none"> <li>Railway Authorities</li> <li>Manufactures</li> <li>Environmental lobbies</li> <li>Engineering companies</li> <li>Governments</li> </ul>	<ul style="list-style-type: none"> <li>3-4 years</li> </ul>











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# Examples of new HS lines planning in the world

### FRANCE:

