
**Railway applications — Rail project
planning process —**

Part 1:
**Stakeholders and their needs/
interests**

*Applications ferroviaires - Processus de planification de projets
ferroviaires —*

Partie 1: Partie prenantes et leurs besoins/intérêts

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Contents

	Page
Foreword	vi
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Stakeholders and their needs/interests of rail projects	3
4.1 General	3
4.2 Administrative authorities	3
4.2.1 Safety compliance	3
4.2.2 Security compliance	3
4.2.3 Environmental compliance	3
4.2.4 Health protection compliance	3
4.2.5 Effect on national/regional/local economy	4
4.2.6 Financial resources/project cost/project funding	4
4.2.7 Environmental impact	4
4.2.8 Transport system coordination	4
4.3 Passengers	4
4.3.1 General	4
4.3.2 Safety	4
4.3.3 Security	5
4.3.4 Comfort	5
4.3.5 Accessibility	6
4.3.6 Service reliability/availability	6
4.3.7 Affordability of fare	6
4.3.8 Total time to destination	7
4.3.9 Vehicle design	7
4.3.10 Supplemental in-station/onboard services	7
4.4 Consignors	7
4.4.1 General	7
4.4.2 Transportation of goods	7
4.4.3 Safety and security	7
4.4.4 Reliability	8
4.4.5 Accessibility	8
4.4.6 Fare	8
4.4.7 Total time to destination	8
4.4.8 Added values	8
4.5 Owner of rolling stock	8
4.5.1 General	8
4.5.2 Return on investment (profit)	8
4.6 Owner of infrastructure	9
4.6.1 General	9
4.6.2 Return on investment (profit)	9
4.7 Managers of rolling stock	9
4.7.1 General	9
4.7.2 Safety	9
4.7.3 Profit	9
4.7.4 Life-cycle cost	9
4.7.5 Project funding	10
4.7.6 Charges/rents	10
4.7.7 Quality	10
4.7.8 Compliance	10
4.7.9 Time to place in service	10
4.7.10 Network connections between and within railways	10

4.7.11	Vehicle/network compatibility	10
4.7.12	Reliability, availability and maintainability	10
4.8	Managers of infrastructure	11
4.8.1	General	11
4.8.2	Safety	11
4.8.3	Profit	11
4.8.4	Life-cycle cost	11
4.8.5	Project funding	12
4.8.6	Charges/rents	12
4.8.7	Quality	12
4.8.8	Compliance	12
4.8.9	Time to place in service	12
4.8.10	Network connections between and within railways	12
4.8.11	Vehicle/network compatibility	12
4.8.12	Reliability, availability and maintainability	12
4.9	Railway undertakings	12
4.9.1	General	12
4.9.2	Operational safety	12
4.9.3	Cost of rail operation/operation cost	12
4.9.4	Budget for investment	13
4.9.5	Fare/subsidy	13
4.9.6	Energy	13
4.9.7	Transport capacity	13
4.9.8	Fare collection	13
4.9.9	Security	13
4.9.10	Transport capacity offer	13
4.9.11	Reliability of rolling stock and infrastructure	13
4.9.12	Availability of rolling stock and infrastructure	13
4.10	Infrastructure operators	13
4.10.1	General	13
4.10.2	Operational safety	14
4.10.3	Cost of rail operation/operation cost	14
4.10.4	Budget for investment	14
4.10.5	Fare/subsidy	14
4.10.6	Energy	14
4.10.7	Transport capacity	14
4.10.8	Fare collection	14
4.10.9	Security	14
4.10.10	Reliability of rolling stock and infrastructure	14
4.10.11	Availability of rolling stock and infrastructure	14
4.11	Construction/manufacturing contractors	15
4.11.1	General	15
4.11.2	Quality	15
4.11.3	Cost	15
4.11.4	Contract schedule/delay	15
4.11.5	Contract price	15
4.11.6	Procurement procedure	15
4.11.7	Selection and qualification of subcontractor	15
4.11.8	Compliance	16
4.11.9	Vehicle/network compatibility	16
4.11.10	Testing facility	16
4.11.11	Market demand	16
4.12	Persons/organizations engaged in related transport modes	16
4.12.1	General	16
4.12.2	Changes in demand induced by the project	16
4.12.3	Compatibility/interface management	16
4.13	Others	16
4.13.1	General	16

4.13.2	Safety and security.....	17
4.13.3	Quality of life.....	17
4.13.4	Eventuality of forced removal.....	17
Bibliography.....		18

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. www.iso.org/patents

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 269, *Railway applications*.

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Introduction

Railway represents an efficient transport mode to overcome societal and environmental issues, such as economic growth, road traffic congestion, pollutant emission reduction, accessibility, and so on. Therefore, rail projects can provide great benefits for people all over the world. However, desired outcomes cannot always be gained, since all rail projects are influenced by many external factors and conditions as well as by stakeholder's expectations. It therefore takes time and there are costs involved in identifying conditions and translating stakeholder's expectations into specifications and requirements.

Expectations and conditions can be both the same or they can differ among projects. These expectations and conditions are identified, analysed, prioritized and taken into account while advancing the project. If not, the project may not produce the expected benefits and results in a waste of time and money. In order to avoid such a waste, these factors are generalized and standardized as much as possible.

By better identifying stakeholders, taking into account their needs as well as external conditions, project planning can be optimised. The project's management will then proceed more smoothly after the planning stage, with expected benefits on costs, quality and delivery.

It is expected that this series of documents will be useful to contracting entities for:

- identifying and prioritizing needs, interests and conditions;
- assuring the coverage of all relevant regional and environmental conditions;
- advancing technical and financial optimization of a project.

In addition, this series of documents will be useful to suppliers for:

- preparing an optimum proposal;
- minimizing time and cost in the planning stage; and
- clarifying their role and related responsibility in justifying the plan of a project to the relevant contracting entity.

Therefore, both clients and suppliers will be able to promote rail projects smoothly while contributing to rail development. This series of Technical Reports will be developed as two provisional groups:

- Part 1 Stakeholders and their needs/interests; and
- Part 2 Conditions.

Pending approval of ISO/TC 269, additional standards will be developed using those reports, addressing correlation, interaction and causality.

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Railway applications — Rail project planning process —

Part 1: Stakeholders and their needs/interests

1 Scope

This document aims to identify typical stakeholders of rail projects and their generic needs/interests and does not interfere with existing national and local laws, legal requirements and regulations. It covers only the planning stage of rail projects and does not cover the execution stage. Any type of rail project is included (building a new line, retrofitting or upgrading existing lines or changes of operation or maintenance). In this document, needs/interests of stakeholders are dealt with as issues, which are subject to modification or change by all stakeholders concerned in the project.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

construction

erection of railway-related facilities excluding vehicles

3.2

contracting entity

entity, whether public or private, which orders the design and/or construction or the retrofitting or upgrading system/articles related to railway

3.3

feasibility study

study to identify and analyse a problem and its potential solutions to determine their viability, costs, and benefits

[SOURCE: ISO/IEC 2382-20:1990 (EN), 20.02.02]

3.4

life-cycle

consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to final disposal

[SOURCE: ISO 14025:2006 (EN), 3.20]

3.5

manufacturing

production of railway vehicles and railway-related products

3.6

need

prerequisite identified as necessary to achieve an intended outcome, implied or stated

[SOURCE: ISO/IEC 25063:2014 (EN), 3.19, modified, removed reference to user]

3.7

pre-feasibility study

preliminary study of a feasibility study

3.8

rail project

unique set of processes consisting of coordinated activities with start and end dates, performed to create or change a unique railway product, system, operation or service

[SOURCE: ISO 21500:2012 (EN), 3.2, clarified for railways]

3.9

railway operation

work, activities, or processes, such as driving a train, accommodating passengers/cargos or diagramming, conducted by a business or organization

3.10

retrofit(ing)

incorporation of new technology or new design parts resulting from an approved engineering change to an already supplied item in order to maintain performance

[SOURCE: IEC/TS 61400-26-1, ed. 1.0, modified, "In order to maintain performance" added.]

