The Regulation of the Railway Sector

Targeting an optimal level of Service Quality and Efficiency

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RAILHOW

“**The Regulation of the Railway Sector**
Targeting an optimal level of service quality and efficiency”

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Overview

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1 Foreword

The objective for the railway sector is to ensure an optimal level of service quality and variety (including public interest considerations) and a high level of productive efficiency (and therefore a minimum level of subsidy where one exists).

Regulation is a vital tool for achieving the social, economic and environmental policy objectives of governments. Governments have a broad range of regulatory schemes reflecting the complex and diverse needs of their citizens, communities and economy.

However, as Professor Malcolm Sparrow argues[1]:

> *"Regulators, under unprecedented pressure, face a range of demands, often contradictory in nature:*
>
> - *be less intrusive – but be more effective;*
> - *be kinder and gentler – but don't let the bastards get away with anything;*
> - *focus your efforts – but be consistent;*
> - *process things quicker – and be more careful next time;*
> - *deal with important issues – but do not stray outside your statutory authority;*
> - *be more responsive to the regulated community – but do not get captured by industry".*

How a regulator is set up, directed, controlled, resourced and held to account builds trust in the regulator is crucial to the overall effectiveness of regulation. Improving governance arrangements can benefit the community by enhancing the effectiveness of regulators and, ultimately, the achievement of important public policy goals.

Achieving good regulatory outcomes is almost always a cooperative effort: by the regulator and other regulators, the regulated, and often the broader community. For these reasons, governance arrangements require careful consideration to ensure they promote, rather than hinder, the efficient achievement of policy objectives and public confidence in the operations of regulatory agencies.

This study aims to be a guide for establishing the best regulatory framework for an optimal level of service quality and efficiency of the railway system.

This study is mainly based on an original work by The World Bank[2] what has been adapted to the scope of this study. Views and opinions expressed in the adaptation are the sole responsibility of the author and are not endorsed by The World Bank.

[1] (OECD, 2014)

[2] (World Bank, 2011) updated in 2017, see (World Bank, 2017)

2 The Stakeholders of the Railway Sector

(Tzanakakis, 2013)

There are various stakeholders with interests in the railway sector

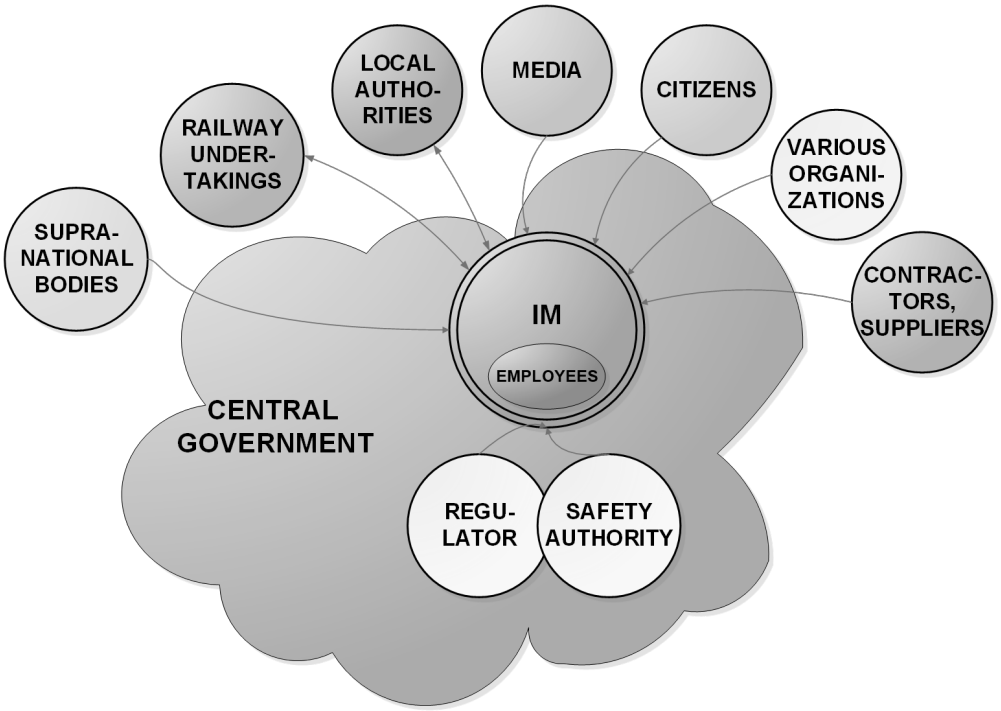

Figure 1: The stakeholders and the Infrastructure manager (IM)

Table 1 identifies the types of objectives for the different stakeholders.

Table 1: Stakeholders objectives

Possible Objectives or Priorities	Stakeholders
Reduced Budget Outlays and Lower Subsidies	• Central Government • Local Authorities • Taxpayers
Operational and Cost Efficiency	• Central Government • Local Authorities • Freight Users • Passengers • Private Shareholders
Better Resource Allocation and External Efficiency	• Central Government • Local Authorities • Taxpayers • other Transport Users
Effective Environmental Protection External Efficiency and Optimal Modal-Mix	• Central Government • Local Authorities • Environmentalists

Risk Minimization	• Central Government • Local Authorities • Freight Users • Passengers • Private Shareholders

3 Organizational structures of railways

3.1 Typical organizational structures of Railways

(Wolff, 2011)

Analysis of 27 European countries yields an overview of main organizational structures in European railway sectors. There are three models of organizational structures in Europe:

- Integration Model
- Holding Model
- Separation Model

In the next paragraphs these three typical models are illustrated in more detail and a list of countries, having a specific type of model in place, is added.

3.1.1 The Integration Model

The Integration model typically contains a vertically integrated national railway company, dominating the railway sector.

Infrastructure construction and management, transport operations and rolling stock management and maintenance are all organized by internal divisions of the integrated railway company.

Public bodies that, next to the integrated railway company and national Ministries, execute rail related functions are national railway inspectorates, licensing authorities (in some countries included in the railway inspectorate) and competition authorities. Tasks and responsibilities of competition authorities in the integrated model remain limited, since in the integration model typically little competition takes place in the railway sector. A simplified and abstracted visualization of the Integration Model is provided in Figure 2.

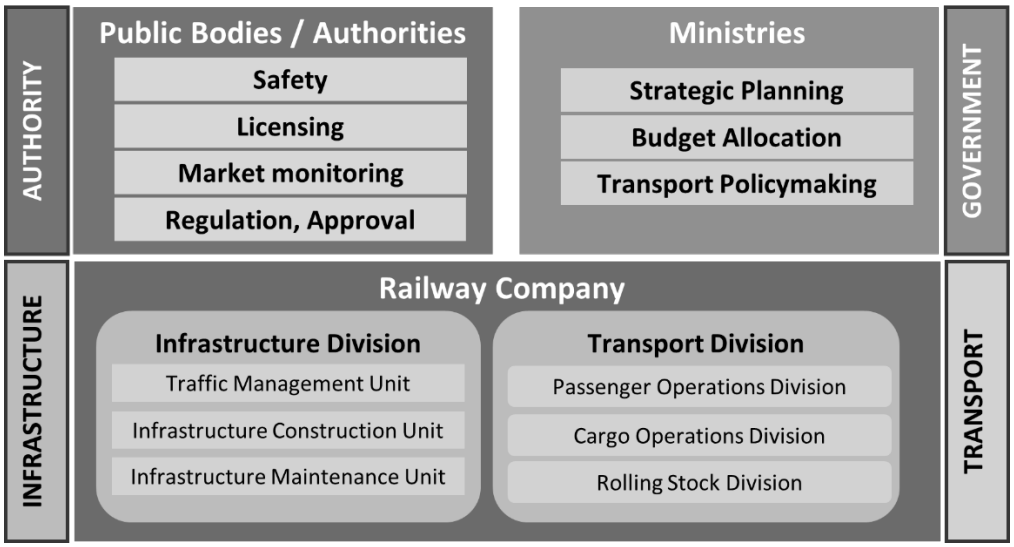

Figure 2: Simplified Integration model used in the Europe (based on (Wolff, 2011))

The integration model is likely to conflict with current European regulations since no accounting separation between infrastructure and transport operations is guaranteed.

3.1.2 The Holding model

The Holding model sees the initiation of a Holding company that remains 100% state-owned or a public institution. The Holding company functions as an umbrella, covering multiple subsidiaries. These subsidiaries take care of the main tasks in a specific business area (e.g. infrastructure management or transport operations). The Holding company is in all countries detached from the authority part (all regulatory tasks are in the hands of public agencies or Ministries). A typical (simplified) Holding setup is displayed in Figure 2.

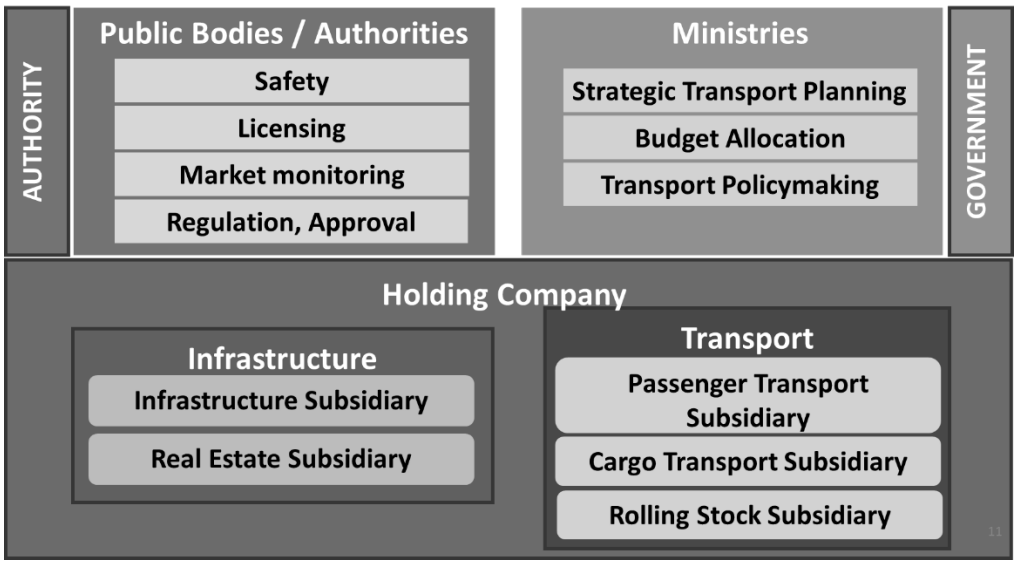

Figure 3: Simplified Holding model used in Europe (based on (Wolff, 2011))

Although the Holding model might at first glance resemble the integration model regarding the overall structure; **the most important and fundamental difference is the transition of internal departments to subsidiaries inside the Holding company**. These subsidiaries are in most European Union countries independent Ltd. Companies, conducting independent financial accounting and experiencing a certain degree of entrepreneurial freedom[3]. The Holding model is typically a 'transition' model that is situated in between a vertically integrated and a vertically separated railway sector.

The Holding model separates financial accounts between infrastructure management and transport operations. The Holding model therefore meets European Union regulations and is frequently used throughout Europe.

[3] The degree of entrepreneurial freedom subsidiaries possess, differs significantly per European country. In Belgium for example the subsidiaries of NMBS Group (Infrabel, NMBS Holding and NMBS) are mostly independent companies whereas Deutsche Bahn subsidiaries experience a much stronger influence from the Holding company.

3.1.3 The separation model

(World Bank, 2011)

How the railway industry structure is divided, referred to as “separability”, comprises two primary dimensions, horizontal and vertical. Horizontal separations are sometimes justified by creating better-managed, decentralized, and market-focused units from a monolithic national company. Vertical separation into companies for operations and for infrastructure can help expand private sector participation and competition in train services.

3.1.3.1 Vertically Separated Railways

(Wolff, 2011)

The separation model is the most far-reaching liberalization model in Europe present today. It places a clear cut between regulatory tasks, infrastructure management and transport operations.

As a sub-variant of the separation model, models containing a combined executive agency for road and railway infrastructure management are emerging (e.g. Trafikverket in Sweden).

Authority

Ministerial departments and (semi) independent public bodies are responsible for regulating the railway sector; determining transport policy, issuing and monitoring safety regulation and guaranteeing a level playing field. These public actors are responsible for licensing rolling stock equipment and for licensing Train Operating Companies, willing to offer transport services, in order to prevent unstable companies entering the system.

Infrastructure

In most European countries, railway infrastructure and railway related (signalling) systems are still owned by national governments, but management is ‘outsourced’ to independent Infrastructure Managers (IM’s), based on management and performance contracts. These IM’s are responsible for organizing infrastructure construction, maintenance and provision of rail traffic management to all Train Operating Companies using their network. IM’s may conduct small maintenance internally or may outsource all maintenance work to external (private) construction companies. All Infrastructure Managers in EUROPEAN UNION+EFTA countries are 100% state-owned companies or public entities.

Station Management is in some cases still conducted by (subsidiaries of) incumbent Train Operating Companies. A typical example is visible in the Netherlands: Dutch Infrastructure Manager ProRail is responsible for platforms and walking routes only, a subsidiary of Dutch Railways (NS Poort) is responsible for real estate management and commercial exploitation of stations and station areas. In Sweden, a separate state-owned company (Jernhusen) is responsible for station management.

Transport services

Train Operating Companies provide both passenger and cargo services on the network managed by IM's. Train Operating Companies are (among others) responsible for staff management, providing travel information and timetables (sometimes in cooperation with the IM) and selling tickets.

Rolling Stock Management & Maintenance

Regarding rolling stock maintenance and management, most European countries having a Separation Model in place, still put this responsibility in the hands of the (incumbent) Train Operating Company. The incumbent's rolling stock maintenance division or subsidiary performs refurbishment and overhaul services and may also offer these services to external (private) Train Operating Companies[4], other than the incumbent. External Train Operating Companies may also contract directly with external (private) maintenance companies (e.g. Bombardier, Alstom).

In Europe, the United Kingdom currently has separate (private) 'Rolling Stock Companies' (Rosco's) in place. These Rosco's own and lease rolling stock equipment to various Train Operating Companies, for the duration of the Train Operating Companies franchise. Small maintenance is carried out by the Train Operating Companies themselves, refurbishment and overhaul of equipment is executed by the Rosco's.

The separation model is widely used throughout Europe, in different (detailed) setups. Some countries have a mix between a Holding and a Separation Model in place when taking station (real estate) management into account (e.g. the Netherlands, Norway); others present a 'purer' form of the separation model (e.g. Romania, United Kingdom). Figure 4 displays an abstracted and simplified setup of the Separation Model.

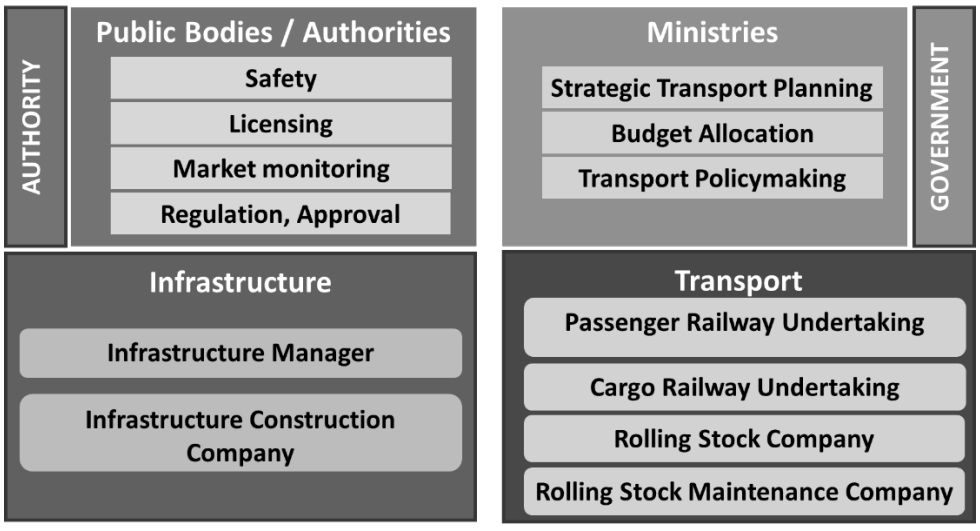

Figure 4: Simplified Separation model used in Europe (based on (Wolff, 2011))

[4] Also term "Railway Undertaking (RU)" is used in the European Union

Box 1 provides an overview of main aspects regarding vertical separation model

BOX 1: Vertical Separation (based on (World Bank, 2011))	
Why separate railways vertically?	• to promote competition in or for the rail transport market, and encourage private sector participation in rail transport operations while maintaining state ownership and control of the railway network • to increase transparency in use of government subsidies (more apparent than real as track access charges may still transfer subsidies between IMCs and TOCs)
What are the most favourable circumstances?	• larger railways with multiple and separable types of TOCs that can operate as viable entities, within markets that are large enough to be viably competitive • countries aspiring to join the European Union (although institutional vertical separation is not a EUROPEAN UNION requirement) • countries with strong implementation, administrative and regulatory capacity
What are the least favourable circumstances?	• Vertical fragmentation of small national rail markets that are unable to support competition or have no intention of seeking private participation in TOCs

3.1.3.2 Horizontal separability of Railways

(World Bank, 2011)

Horizontal separation works best when there are clearly separable business units with discrete geographic focus. For example, larger countries have multiple railway markets—heavy-haul freight in a mining region, major urban centers, and regional networks—each can be owned, managed and financed separately, compete over different routes, perhaps with access to tracks in other regions. Specialist businesses, such as a container rail company, may need to be vertically separated from infrastructure in order to be independently constituted.

Horizontal separation can sharpen market focus and management accountability, and allow for specialized operations to be devolved, divested, or compete with one another. All these objectives can be met while maintaining the integrity of a coherent general-purpose national railway system providing long-distance services.

Box 2 summarizes horizontal separability.

BOX 2: Horizontal Separation (based on (World Bank, 2011))	
Why separate railways vertically?	• to create more manageable business units from a monolithic structure • to improve transparency in financial performance • to sharpen market focus with specialized business units • to devolve responsibility to sub-national governments • to divest selected units to the private sector by sale or concession • to allow efficiency to be compared through benchmarking
What are the most favourable circumstances?	• large railways with separable regional freight and/or passenger markets • generally separable regional freight operations • separable and specialist freight businesses • generally separable regional passenger networks • suburban passenger networks
What are the least favourable circumstances?	• Horizontal fragmentation of small national railways because these lack offsetting benefits from devolution or divestment, although units can still be usefully run as individual profit centres.

3.1.3.3 Case study: Europe

(Wolff, 2011)

European countries (European Union and EFTA countries[5] that in 2011 had an integrated / Holding / Separation organization model in place are:

Integration Model	Holding model	Separation model
(1) France[6]	(1) Austria	(1) Bulgaria
(2) Luxembourg	(2) Estonia	(2) Portugal
(1) Ireland	(3) Hungary	(3) Czech Republic
(2) Slovenia	(4) Belgium	(4) Romania
(3) Lithuania	(5) Germany	(5) Denmark
(4) Switzerland	(6) Latvia	(6) Slovakia
	(7) Croatia	(7) Finland
	(8) Greece	(8) Spain
	(9) Poland	(9) The Netherlands
		(10) Sweden
		(11) Norway
		(12) United Kingdom

3.2 Dealing with Non-Core Activities

(World Bank, 2011)

In much earlier times, archetypal railways needed to be highly self-sufficient. Often, they manufactured at least some of their own rolling stock and/or constructed their own infrastructure according to the specifications of their own design offices, in which they employed engineering staff who had been trained in their own educational institutes. Railways also printed their own tickets, timetables, and manuals, employed their own security force, and sometimes accrued other businesses such as hotels, ferries, ports, haulage companies, and so on. Few railways now retain such a wide range of activities.

[5] The European Free Trade Association (EFTA): Iceland, Liechtenstein, Norway, Switzerland.

[6] France did separate IM RFF from SNCF, but links between these parties remain that strong that one can still speak of an integrated structure. As an example, all construction and maintenance of French railway tracks is conducted by internal departments of SNCF. Rail traffic management is also provided by an internal department of SNCF. Furthermore, the French railway market for all passenger transport operations remains closed for external Train Operating companie; SNCF possesses a clear monopoly on all domestic passenger transport services. These characteristics form the main reasons for France to be categorized in the 'integrated' group of countries.

What is "core" business? "Core" is generally interpreted to mean the market focus of organizational activities—a focus that differentiates a business from its competitors, or from activities of other sorts of businesses.

For railways the core business is delivering competitive transport services through efficient use of railway technology. Constructing railway lines, manufacturing rolling stock, or printing tickets and timetables are non-core activities.

Four main groups of activities associated with archetypal railways can be considered. These are social and recreational services for employees; materials supply and manufacturing companies; business support services; and "extended" businesses that are ancillary, diversified, or involve real estate holdings. Box 5.7 gives examples of such activities.

Table 2: Examples of Non-Core Activities in Railways (based on (World Bank, 2011))

Social & recreational employee services*	Railway materials & manufacturing	Business support services	Extended businesses
• Schools • Universities & Institutes • Clinics • Hospitals • Nursing homes • Staff housing • Social clubs • Sporting clubs • Staff holiday resorts	• Quarries (ballast) • Forests (timber ties) • Concrete ties • Mines (steaming coal) • Power stations • Railway sleepers • Maintenance tools • Locomotives • Coaches and wagons Rail motors and units Wheels & brake shoes Track circuits & relays Telephonic equipment Office furniture	• Occupational health Occupa-tional training • Engineering design Architectural design • Construction services • Heavy repairs • Vehicle cleaning • Printing & publishing • Police & security Railway banks	• Car parking • Hotels & restaurants • Train catering • Road haulage • Passenger road coaches • ICT & logistics parks • Freight & pass ferries • Forwarding & logistics • Travel agencies • Rolling stock leasing • Property development • Advertising
* Occupational health and training should be treated as a railway business support service			

Modern, competitive railways must concentrate on sourcing and procuring those necessary but non-core services in the way that will best support the core transport business. They must pose several questions. Is the activity necessary at all? If so, what are the alternative sources of supply? Which alternative delivers the activity at the most efficient cost?

Each group of activities shown in Table 2 has a different origin and rationale, therefore each requires a somewhat different assessment.

4 The roles of government

4.1 Goals for an efficient railway system

Goals from the Government point of view for an efficient railway system include the following (World Bank, 2011):

(1) Reduce government expenditures and liabilities associated with providing railway services
(2) Improve railway financial performance and sustainability
(3) Attract private capital to the rail sector to alleviate government investment requirements
(4) Eliminate transport capacity constraints to economic growth
(5) Increase customer responsiveness and improve services, including through efficiency gains so transport charges can be reduced
(6) Adopt requirements to increase competition, provide access to strategic national infrastructure, or introduce new rail transport laws and regulations

4.2 Government, Railways, and the Public Interest

(World Bank, 2011)

In this Chapter, we address the roles of government in the railway sector. Collectively, the execution of these roles is referred to as sector governance, to distinguish it from corporate governance (the governance of the individual railway entities themselves).

Experience shows that **government actions are always influential and often decisive in helping or hindering a successful railway industry**.

Rail sector governance affects among many other factors:

- who may be railway sector's participants and the terms on which they compete,
- environmental and safety standards,
- the extent of public financial support,
- long-term infrastructure development

All of these are matters of public interests—hence also of government interests (Figure 5).

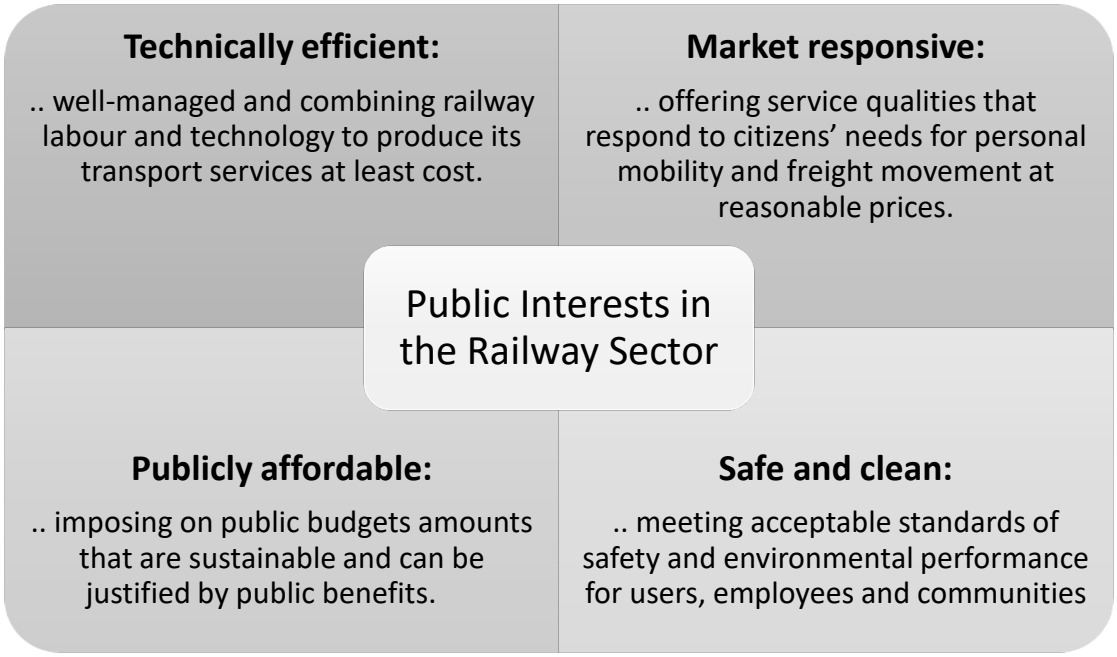

Figure 5: Public Interests that Guide Public Governance in Railways (based on (World Bank, 2011))

By necessity, there is overlap among these six government roles, but it is useful to analyse them individually, not least because the success of each role requires unique skills and tools.

4.3 Central roles of Government in the transport sector

The six main roles in which governments pursue public interests are summarized in Figure 6.

Role of Government	Comments
1. Setting national transport strategy	The overall policy aims and framework that govern how railways and other modes of transport will be developed and operated.
2. Creating railway sector structures	Primary industry institutions, balance of public and private sector roles, and the competitive framework for railways.
3. Purchasing transport services	Methods by which governments specify and purchase railway services or special fare concessions on behalf of the community.
4. Regulating the railway sector	Institutions and methods of administering economic, technical, environmental or safety regulations.
5. Facilitating international railway integration	Intergovernmental frameworks that promote interoperability and seamless service across borders.

6. Establishing the administrative structure	The organization of ministries to perform the above roles generally including supervision of state-owned railways.

Figure 6: Main Roles of Government in the Transport Sector (based on (World Bank, 2011))

4.3.1 National Transport Strategy

(World Bank, 2011)

The railway industry is subject to the overall umbrella of government policies and actions for the transport sector.

National transport strategies should help establish broad policy principles and settings, such as

- sector governance,
- public and private sector roles,
- the extent of competition,
- the types of interventions necessary to attain co-ordination and integration between modes,
- the nature of regulation,
- consistent pricing principles across modes to reflect costs and avoid user choice distortions,
- integrate global warming policies with transport policies,
- ensure equity to meet the transport needs of disadvantaged and remote populations, and
- ensure safety and security standards.

4.3.2 Railway Sector Structure

(World Bank, 2011)

Focusing on the railway sector, the second role of government is to create or modify rail industry structure by determining which institutions will deliver rail transport services and developing the policy environment in which they will operate.

4.3.3 Purchase of Transport Services

(World Bank, 2011)

Most governments influence the passenger services that railways provide and the tariffs for those services. They do so for a variety of reasons.

Central or local governments can achieve these aims by purchasing railway services through a contractual mechanism such as a Public Service Obligation (PSO) contract or Passenger Services Contract (PSC). These purchasing models are described in Chapter 5.5.

4.3.4 Regulation of the Railway Sector

(World Bank, 2011)

The fourth role of government in the railways industry is to establish regulatory systems to protect or advance public interest. Government is responsible for developing the regulatory framework, administering some of the regulations, and delegating the rest to specialist administrative bodies.

(World Bank, 2011) addresses

- economic,
- safety,
- environmental and
- technical regulation

Area of regulation	Comments
1. Economic	May include industry entry, service standards, and pricing of rail services, and/or access to Infrastructure.
2. Safety	Includes processes for protecting passengers, employees and communities, compliance and incident investigation.
3. Environment	Includes the impact of rail transport on rail corridor communities and broader impacts such as carbon emissions.
4. Technical	Includes technical norms and standards to ensure an integrated, safe and environmentally acceptable rail infrastructure and services network.