3.11

safety

freedom from unacceptable risk of harm

[SOURCE: IEC 62278: 2002, 3.35]

3.12

service

result of activities between a supplier and a customer, and the internal activities carried out by the supplier to meet the requirements of the customer

[SOURCE: ISO/IEC Guide 14:2003]

3.13

stakeholder

individual or organization having a right, share, claim or interest in a system or in its possession of characteristics that meet their needs and expectations

[SOURCE: ISO/IEC 27032:2012 (EN), 4.45]

3.14

supplier

party that produces, provides, or furnishes an item or service

[SOURCE: ISO 28219:2009 (EN), 10.30]

3.15

upgrading

incorporation of new technology or new design parts resulting from an approved engineering change to an already supplied item in order to improve performance

4 Stakeholders and their needs/interests of rail projects

4.1 General

A rail project requires planning. The planning stage of the rail project includes a proposal phase (conceptual planning phase), pre-feasibility study phase and feasibility study phase. From a view of the role/function in the planning stage of the project, project promoters, assessing bodies, funding bodies and decision-makers are generally involved in these phases. This document helps them develop, diagnose and evaluate a plan. The stakeholders playing these roles/functions need to be flexible and fit the planning to different contexts.

As this document is a Technical Report, the following list of stakeholders' needs/interests cannot be treated as exhaustive. Further effort is necessary to enrich the list.

Among these considerations, safety cannot be ignored. Therefore, safety analyses are carried out to minimize the risk of harm. These can be complemented by, for instance, safety evaluations by railway authorities or others (e.g. IEC 62278:2002, local regulations/rules).

Stakeholders and their needs/interests in rail projects are taken into account at the planning stage of the project and include the following:

- Level 1 subclause denotes stakeholders related to the project; and
- Level 2 or subordinate subclause refers to needs/interests which may be possessed by stakeholders denoted in level 1 subclause.

4.2 Administrative authorities

Administrative authorities are individuals or organizations that have legitimate power and influence on a rail project. Administrative authorities therefore supervise, plan, fund, or approve rail projects in the planning stage. Administrative authorities also have a legislative responsibility/right to influence the rail project through its actions such as issuing orders, issuing permissions, providing guidance and making recommendations.

Cooperation with stakeholders, which is achieved by setting up a council of experts, public hearings, or carrying out assessments, enables efficient adjustment to implement countermeasures against risks from earlier stages of the project.

4.2.1 Safety compliance

Authorities' needs/interests include conformity to any applicable laws, legal requirements and regulations related to safety, which are a potential constraint condition for the project.

4.2.2 Security compliance

Authorities' needs/interests include conformity to any applicable laws, legal requirements and regulations related to security, which are a potential constraint condition for the project.

4.2.3 Environmental compliance

Authorities' needs/interests include conformity to any applicable laws, legal requirements and regulations related to environment, which are a potential constraint condition for the project.

4.2.4 Health protection compliance

Authorities' needs/interests include conformity to any applicable laws, legal requirements and regulations related to health protection, which are a potential constraint condition for the project.

4.2.5 Effect on national/regional/local economy

Authorities' needs/interests include effect on national/regional/local economy to accomplish not only required transport, but also development and economic growth.

4.2.6 Financial resources/project cost/project funding

Authorities' needs/interests include availability of financial resources/project cost/project funding (including subsidy), which potentially affects the planning of the project.

EXAMPLE Financial resources are, for example, funds, subsidies, tax reductions, loans and other forms of financial arrangements.

4.2.7 Environmental impact

Authorities' needs/interests include environmental impact, which is any change to the environment, whether adverse or beneficial, wholly or partially, resulting from an organization's environmental aspects.

[SOURCE: ISO 14025:2006 (EN), 3.18, modified, added authority needs/interests and "wholly or partially"]

4.2.8 Transport system coordination

Authorities' needs/interests include transport system coordination with other transport modes.

4.3 Passengers

4.3.1 General

Passengers are individuals who travel from one place to another and have the responsibility of paying fares. They potentially have different needs/interests owing to attributes such as purpose of travel, distance of travel, age, physical characteristics, and income level.

4.3.2 Safety

Safety is one of the most important needs/interests that passengers have.

4.3.2.1 Platform safety

Passengers' needs/interests include platform safety to avoid the following risks:

- contact with the vehicle;
- falling off the platform;
- dragging;
- electrical hazards;
- hazardous factors in buildings in general; and
- slipstream effect.

4.3.2.2 Onboard safety

Passengers' needs/interests include onboard safety to avoid the following risks:

- collision accidents;

- derailment;
- flame, smoke, toxic gas emissions;
- catching a finger or a hand in doors;
- malfunctioning of doors;
- electrical hazards;
- hazardous factors in buildings in general;
- falling down; and
- fire.

4.3.2.3 Emergency safety

Passengers' needs/interests include safety in emergency situations.

4.3.3 Security

4.3.3.1 Platform security

Passengers' needs/interests include platform security to eliminate or minimize crimes, and if these occur, mitigate the damages of these crimes.

4.3.3.2 Onboard security

Passengers' needs/interests include onboard security to eliminate or minimize crimes, and if these occur, mitigate the damages of these crimes.

4.3.4 Comfort

4.3.4.1 General

Passengers' needs/interests include comfort, which is generally considered in the planning phase and maintained in the running phase.

4.3.4.2 Platform comfort

Passengers' needs/interests include platform comfort, which is affected by the following elements:

- cleanliness;
- temperature and humidity;
- smell;
- brightness;
- provision of platform services (food, drink, IT, etc);
- seating;
- noise; and
- amenities (e.g. restrooms and nursing rooms).

4.3.4.3 Onboard comfort

Passengers' needs/interests include onboard comfort, which is affected by the following elements:

- vibration;
- noise;
- temperature and humidity;
- smell;
- cleanliness;
- brightness;
- airtightness (air sealing);
- provision of on-board services (food, drink, IT, etc);
- passenger congestion;
- seating;
- ergonomics; and
- amenities (e.g. restrooms and nursing rooms).

4.3.5 Accessibility

Passengers' needs/interests include accessibility, which comprise the following elements:

- information availability;
- usability for older persons and persons with disabilities (See ISO/IEC Guide 71);
- ease of purchasing tickets;
- ease of clearing border control;
- impediment removal;
- floor level changes;
- connectivity with other trains or other transport modes; and
- frequency (number of services per hour, per day).

4.3.6 Service reliability/availability

Passengers' needs/interests include service reliability/availability, which comprise the following elements:

- punctuality;
- cancellation;
- staff presence; and
- information accuracy and timeliness.

4.3.7 Affordability of fare

Passengers' needs/interests include affordability of fare or the state in which fare is reasonably set.

4.3.8 Total time to destination

Passengers' needs/interests include total time to destination, which comprise the following elements:

- timetable/headway (including mixture of train types, number of stations); and
- time to wait for a train or change from one line to another at a station.

4.3.9 Vehicle design

Passengers' needs/interests include vehicle exterior and interior designs. Preference based on cultural or religious background is also taken into account for vehicle design.

4.3.10 Supplemental in-station/onboard services

Passengers' needs/interests include supplemental in-station services, which correspond to usage of railway, such as:

- in-station shopping;
- information;
- luggage storage;
- restrooms; and
- baby changers.

4.4 Consignors

4.4.1 General

Consignors are individuals or organizations having a need to transport goods, such as: materials, products, solids, liquids or gases, either on their own behalf or for a third party. They have the responsibility of paying fares.