Figure 7: Areas of regulation

Regulatory systems must be designed to suit industry policies and structures. For example where there is a high degree of competition between railways and other transport modes, or between different railway operators, economic regulations may be minimal or aimed merely at sustaining that competition. Similarly, if infrastructure access rights are granted it requires a national system to regulate infrastructure access and ensure that rights are respected.

Theoretically ideal requirements of any regulatory system are:

- the regulator must be independent from the organizations and/or agreements it is regulating;
- deliberations should be open and transparent; regulators should be accountable for their decisions; and
- regulatory principles must be known and consistently applied.

Regulatory models that aspire to these principles are described in Section 5.

4.3.5 Facilitating international railway integration

(World Bank, 2011)

The fifth role of government is as **facilitator of international rail integration, important to the railway industry in many regions**. Most railway networks were built within national borders resulting in multiple barriers for railways, particularly rail freight services. This may have been acceptable before globalization but **international transport, because of its longer distances, now represents a large, fast-growing and potentially profitable market for railways**.

Inward-looking policies impede international rail corridor development, creating the following problems:

- **Absence of transit management:** International freight train transits are not all actively managed to achieve a specific origin-destination train path. Instead, some national railways simply move trains from border to border according to their own methods of working. After border processing is completed, trains are allocated to whichever train paths are available. Therefore, unpredictable border processing times creates unpredictable train path assignments. Moreover, international trains do not always obtain priority in train path allocation, locomotive assignments, mechanical repairs, or management attention. Border delays typically occur in remote locations at inconvenient times and local decision makers may prioritize their national trains over international trains.
- **Unnecessary or incompatible train inspections:** Receiving railways carry out mechanical inspections of trains to reject wagons in poor condition that might cause safety problems or require repair. If a wagon is rejected it must be shunted out of the train and the train must be re-marshaled, creating delays. However, because national inspections are inconsistent, a wagon authorized to proceed in one country may be rejected in another country.
- **Locomotive and driver changes:** Locomotives and drivers may be changed at each border, which does not take long if fully-crewed locomotives are ready and waiting at the changeover yard, but this is not always the case, mainly if schedules are unpredictable. For example, a domestic train that supplies locomotives for an international train may be delayed, or the local train dispatcher may allocate waiting locomotives to a waiting domestic train if the international train appears to be delayed. When a new train is marshaled, the train brakes must be tested for continuity, which also adds delay.
- **Bunching and queuing:** High variability in border processing times combined with inevitable perturbations in train running performance can result in bunched trains and longer waits at borders for processing. These problems are self-amplifying—unpredictable processing time at borders is itself a significant cause of schedule disruptions.
- **Information flow:** Sometimes the wagon or train manifest is not sent to borders in advance but arrives with the train, affording no opportunity for advanced processing by customs or other border agencies.
- **Customs and other border procedures:** Procedures are also unpredictable due to variations in railway operations and their own processes. However, border services delays are inevitable if train bunching occurs. If customs officers want to carry out a full inspection of a freight train wagon the railway faces a difficult choice—whether to detach the wagon and allow the train to proceed or accept inspection while the

train-consist remains whole. Detaching keeps the train moving, but the detached cargo will experience a significant delay.

"Seamless" international rail freight corridors require close and coordinated political and managerial attention across borders. In large countries such as China, India, Russia, or the United States, the ratio of international to domestic traffic is low. But in parts of the world with smaller contiguous national railway networks, developing successful long-distance railway corridors is vital to operate transnational train services. These international relationships are plagued by perverse incentives for each railway to maximize its own return from transit traffic or through-trains, which is why inter-governmental agreements are essential to provide coherent frameworks for railway management co-operation, to streamline national border controls, to minimize delays, and avoid the unreliability that is the norm at many international rail borders.

Political and managerial boundaries can magnify technological boundaries. For example, the European rail network comprises a patchwork of inherited national systems with diverse technical standards—four main track gauges, eight main signalling systems plus twelve others, six main electrification systems, differences in loading gauge, pantograph headroom, maximum axle-loads, left or right train running tracks, safety systems, and others. This creates troublesome operating constraints and railway equipment suppliers cannot exploit scale economies, so European railways are less competitive. Other regions such as sub-Saharan Africa and South East Asia aspire for creating regional networks and similar problems of integrating networks and services. In all regions, government engagement is essential to provide the enabling international frameworks to encourage solutions among national railway management and border agencies that allow international rail corridors to compete successfully with other transport modes.

A related problem is that of consistent freight pricing or access pricing across international borders. Without overarching political accords, local financial incentives may lead each railway to try to gouge out a higher share of the total movement revenue thereby inflating the through rate to the detriment of overall traffic prospects.

4.3.6 Administrative Structure

(World Bank, 2011)

The sixth and final role of government is to create and use state an administrative structure to perform all the other roles described above. The state administrative structure must suit the railway sector structure adopted, which can differ by country. Some dimensions include:

a) distribution of responsibilities among Ministries;
b) delegation of decision making between national and local governments;
c) preference for departmental or agency-type institutions;
d) preference for single-mode or multi-modal functional divisions within the Ministry.

5 The regulatory framework

5.1 Introduction

(World Bank, 2011)

The railway industry has always had high public sector involvement. In many countries, railways are owned and managed by the public sector.

The Ministry responsible for transport has been in many countries replaced as regulator by a body that is independent of government. Regulation is then separated from the government, which retains administrative oversight and its roles as policymaker, owner, and financier.

The nature of an entity's external governance is determined by the arrangements which establish and distribute **decision-making power** and **authority** between key decision-makers.

Achieving better regulatory outcomes obviously requires more than just good governance. There need to be four necessary and mutually reinforcing elements, as depicted in Figure 8 below:

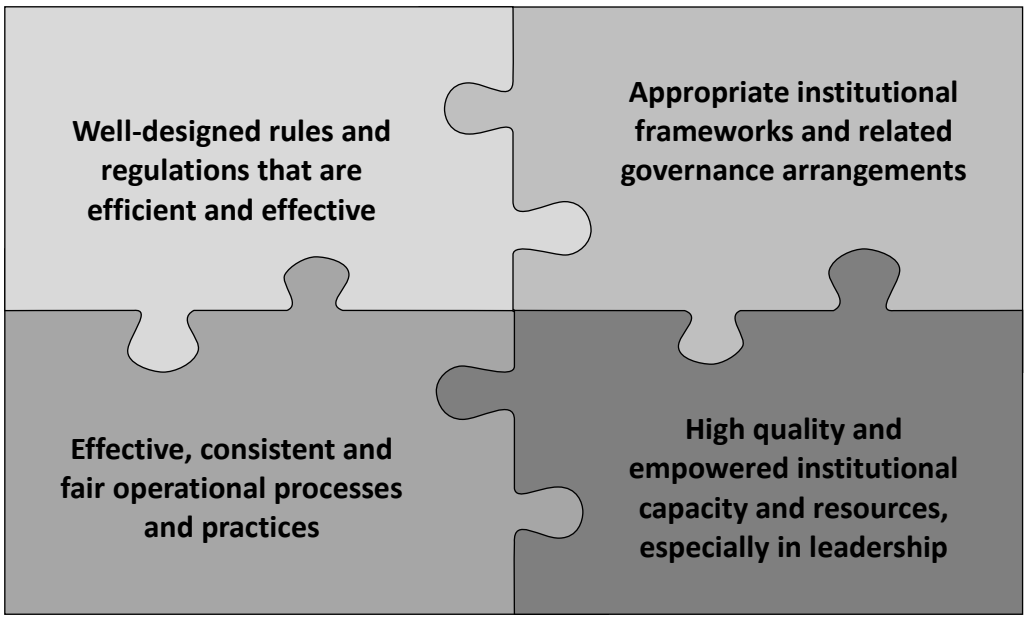

Figure 8: Necessary elements of better regulatory outcomes

5.2 Principles to support good governance of regulators

Principles within seven areas which need to be considered to support good governance of regulators (OECD, 2014):

(1) Role clarity
(2) Preventing undue influence / maintaining trust
(3) Decision-making and governing body structure for independent regulators
(4) Accountability and transparency
(5) Engagement
(6) Funding
(7) Performance Evaluation

5.2.1 Role clarity

(OECD, 2014)

An effective regulator must have clear objectives, with clear and linked functions and the mechanisms to coordinate with other relevant bodies to achieve the desired regulatory outcomes.

Regulators' policy functions

Policy ideas can arise from a wide range of sources, but policy formulation belongs to elected governments. **Governments determine the principles, objectives, priorities and approaches they take to governing**.

The role of government Ministries and agencies is to advise government on policy and deliver the policies of the government of the day.

Some jurisdictions support the principle that independent regulatory agencies should not have primary responsibility for providing policy advice to Ministers, and that this should be the role of the relevant Ministry. However, **regulators do undertake important policy functions**, by virtue of their familiarity with the regulated sector and responsibility for ultimately carrying out regulatory policy.

- they must develop more detailed (but often critical) operational policy that guides the implementation of higher-level policy decisions made by Ministers or the legislature.
- they have to develop and approve some higher-level policy, where their authorising legislation has allocated the regulator greater decision-making powers.
- if policy formulation by Ministers is to be well informed, effectively implemented and responsive to changes in the regulatory environment, it is critical that the relevant regulator is actively involved early in the formulation and subsequent refinement of policy to support the development process led by the Ministry.
- the experience of regulators in operational rules can prompt Ministries to review the policy framework within which the regulators operate.

Therefore **regulators should have a specific and explicit advisory role on government policy. Alternatively, there should be the opportunity for the regulator to input in developing government policy**.

The respective roles of the regulator and the Ministry should be clear and agreed. Where the regulator has, for whatever reason, been assigned significant policy activities, their parameters and any channels for communicating advice to the Minister or Ministry should be formally set out, preferably in legislation.

Independent regulators should not be exempted from formal requirements to undertake regulatory impact analysis and related consultation processes when developing new regulation. Equally the regulator when undertaking such formal requirements should be conducting such activities as a state-wide actor, not as a subsidiary of the Ministry. The priority placed on policy functions and their interaction with the regulator's other responsibilities should also be clearly articulated.

In addition, regulators should continuously monitor and evaluate the performance of their activities. However, significant and periodic policy reviews and evaluation of a regulatory scheme, including the performance of the regulator, should be carried out independently of the regulator. This should be through a transparent process that involves input from the regulator and those affected by its activities.

5.2.2 Preventing undue influence / maintaining trust

(OECD, 2014)

It is important that regulatory decisions and functions are conducted with the upmost integrity to ensure that there is confidence in the regulatory regime.

Establishing the regulator with a degree of independence (both from those it regulates and from government) can provide greater confidence and trust that regulatory decisions are made with integrity. A high level of integrity improves outcomes of the regulatory decisions. Regulators should have provisions for preventing undue influence of their regulatory decision making powers.

Table 3: Factors to consider in creating an independent and structurally separate regulatory body (OECD, 2014)

Factor	Description
Credible commitments over the long-term	Establishing a more independent regulator can send an important message to regulated entities about the commitment of government to objective and transparent administration and enforcement of regulation.
Stability	Greater distance from political influences is more likely to result in consistent and predictable regulatory decision making

Addressing potential conflicts of interest	Regulatory decisions that have significant flow-on impacts for government, e.g. on budgets or service delivery, or that must be seen to be applied impartially to both government and non-government entities may be better made by entities at arm's length from Ministers and Ministries.
Development of regulatory expertise	Where there is a need for specialist regulator expertise, which is best maintained in a specialist unit with quarantined resources.

There are many reasons why **different parties may wish to influence the decisions of regulators**. Whether the gains are political, financial or any other, **regulators will face pressure from those trying to have a more favourable decision** for their benefit. Even if there has been no influence, if a decision is taken that is unfavourable to a set of stakeholders or regulated entities, then there can still be the perception that a decision has been unduly influenced.

Regulators can avoid actual or perceived influences by merely being **more open and transparent about their decisions**. Decisions based on empirical evidence or research, post-implementation evaluation and stakeholder input can help build confidence and trust in those decisions. Making such justifications or the reasoning behind the decision open to full public scrutiny is important to achieve not only good regulatory outcomes but also support more fundamental issues such as the rule of law.

In a similar way, regulators often investigate future issues to potentially address through horizon scanning exercises. Sometimes regulators grant special exceptions to regulated entities for good reasons (such as exemptions and grace periods). These should all be communicated along with any new significant proposals that will have an impact on regulated entities to the regulated entities, the public, Ministers and legislature. These steps will limit the likelihood of regulated entities being surprised by a decision, new regulations or intervention. It can also address potential accusations of decisions being made due to favour of one party over others.

Finally **the potential for staff members of regulatory agencies to be influenced or be accused of being influenced should be removed**. Recusal or disqualification of members of the board, senior staff and other staff from being involved in decisions that affect previous employers should be introduced. This will further protect regulators from actual or perceived influence that could be unethical and unfair.

5.2.3 Accountability and transparency

(OECD, 2014)

Regulators are generally accountable to three groups of stakeholders:

i) Ministers and the legislature;
ii) regulated entities; and
iii) the public.

The regulator exists to achieve objectives deemed by government and the legislature to be in the public interest and operates using the powers conferred by the legislature. A regulator is therefore accountable to the legislature, whether directly or through its Minister. It should **regularly report publicly on the fulfilment of its objectives and demonstrate that it is efficiently and effectively discharging its responsibilities with integrity and objectivity**.

5.2.4 Engagement

(OECD, 2014)

Good regulators have established mechanisms for engagement with stakeholders as part of achieving their objectives. The knowledge of regulated sectors and the businesses and citizens affected by regulatory schemes assists to regulate effectively.

One objective of good regulatory governance is to enhance public and stakeholder confidence in the regulator, its decisions and its actions. Effective engagement with regulated parties and other stakeholders helps achieve this.

5.2.5 Funding

(OECD, 2014)

The amount and source of funding for a regulator will determine its organisation and operations. It should not influence the regulatory decisions and the regulator should be enabled to be impartial and efficient to achieve its objectives.

Clarity about regulators' sources and levels of funding is necessary to protect their independence and objectivity. Transparency about the basis of funding can also enhance confidence that the regulator is efficient, as well as effective.

5.2.6 Performance evaluation

(OECD, 2014)

It is important that regulators are aware of the impacts of their regulatory actions and decisions. This helps drive improvements and enhance systems and processes internally. It also demonstrates the effectiveness of the regulator to whom it is accountable and helps to build confidence in the regulatory system.

Self-evaluating regulatory decision, actions and interventions is a key first step in the process of the regulator understanding the impact of its' own actions and helps to drive improvement in performance and outcomes.

Measuring performance also communicates and demonstrates to stakeholders and regulated entities the added value of the regulator. The process of defining the performance indicators also helps to manage the expectations of the key stakeholders.

5.2.7 Forms of Regulation

(World Bank, 2011)

There are four types of regulation:

- Economic regulation
- Safety regulation
- Environmental regulation
- Technical regulation

The different forms of regulations are linked. **Safety and environmental requirements affect technical standards and all of these shape requirements for economic regulation because they influence competition in rail services and the commercial aspects of railway performance**.

Also, competition can affect the implementation of safety, environmental, and technical regulations. For example, in the European Union, introducing open access has led to requirements for each country to establish a national safety authority and an accident investigation body, and technical requirements for interoperability.

5.2.8 Economic regulation

5.2.8.1 Duties of the economic regulator

(World Bank, 2011)

No single model is best for economic regulation of all railways.

Regulation

- must be designed
    - to achieve national transport sector objectives and
    - take account particularly industry structure and government policy on private sector participation.
- must consider the railway market
- must include
    - any experience of regulation in the country,
    - the existing political culture, and
    - the potential to recruit staff with the skills and abilities needed to run the regulatory body.

The broad duties of the economic regulator may cover the following issues:

- Regulating tariffs and services, if there is little or no competition
- Developing competition

- Ensuring non-discriminatory access
- Determining access charges
- Ensuring infrastructure investment

Once competition is adequate, tariffs and services should be deregulated.

5.2.8.2 Regulating tariffs and services

(World Bank, 2011)

Regulation of rail tariffs and services should be considered if there is little or no competition, whether from other rail operators, other transport modes, or competing sources.

In this case, the standards of price regulation should be objective and transparent.

Historically, governments have regulated transport tariffs and quality and many governments still do so. However, once competition is madequate, tariffs and services should be deregulated.

5.2.8.3 Developing competition

(World Bank, 2011)

Competition is more efficient than regulation. Therefore an essential task for the regulator is to help **establish competitive markets**, which will remove the need to regulate tariffs. However, in developing competition, the regulator must consider whether railway entities already face competition from other transport modes. Therefore, the regulatory body must monitor the development of competition and may intervene actively to promote competition, sometimes in cooperation with the competition authority if it has relevant experience.

If third-party access to railway infrastructure is allowed, competition among railway undertakings should lead to lower prices, increased innovation, and the development of new markets. However, incumbent railways, usually state-owned, have complained that new market entrants "cherry pick"—that they enter or compete in only the most profitable markets, leaving the incumbent to serve the least profitable markets, which it may be under an obligation to serve. Another possibility with passenger railways is that new entrants may schedule their services just before the incumbent's. The consequent reduction in profitability can lead to reduced investment, thus leading to increased need for government support—for example, to replace cross-subsidies from profitable block trains[7] to single wagonload services—and the closure of loss-making services[8].

[7] Block trains are trains that run from origin to destination without passing through marshalling yards where wagons are reorganized into new trains.
[8] *Railway Reform - Regulation of Freight Transport Markets*, (European Conference of Ministers of Transport, 2001).

The regulator can help prevent cherry-picking and ensure that competition is fair among industry players and of benefit to customers. Experience suggests that it may be more challenging to develop competition for passenger services than for freight. This may explain why regulations often differ between freight-dominated railways and passenger-dominated railways, which often rely on franchising.

5.2.8.4 Ensuring non-discriminatory access

(World Bank, 2011)

Healthy competition with third-party access requires the incumbent and new market entrants to share a level playing field. **All licensed undertakings must have equitable access rights to track, under specified conditions**. The regulator may be required to arbitrate complaints about discrimination in access provision.

Competition can sometimes be encouraged by developing multi-party access to the so-called "last-mile" facilities—stations, depots, and connections to rail networks for which shared facilities make more economic sense than duplicate facilities. If it is expensive to duplicate essential facilities; ideally, the owner should provide access to competing companies. However, to require this could discourage investment as companies do not want to invest to benefit their competitors.

The distinction between **essential and non-essential facilities** is illustrated by Annex II of the European Union's Directive 2001/14 [9] (see Box 9.4). The Directive includes lists of services that may be supplied to railway undertakings. Group 1, the minimum access package, and Group 2, track access to services facilities and supply of services, refer to services that would be costly to replicate and to which access must be provided (see Article 5). Group 3, additional services, may be offered; if they are, the infrastructure manager must supply them upon request. Finally Group 4, ancillary services, may be supplied but the infrastructure provider is under no obligation to do so.