4.4.2 Transportation of goods

Consignor's needs/interests include transportation of goods which affect the following features:

- maximum payload;
- maximum size;
- maximum weight;
- custom requirement;
- availability of special arrangements, such as ventilation, refrigeration, heating; and
- availability of safety equipments (i.e. when transporting toxic, chemical, flammable, perishable goods etc.).

4.4.3 Safety and security

Consignors' needs/interests include safety to avoid damage to goods upon loading, transportation and unloading.

4.4.4 Reliability

Consignors' needs/interests include reliability, which comprise the following elements:

- punctuality;
- cancellation;
- information accuracy and timeliness; and
- delivery accuracy for destination.

4.4.5 Accessibility

Consignors' needs/interests include accessibility, which comprise the following elements:

- information availability;
- ease of dispatching and receiving goods, including location of logistics hubs;
- ease of clearing customs; and
- frequency (number of services per hour, per day).

4.4.6 Fare

Consignors' needs/interests include fare, which comprise the following elements:

- affordability; and
- fare coordination among operators including other transport modes.

4.4.7 Total time to destination

Consignors' needs/interests include total time to destination.

4.4.8 Added values

Consignors' needs/interests include added values (IT, loading service, etc).

4.5 Owner of rolling stock

4.5.1 General

Owners of rolling stock are organizations that own rolling stock, regardless of whether the organization also manages or operates the railway for its own purposes. They have the responsibility of funding and purchasing rolling stock.

4.5.2 Return on investment (profit)

Needs/interests of owners of rolling stock include return on investment, which is gained by a good balance of payments or funding (for example by a government).

4.6 Owner of infrastructure

4.6.1 General

Owners of infrastructure are organizations that own infrastructure, regardless of whether the organization also manages or operates the railway for its own purposes. They have the responsibility of funding infrastructure.

4.6.2 Return on investment (profit)

Needs/interests of owners of infrastructure include return on investment, which is gained by a good balance of payments.

4.7 Managers of rolling stock

4.7.1 General

Managers of rolling stock are organizations that have the responsibility of:

- managing assets (including leasing);
- planning maintenance activity (retrieving vehicles from services); and
- developing a maintenance program as well as its execution, regardless of whether the organization also owns rolling stock or operates the railway for its own purposes.

Note Maintenance can be carried out in-house or outsourced. It is carried out either on a preventive basis (preventive maintenance) or upon occurrence of failure (repair maintenance), upon consideration of reliability and criticality of a system or product. Inspection and monitoring can be necessary for maintenance. In maintenance, the following elements are taken into account:

- capacity of maintenance facilities;
- technical capability (training) of workers for maintenance; and
- supply of replacement.

4.7.2 Safety

Needs/interests of managers of rolling stock include safety, which has aspects of product/system and maintenance processes.

4.7.3 Profit

Needs/interests of managers of rolling stock include profit improvement, which is affected by life-cycle cost and revenue.

4.7.4 Life-cycle cost

Needs/interests of managers of rolling stock include life-cycle cost, which is the cost of an asset or its parts throughout its life-cycle (operation of rail project deliverables), while fulfilling its performance requirements.

[SOURCE: ISO 6707-2:2014 (EN), 8.4, modified, added specificity to railways]

Life-cycle cost consist of initial costs, running costs and decommissioning costs. It is important to allocate resources properly, in order to reduce total life-cycle costs.

4.7.4.1 Initial cost

Initial costs includes the cost of rolling stock, the cost of public relations, preparation costs, etc.

4.7.4.2 Running cost

Running cost for managers of rolling stock is the cost of maintenance, which is necessary to maintain the required performance of their facilities.

4.7.4.3 Decommissioning cost

Decommissioning cost is the cost of product decommission.

4.7.4.4 Related tax

Rolling stock may incur taxes and other public charges.