Box 3: ANNEX II of European Union Directive 2001/14 – Services to Be Supplied to Railway Undertakings

1. The minimum access package shall comprise:

   a) handling requests for infrastructure capacity
   b) the right to utilize the capacity that is granted
   c) use of running track points and junctions
   d) train control including signaling, regulating, dispatching, communication, and providing information on train movement
   e) all other information required to implement or operate the service for which capacity has been granted

2. Track access to services facilities and supply of services shall comprise:

[9] http://ec.europa.eu/transport/rail/packages/2001 en.htm

a) use of electrical supply equipment for traction current, where available
b) refueling facilities
c) passenger stations, their buildings, and other facilities
d) freight terminals
e) marshalling yards
f) train formation facilities
g) storage sidings
h) maintenance and other technical facilities

3. Additional services may comprise:

a) traction current
b) pre-heating of passenger trains
c) supply of fuel, shunting, and all other services provided at the access services facilities mentioned above
d) tailor-made contracts for:
e) control of transport of dangerous goods
f) assistance in running abnormal trains

4. Ancillary services may comprise:

a) access to telecommunication network
b) provision of supplementary information
c) technical inspection of rolling stock

5.2.8.5 Developing access charges

(World Bank, 2011)

The charging system for access is one of the most complex issues of third-party access. For more information, see (ECMT, 2005).

5.2.8.6 Ensuring infrastructure investment

(World Bank, 2011)

Ensuring the right amount and type of investment in rail infrastructure is complex and difficult in railways, because of the lumpiness of investment in railway infrastructure (large investments are needed all at once).

Government may require the regulator to create a framework that encourages infrastructure investment.

Several European countries have introduced multi-year contracts between the state and infrastructure suppliers as an alternative to regulation. To enlarge the planning horizon and to encourage efficiency gains, the European Union is considering a requirement for member states to **offer infrastructure managers multi-year contracts** or to enact regulations to improve budgeting certainty and provide incentives to infrastructure managers to improve their efficiency.

5.2.8.7 Economic regulation across borders

Railways are the most competitive transport mode for moving freight over long distances; hence, **cross-border railways are of growing economic importance**.

Consequently, **regulatory frameworks need to meet national requirements and be sufficiently flexible to achieve compatibility across borders to operate or build new systems**.

In Europe, railways have developed along national lines so key concerns are **interoperability and access**, including access charges (Box 9.5), problems that are common to cross-border movements around the world.

In the former Soviet Union, railways were unified until 1990 and they continue to adhere to the same technical and safety standards. Although transit tariffs vary, a satisfactory international agreement is in place.

In developing countries, the solution to the sharing of revenue for cross-border movements should be more straightforward. Governments should negotiate an international treaty, mirrored in an agreement among national railways that includes financial arrangements.

The regulator should set the safety standards and the railway companies the system for implementing the rules.

5.2.9 Safety regulation

(World Bank, 2011)

Regulators should establish safety standards and railway companies should establish systems for implementing the standards.

Regulators should then review, approve, and audit the system to ensure adherence. Appropriate regulations to be implemented without too much supervision. Safety regulation should not be intrusive and the regulator's primary focus should be to ensure adequate processes are established to meet standards.

Safety regulation could be "privatized" through insurance requirements. For example, insurance company surveyors could conduct annual inspections, which would be a condition to obtain insurance, and insurance would be a condition to obtaining a license to operate.

Box 4: Examples of Safety Regulation in the European Union and South Africa

In the European Union, Safety Directive (2004/49)10 requires railway operators to maintain a Safety Management System (SMS) and hold a safety certificate or authorisation indicating the safety regulator accepts the SMS. This directive is more detailed than earlier legislation as it now takes account of market opening and interoperability. The principles include:

[10] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=0J:L:2004:220:0016:0039:EN:PDF

I. railway companies are responsible for the safety of their portion of the system;
II. safety regulators are responsible for managing, regulating, and enforcing safety rules; and,
III. national accident investigation bodies must be established and can be part of the safety regulator.

South Africa adopted a similar approach. The Railway Safety Regulator (RSR), under the Department of Transport, oversees and promotes safe railway operations by supporting, monitoring and enforcing within an enabling regulatory framework.11 The RSR oversees railway safety in South Africa; train, station, and railway line operators remain responsible for implementation.

5.2.10 Environmental regulation

(World Bank, 2011)

Most railway environmental regulation is based on cross-sector national legislation for environmental protection. Typically, rail-specific regulations cover three broad areas:

- **Soil pollution**, for example from engine lubricants, oil leakage from wagons, sewage from passenger trains, pesticides, and creosote from wooden sleepers;
- **Noise** from rolling stock, which can be a significant concern in urban areas;
- **Local air pollution** from diesel trains; pollution from freight (e.g., coal dust).

The environmental regulation body may also undertake environmental impact assessments for new projects. Assessments could cover a range of issues, including the impact on human settlements, wildlife, and water resources.

Environmental regulations are often standardised internationally. For example, a recent European Union Directive (2004/26) aligns diesel locomotive emission limits with U.S. standards to help create a competitive global market for rolling stock.

In the United States, the Federal Railroad Administration (FRA) is responsible for environmental regulation and environmental impact assessments.

In contrast, in the European Union, most countries assign environmental regulation to their environmental agencies, not a sector regulator.

5.2.11 Technical regulation

(World Bank, 2011)

Technical regulation may be required to meet

- safety,
- environmental, or

[11] Source: RSR's website - http://www.rsr.org.za/

- operational standards.

A fundamental form of technical regulation aims to ensure that track and wheels are compatible with each other on all lines. For example, European Union directives on interoperability use provide a degree of technical harmonisation and procedural standardisation.

5.3 Contractual relationships between government and railways

(World Bank, 2011)

Relations among state entities (Government, Ministry of Transport, Ministry of Finance, etc.) and the railway corporation must be based on public written documents to ensure long-term business sustainability.

A railway law should establish relationships and long-term agreements to ensure that the railway is immune to political changes that would undermine its inherent need for long-term planning.

All written agreements should follow standard business practices.

5.4 Institutional Issues

5.4.1 Principles for sound regulation

(World Bank, 2011)

Critical principles for determining how to regulate railways are as follows:

- The regulator is independent of industry and government
- The regulator has clear legal authority and can extract industry information required to carry out its specified duties
- Transparency and openness prevail
- The regulator is accountable for action, inaction, and related costs
- Regulatory decisions are consistent and predictable
- Simple regulatory design clarifies roles and responsibilities, which can help avoid misunderstandings and legal disputes.

All aspects of regulatory activity should reflect these principles.

5.4.1.1 Independent regulators

Independence from industry and government is desirable for any regulator.

Economic regulation should be independent of any railways industry player; this is even more critical after introducing competition, to maintain a level playing field and the perception of fairness.

Ministers should have no authority to influence regulatory decisions. If the industry is regulated by a Ministry with financial interests in the railways, or Ministry policy objectives conflict with commercial objectives, the private sector will walk away, and the goal of developing market competition will be unrealised. Independence should

also ensure consistent and predictable decision-making as decisions are separated to some extent from the political process.

Before investing, the private sector will be concerned that regulations and rules may be introduced or changed which may undermine the profitability of their investments, or even worse, renders their assets vulnerable to expropriation. Independent regulation provides greater certainty than if decisions depended entirely on government. Regulators often oversee complex and contentious situations and should be allowed to seek professional advice and find apolitical solutions.

However, even though regulation should function outside the political process, regulator authority and scope of responsibility are established through government legislation, and members of the regulatory body should be appointed by the government.

How can countries establish a regulation that is genuinely independent? Many countries lack the experience of independent regulation or the financial and human resources to regulate effectively. Consequently, some national governments opt to regulate using concessions. However, without some independent regulation, concessions can be problematic.

To achieve genuine independence, the regulator must be adequately resourced, typically from a dedicated funding source that comes from the industry it is regulating—through fees for licenses or concessions. Independent funding insulates the regulator from government budgets and reinforces independence from government. Parliament should establish the regulator's budget, separate from that of the Ministry responsible for railways, to ensure budgetary accountability and independence. Genuine independence is also reinforced through stringent processes to appoint and dismiss the regulatory board and senior staff (see section on staff below).

In practice, countries may be unable to implement all elements of regulatory independence immediately. A small fledgeling regulator could benefit from established government administrative procedures, and financial independence from public subsidy is unlikely given the substantial start-up costs to set up the regulator. However, the long-term goal should be regulatory independence.

5.4.1.2 Clear legal authority and duties

The powers of the regulatory authority should be adequately expressed in legislation, avoiding the need for the regulator to seek Ministerial approvals. The legislation should specify the regulator's legal authority and scope of responsibility.

In particular:

- The roles of the regulator and other bodies should be clarified to avoid overlapping responsibilities.
- The regulator's authority must be sufficient to execute specified responsibilities; for example, the regulator must be able to access industry information.

- All aspects of regulatory processes should be transparent, including all decisions and the justifications for them.
- The regulator should be legally accountable for procedures and decisions through an appeals procedure, which provides a reputational incentive for the regulator to base decisions on evidence and sound reasoning.
- Permanent consultative arrangements should be established with key sector stakeholders, including Ministries, ports (where appropriate) and major customers.

For example, the duties of the British rail regulator are in Section 4 of the 1993 Railways Act.[12]

5.4.1.3 Transparency and openness

Transparent and open decision-making processes conducted through formal channels reinforce regulatory independence and provide market confidence that there has been no undue influence from government or industry. This includes opening regulatory processes and procedures to public scrutiny and disclosing all decisions, procedures, appointments, financial information, and means of appeal. Communication channels should include annual reports, a continually updated website, and perhaps a telephone call-in facility.

Transparent and open processes for making and publishing decisions reinforce the independence of the regulator.

5.4.1.4 Accountability

The regulator must be accountable to the public it serves, to the industry it regulates, and to parliament, which authorises its operation. Therefore regulatory **reporting procedures and access to information** for consumers and other stakeholders must be open and transparent. The regulator must demonstrate accountability in staffing procedures, lines of authority, and decision making. Also, accountability requires a coherent, robust, and open appeals process for industry to challenge regulatory decisions.