4.7.5 Project funding

Needs/interests of managers of rolling stock include project funding (including subsidy).

4.7.6 Charges/rents

Needs/interests of managers of rolling stock include charges/rents paid by users of their rolling stock.

4.7.7 Quality

Needs/interests of managers of rolling stock include product quality, such as the degree of workmanship and the degree to which a set of inherent characteristics fulfils requirements (except reliability, availability and maintainability). See ISO 9001.

4.7.8 Compliance

Needs/interests of managers of rolling stock include compliance, which is achieved by complying with existing applicable laws and regulations.

4.7.9 Time to place in service

Needs/interests of managers of rolling stock include time to place in service (delay).

4.7.10 Network connections between and within railways

Needs/interests of managers of rolling stock include railway network connections between and within railways, such as rail ferries, piggybacks and park-and-rides.

4.7.11 Vehicle/network compatibility

Needs/interests of managers of rolling stock include vehicle/network compatibility.

4.7.12 Reliability, availability and maintainability

Needs/interests of managers of rolling stock include reliability, availability and maintainability.

4.8 Managers of infrastructure

4.8.1 General

Managers of infrastructure are organizations that have the responsibility of asset management (network development, maintenance), regardless of whether the organization also owns infrastructure or operates the railway for its own purposes.

Note Maintenance is carried out in-house or outsourced. It is carried out either on a preventive basis (preventive maintenance) or upon occurrence of failure (repair maintenance), in consideration of reliability and criticality of a system or product. Inspection and monitoring can be necessary for maintenance. In maintenance, the following elements can be taken into account:

- capacity of maintenance facilities;
- technical capability (training) of workers for maintenance; and
- supply of replacement.

4.8.2 Safety

Needs/interests of managers of infrastructure include safety, which has aspects of product/system and maintenance processes.

4.8.3 Profit

Needs/interests of managers of infrastructure include profit improvement, which is affected by life-cycle cost and revenue.

4.8.4 Life-cycle cost

Needs/interests of managers of infrastructure include life-cycle cost, which is the cost of an asset or its parts throughout its life-cycle (operation of rail project deliverables), while fulfilling its performance requirements.

[SOURCE: ISO 6707-2:2014(en), 8.4, modified, added specificity to infrastructure and railways]

Life-cycle cost consists of initial cost, running cost and decommissioning cost. It is important to allocate resources properly, in order to reduce total life-cycle cost.

4.8.4.1 Initial cost

Initial cost includes the cost of construction, purchasing relevant products/systems, cost for public relations, preparation cost, and more.

4.8.4.2 Running cost

Running cost for managers of infrastructure is the cost of maintenance, which is necessary for maintaining the required performance of their facilities.

4.8.4.3 Decommissioning cost

Decommissioning cost is the cost of product decommission.

4.8.4.4 Related tax

Infrastructure incurs taxes and other public charges.

4.8.5 Project funding

Needs/interests of managers of infrastructure include project funding (including subsidy).

4.8.6 Charges/rents

Needs/interests of managers of infrastructure include charges/rents paid by the users of their infrastructure.

4.8.7 Quality

Needs/interests of managers of infrastructure include product quality, such as the degree of workmanship, and the degree to which a set of inherent characteristics fulfils requirements (except reliability, availability and maintainability). See ISO 9001.

4.8.8 Compliance

Needs/interests of managers of infrastructure include compliance, which is achieved by complying with the existing applicable regulation.

4.8.9 Time to place in service

Needs/interests of managers of infrastructure include time to place in service (delay).

4.8.10 Network connections between and within railways

Needs/interests of managers of infrastructure include railway network connections between and within railways, such as rail ferries, piggybacks and park-and-rides.

4.8.11 Vehicle/network compatibility

Needs/interests of managers of infrastructure include vehicle/network compatibility.

4.8.12 Reliability, availability and maintainability

Needs/interests of managers of infrastructure include good reliability, availability and maintainability.