Of course, independent regulators are capable of exceeding their mandates and increasing their internal costs to unjustifiably high levels. Therefore, checks and balances must be established through governance structures, mandatory public information disclosure, independently audited accounts, and judicial reviews and investigations of regulatory decisions. Regulators should submit an annual report to parliament disclosing finances, planning, achievements and failures, and a parliamentary body, such as a public accounts committee, should oversee this.

5.4.1.5 Consistency and predictability

Regulators need enough flexibility to **improve the regulatory regime by adapting processes and decisions to reflect lessons learned** in carrying out their work. However, inconsistent or unpredictable shifts in regulatory requirements increase risk

[12] http://www.railwaysarchive.co.uk/documents/HMG_Act001.pdf

for the private sector, generating suspicion and reducing credibility about regulatory independence, thereby raising the cost of capital and discouraging investment in the industry.

5.4.1.6 Complexity should be minimised.

Minimising the cost and complexity of regulation is a crucial objective in regulatory design.

Complexity increases costs for the regulator and the industry uses scarce human resources and can stifle commercial activity. Regulation must strive to avoid reducing rail industry competitiveness, mainly since most governments want to shift transport traffic to rail from less environmentally friendly modes. Regulatory design should be aimed at limiting regulation to the essential, and streamlining regulatory structures and processes, leaving as much as possible to the market and the industry.

5.4.2 Institutional arrangements

Within the context of the principles set out above, several inter-related options exist for regulatory, institutional arrangements.

- **Should economic and safety regulations be combined in a single body?**
- **Should rail have its own regulator or share a regulator with other sectors?**
- **Should the regulator be designated as an agency or an authority (implying more independence)?**

5.4.2.1 Combine economic and safety regulation?

A single body can carry out economic and safety/technical regulation, or separate bodies can share tasks. Some countries have opted for separate bodies, such as the United States, and initially, Great Britain. Later, Britain decided that safety and economic regulation should be combined, which would help to ensure that safety regulation took more account of the commercial implications of decisions. This creates some **potential for safety to be compromised by a greater focus on commercial outcomes but combining economic and safety regulation offers the advantage of sharing staff, especially technical staff**. It addresses the important issue in designing regulatory frameworks of ensuring smooth coordination between those responsible for different aspects of regulation.

5.4.2.2 Single sector or multi-sector regulator?

The legislation setting up the rail regulator should take account of other regulators whose authority may take precedence or whose mandate may overlap with that of the rail regulator. For example, would it make more sense for existing regulators to add rail regulation to their responsibilities? Alternatively, is a dedicated rail regulator a better option? This relates to the broader issue of whether a single rail regulator or a multi-sector regulator (MSR) should be responsible. Box 5 offers examples.

Box 5: Examples of Single and Multi-Sector Regulators

In the **United States**, economic regulation for railways is carried out by the independent Surface Transportation Board (STB), responsible for all surface transport modes; railway safety is regulated by the Federal Railroad Administration (FRA) within the Department of Transportation.

Similarly, in **Germany**, an MSR, the Federal Network Agency (BNA), monitors competition and ensures non-discriminatory access to infrastructure in all network industries, including railways; the Federal Railway Authority (EBA) supervises and issues railway licenses.

In **Russia**, there are two economic regulators (MSRs) for natural monopolies: the Federal Service for Tariffs (FST), which deals only with tariffs and the Federal Anti-Monopoly Service (FAS), which deals with broader competition and regulatory issues. A similar arrangement has been adopted in Kazakhstan.

In other **large European Union countries** (Britain, France, Italy), economic regulators for rail are responsible only for the railway industry, but this is not the case in smaller European Union countries.

Few **transitional or developing countries** have sufficient resources to establish a single regulator for the rail sector, or even for the transport sector, so most developing countries have established rail regulation within multi-sector regulators. For example, in Tanzania, the Surface and Marine Transport Regulatory Authority (SUMATRA) regulates economic, safety, and environmental aspects for all transport sectors, except air. **Useful synergies can result when a single body regulates multiple sectors**.

- Lessons learned from regulating one sector can be applied to other sectors.
- Specialist staff (e.g., lawyers) can be utilised across sectors, creating full work programs and more effective and efficient regulation.
- Utility and transport sectors share the need to plan and finance long-term capital investment, to determine tariffs, and the need for licensing.
- An MSR should facilitate regulatory policy that is more consistent and transparent across sectors.
- An MSR may be less likely to succumb to “regulatory capture” than a single sector regulator, because an MSR has more status and authority, and works across multiple industries and Ministries.

MSRs have some **potential disadvantages**:

- Because of MSR power and influence, leaders can abuse their position. Specialist technical knowledge for individual sectors may be insufficient; this risk can be reduced if each sector is represented at board level and if sector-specific technical groups are retained at an operational level.
- An MSR’s size and relative complexity may present more challenges to establish and manage.
- A more massive bureaucracy could delay decisions.

5.4.2.3 Authority or agency?

The regulator should be set up as an independent authority, not a government agency, which would lack the necessary independence. A regulatory authority, operating within a framework defined by the government in legislation, will ensure that decisions are consistent and sufficiently predictable to assure investors, rather than based on short-term political gains such as elections, or financial constraints.

5.4.3 Staffing

Many countries have little or no experience of independent regulation so building regulatory capacity is a crucial issue. **The challenge is to recruit and retain experienced qualified staff that can perform the unique and challenging roles required by the regulator**.

Regulators should not depend on a government department for their staffing. To increase independence, appointments should be made independently of government or the Minister, possibly through an independent appointments board.

An effective regulator must have sufficient numbers of competent staff, which could encompass **skills in law, economics, accounting, and engineering, depending on the duties of the regulator**. Also, **railway technical skills will be required for safety regulation, and possibly for economic regulation**, to ensure that decisions take account of rail industry realities.

Since the regulator should be a catalyst for change and take a fresh look at railways, staffing should not be dominated by former railway employees who may also be overly intrusive and attempt to direct the running of the railway.

5.5 Buying services from railways (Public Service Obligations)

(World Bank, 2011)

A good working definition of **Public Service Obligations** (PSOs) was developed by the European Commission for use in the European Union and is adapted here for more general application: “a requirement defined or determined by government, which the transport undertaking in question, if it were considering its own commercial interests, would not assume or would not assume to the same extent or under the same conditions, without reward.

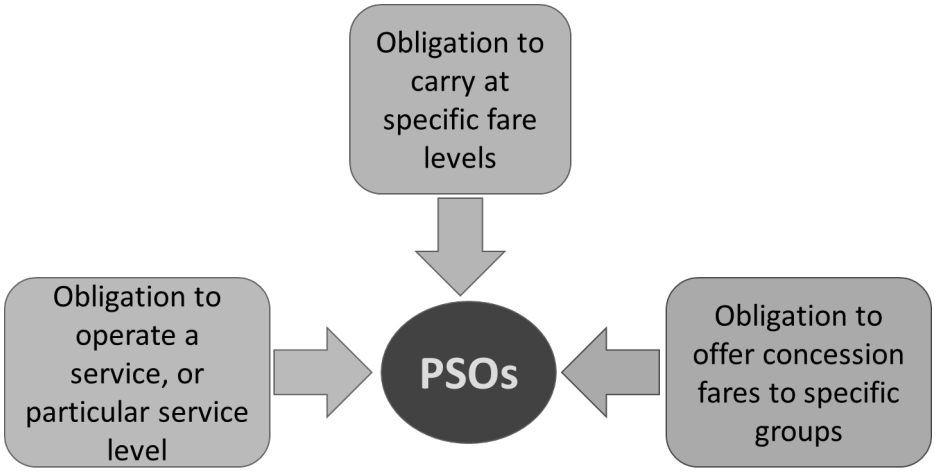

Figure 9: Public Service Obligations (based on (World Bank, 2011))

Public Service Obligations could include:

a) a specified service or group of services such as those on low-density branch lines, commuter services, or off-peak services at night or on Sundays, regardless of demand levels;
b) a regulated non-commercial fare structure or restriction of fare increases below those recommended by railway management or at a lower rate than cost increases;
c) offering concession fares to specified groups such as students, pensioners, military personnel, civil servants, the disabled, and so on.

5.6 International good practice

5.6.1 The European Railway Industry and Regulations

(GCC Technical Secretariat, 2013)

5.6.1.1 Introduction

National railways developed in each European state over the last 150 years. Robust railways were established, but as the European Union developed its concept of economic integration, and in the railway sector, to encourage interoperability, problems arose due to the existence of different standards and procedures in each railway. One of the EU's major priorities is to have a safe, modern integrated railway sector. Railways must become more competitive and offer high-quality, end-to-end services without being restricted by national borders.

5.6.1.2 Current Initiatives in the European Union Railway Sector

(GCC Technical Secretariat, 2013)

The following is a summary of a European Union report on current policy and initiatives:

'European rail policy aims to facilitate the sustainable development of the European economy by providing high-quality, reliable, safe and efficient services. To ensure that the potential growth in this sector is fulfilled, the European Union needs to establish a single European railway area based on an integrated infrastructure network and interoperable equipment enabling efficient transport services throughout the European Union and its neighbouring countries.'

To increase competitiveness of the European rail sector, the Commission's strategy consists of promoting the development of effective rail infrastructure, establishing an open rail market, removing administrative and technical barriers, and ensuring a level playing field with other transport modes.

Significant barriers still exist to entry in the European Union rail market, such as safety requirements and the lack of interoperability, predominantly stemming from the cost and duration of the procedures involved at the national level, their disparity within the European Union and the lack of transparency and predictability. The Commission has already started the procedure by harmonising safety certificates for railway undertakings and introducing common safety targets and methods. A lack of adequate and harmonised decision-making mechanisms involving all parties in this area, including national safety authorities, has led to the Commission considering extending the European Railway Agency's role in the certification and authorisation processes.