4.9 Railway undertakings

4.9.1 General

Railway undertakings are organizations carrying out and having the responsibility of providing transport service (passengers/goods), regardless of whether the organization also owns or manages the rolling stock for its own purposes.

4.9.2 Operational safety

Needs/interests of railway undertakings include operational safety, which comprises not only passengers' safety but also related employees' safety and safety related to third parties.

4.9.3 Cost of rail operation/operation cost

Needs/interests of railway undertakings include cost of rail operation/operation cost (including energy supply), which comprises energy cost, labour cost, lease fee, track access charge, and more.

4.9.4 Budget for investment

Needs/interests of railway undertakings include budget for investment (e.g. for upgrading or retrofitting).

4.9.5 Fare/subsidy

Needs/interests of railway undertakings include fare/subsidy.

4.9.6 Energy

Needs/interests of railway undertakings include type, quality and stable supply of energy.

4.9.7 Transport capacity

Needs/interests of railway undertakings include transport capacity to provide appropriate operation service. Evaluation/estimation of transport demands is the basis for railway undertakings to ensure transport capacity which potentially does not proportionally correspond to the transport demand.

Transport capacity consists of train capacity and frequency.

Continuous evaluation of transport demand, such as size and numbers of trains operated and tonnage is necessary in order to adapt capacities.

4.9.8 Fare collection

Needs/interests of railway undertakings include fare collection, which is carried out securely by preventing steal rides.

4.9.9 Security

Needs/interests of railway undertakings include security, which prevents acts of vandalism against railway operation.

4.9.10 Transport capacity offer

Needs/interests of railway undertakings include a transport capacity offer which potentially does not proportionally correspond to the transport demand.

Continuous evaluation of transport demand, such as size and numbers of trains operated and tonnage, is necessary in order to adapt capacities.

4.9.11 Reliability of rolling stock and infrastructure

Needs/interests of railway undertakings include reliability of rolling stock and infrastructure.

4.9.12 Availability of rolling stock and infrastructure

Needs/interests of railway undertakings include availability of rolling stock and infrastructure.

4.10 Infrastructure operators**4.10.1 General**

Infrastructure operators are organizations carrying out and having the responsibility of timetabling and capacity allocation, as well as traffic management and energy supply, regardless of whether the organization also owns or manages the infrastructure for its own purposes.

4.10.2 Operational safety

Needs/interests of infrastructure operators include operational safety, which comprises not only passengers' safety but also related employees' safety and safety related to third parties.

4.10.3 Cost of rail operation/operation cost

Needs/interests of infrastructure operators include cost of rail operation/operation cost (including energy supply), which comprises energy cost, labour cost, lease fee, track access charge, and more.

4.10.4 Budget for investment

Needs/interests of infrastructure operators include budget for investment (e.g. for upgrading or retrofitting).

4.10.5 Fare/subsidy

Needs/interests of infrastructure operators include fare/subsidy.

4.10.6 Energy

Needs/interests of infrastructure operators include type, quality and stable supply of energy.

4.10.7 Transport capacity

Needs/interests of infrastructure operators include transport capacity to provide appropriate operation service. Evaluation/estimation of transport demands is the basis for infrastructure operators to offer transport capacity which potentially does not proportionally correspond to the transport demand.

Transport capacity consists of train capacity and frequency.

Continuous evaluation of transport demand, such as size and numbers of trains operated and tonnage, is necessary in order to adapt capacities.

4.10.8 Fare collection

Needs/interests of infrastructure operators include fare collection, which is to be carried out securely by preventing steal rides.

4.10.9 Security

Needs/interests of infrastructure operators include security, which is to prevent acts of vandalism against railway operation.

4.10.10 Reliability of rolling stock and infrastructure

Needs/interests of infrastructure operators include reliability of rolling stock and infrastructure.

4.10.11 Availability of rolling stock and infrastructure

Needs/interests of infrastructure operators include availability of rolling stock and infrastructure.