The Commission is progressively adopting harmonised technical specifications for interoperability in order to remove existing administrative and technical barriers to entry in the European Union rail market.'

5.6.1.3 European Railway Agency

(GCC Technical Secretariat, 2013)

The European Railway Agency (ERA), one of the agencies of the EUROPEAN UNION, was set up and became operational in 2006, with headquarters in northern France. It is intended to help create an integrated European railway area by reinforcing safety and interoperability. Its mandate is the creation of a competitive European railway area, by increasing cross-border compatibility of national systems, and in parallel ensuring the required level of safety.

The ERA sets standards for European railways in the form of ERA Technical Specifications for Interoperability, which apply to the Trans-European Rail network

In supporting a competitive, open market for rail, it:

- enhances the level of interoperability of railway systems; and
- develops a common approach to safety on the European railway system.

The Agency does this by issuing recommendations and opinions to the European Commission and, in the case of opinions to EUROPEAN UNION Member States. The Agency liaises with member state National Safety Authorities (NSAs), including holding four network meetings a year, and organises topic-specific working groups, to form these recommendations. The NSAs have a duty to authorise, and in the case of rolling stock keep a register of, new and changed components of the railway; ensuring

relevant technical specifications for interoperability (TSIs) are met. The NSAs are also required to develop a safety regulatory framework, including a system of national safety rules, and to produce an annual safety report to ERA.

ERA acts as an information centre for the development of safety on the railways. It holds a public database of relevant documents and every two years publishes a report on the development of railway safety. Supports the national bodies in their cooperation to further harmonise NSA decision-making principles and investigation methods.

The Agency also acts as the system authority for the European Rail Traffic Management System (ERTMS) project, which has been set up to create a universal system throughout Europe.

In carrying out its mandate, the ERA cooperates with two groups of stakeholders – European Commission and governmental representatives and their institutions on one side and railway sector partners, rail workers, freight customers and passengers on the other.

The central departments within the ERA cover: Safety; Economic Evaluation; Interoperability; Cross Acceptance as well as Administration.

5.6.2 The Railway Safety Commission, Ireland (National Body)

(GCC Technical Secretariat, 2013)

The Railway Safety Commission (RSC) is the independent regulatory agency charged with oversight of the safety of all railway activities in Ireland.

The RSC's role is regulatory – it does not have an operational role in managing the day-to-day safety on the ground. That responsibility lies with the railway organisations. The RSC's role is to ensure that these organisations are putting in place and implementing their Safety Management Systems (SMS).

The Railway Accident Investigation Unit (www.raiu.ie) was also set up under the Railway Safety Act 2005 to investigate incidents and accidents. It is functionally separate from the RSC and operates independently, in line with international norms.

5.6.2.1 RSC Role

The RSC is required to ensure that each railway organisation operating in the State understands and effectively manages the risk to safety associated with its activities. This is achieved in three ways:

- Conformity Assessment – Assessing Safety Management Systems (SMS) to ensure that they conform to all requirements before awarding safety authorisation or safety certificates, and assessment of new railway infrastructure and rolling stock to ensure safety compliance before placing in service.
- Compliance Supervision and Enforcement – Auditing compliance with the procedures and standards prescribed in each approved SMS, and inspection of

railway assets to assess compliance with fitness for purpose criteria. Compliance with safety recommendations is assured through the monitoring of implementation plans and by taking enforcement proceedings where necessary.

- European and Legislative Harmonization – Supporting the harmonisation of legislation with European Directives and Regulations, and ensuring that the following implementation of related technical and procedural measures conforms to mandatory European requirements.

5.6.3 The Australian Railway Industry & Regulation (National Body)

(GCC Technical Secretariat, 2013)

5.6.3.1 Introduction

The Australian Rail Track Corporation (ARTC) is the Railway Authority and Railway Infrastructure Manager for the open access, standard gauge Interstate and Hunter Valley rail networks in Australia which consists of over 8,500 km of operational railway lines.

ARTC received a mandate from the Australian Federal Government in 1998 to manage the proclaimed 'Defined Interstate Railway Network', (DIRN), which spanned across five States. Individual segments on the DIRN were up until that stage managed by individual State Governments with various technical standards, rule books and individual State Regulators in place.

ARTC progressively took control of the Interstate Railway network and developed and implemented a National Code of Practice for design, construction, maintenance, operation and safe working on the network. Up until ARTC commenced this major national initiative, the individual State's had managed these rail networks with minimal regard of adjacent network owners or regional services. This allowed a disparate set of standards and operating protocols to exist, which impacted on the efficiency of interstate passenger and freight services and prevented maintenance and operational staff from working across borders.

In recent times the ARTC has guided the establishment of a single National Rail Regulator, which will come into effect in January 2013, replacing State based Regulators. In line with the creation of the National Rail Regulator an ordinary Rule Book has also been developed and agreed with existing State Regulators (a prerequisite before the establishment of the single National Regulator).

It is worth noting that it has taken 14 years for a complete transition from State controlled segments of the interstate mainline to the National railway that exists today with a single Authority/RIC as well as a single Regulator (as of January 2013).

5.6.3.2 Open Access

The ARTC Network is Open Access. In 1998 the abolishment of the vertically integrated structure allowed for the sale of one of Australia's largest rolling stock operators. Pacific National was the private entity created out of this sale, and as the market

evolved, additional private Operators emerged. Currently, there are five major rail Operators on the ARTC Network and a handful of smaller Operators.

Arguably the market has grown ahead of demand. Currently, there is a very tight market with little rolling stock investment in Interstate freight or passenger services by any of the current Operators. The bulk sector remains very strong however regional or interstate service growth has stagnated. One question is whether this Open Access regime has allowed too much competition to develop.

5.6.3.3 Hunter Valley

The Hunter Valley Network is an example of an efficiently run Open Access regime. The Hunter Valley network supports the largest coal export port in the World at Newcastle, NSW. The current net coal exports out of the Port of Newcastle are approximately 140 million tonne pa, and expansion program is in place to ensure all parties are delivering that capacity enhancements within the chain (Mine, Port and Rail) within the demand time frames. The institutional framework is fundamental as coal volumes are predicted to grow to more than 250 million ton pa.

Fourteen private mining companies export coal through the Hunter Valley rail network and three privately owned Coal Terminals. Given the vast number of stakeholders and competing interests, regulation is unavoidable.

ARTC as the Railway Authority and Railway Infrastructure Manager has recently developed a new Rail Access Undertaking whereby contracts for capacity are taken directly with customers and where a third party sub-agreement is established with an open-access Rail Operator for the operation of trains. The Access Undertaking outlines the guidelines for access provision and pricing. The Hunter Valley network also supports a mix of general freight and intercity and country passenger trains.

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About the Author

Kostas Tzanakakis is working as Senior Railway Expert at the Ministry of Transport and Communications in Oman for railway institutional issues, railway policies and the establishment of a Railway Authority in Oman.

Before joining Ministry of Transport and Communications in Oman, Kostas worked in 2013, 2014 in Oman for the Oman Rail Company for the development of the Omani National Railway Network.

Before his work in Oman, Kostas worked for 30 years at Greek Railways Organization, having in last years the position of the Director of the Rail Systems Directorate.
Between 2011 and 2013 he also worked in Serbia, for restructuring Serbian Railways. Notable is his over 30 years of experience in the railway sector including eight years in Director positions at Greek Railways Organization.

Kostas received the degree of a Civil Engineer (MSc.) at the University of Hannover in Germany in 1982 and in 2007 a Master Executive MBA from the Athens University of Economics & Business.

His professional interests focus on the efficiency of the railway system, and in 2013 he published a book “The Railway Track and its Long-Term Behaviour”. In recent years, he was speaking at several railway congresses and held workshops regarding best practices of track maintenance to keep a high-performance railway track.

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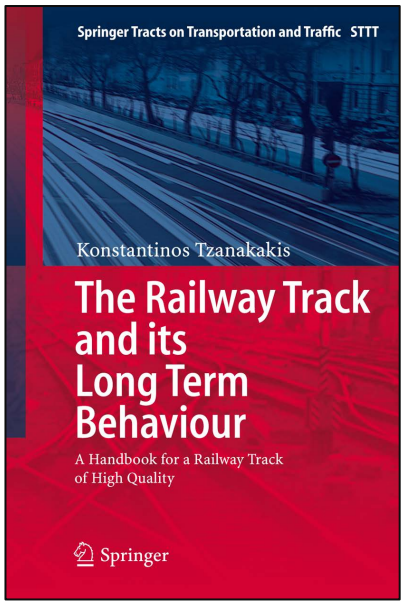
Other books by the author

"The Railway Track and Its Long Term Behaviour: A Handbook for a Railway Track of High Quality", Springer, 2013



The book provides the necessary functional knowledge of the track behaviour, covering the function of the various track components, their interaction as elements of the track system, and the interaction of the systems track and railway vehicles.
Presents important tools and future challenges for infrastructure managers.

https://www.springer.com/gp/book/9783642360503

Kostas Tzanakakis

The Regulation of the Railway Sector

Targeting an optimal level of Service Quality and Efficiency

Regulations are a vital tool for achieving an optimal level of service quality and efficiency in the Railway Sector.

The objective of the railway sector is to ensure an optimal level of service quality and variety (including public interest considerations) and a high level of productive efficiency (and therefore a minimum level of subsidy where one exists). Regulation is a vital tool for achieving the social, economic and environmental policy objectives of governments. Governments have a broad range of regulatory schemes reflecting the complex and diverse needs of their citizens, communities and economy.

This publication aims to be a guide for establishing the best regulatory framework for an optimal level of service quality and efficiency of the railway system.

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