



Railways and the Role of Government

Prepared For:

The World Bank Railway Workshop

Bucharest, Romania

22 April 2002

Prepared by:

John H Winner

HARRAL · WINNER · THOMPSON · SHARP · KLEIN

Railways and the Role of Government

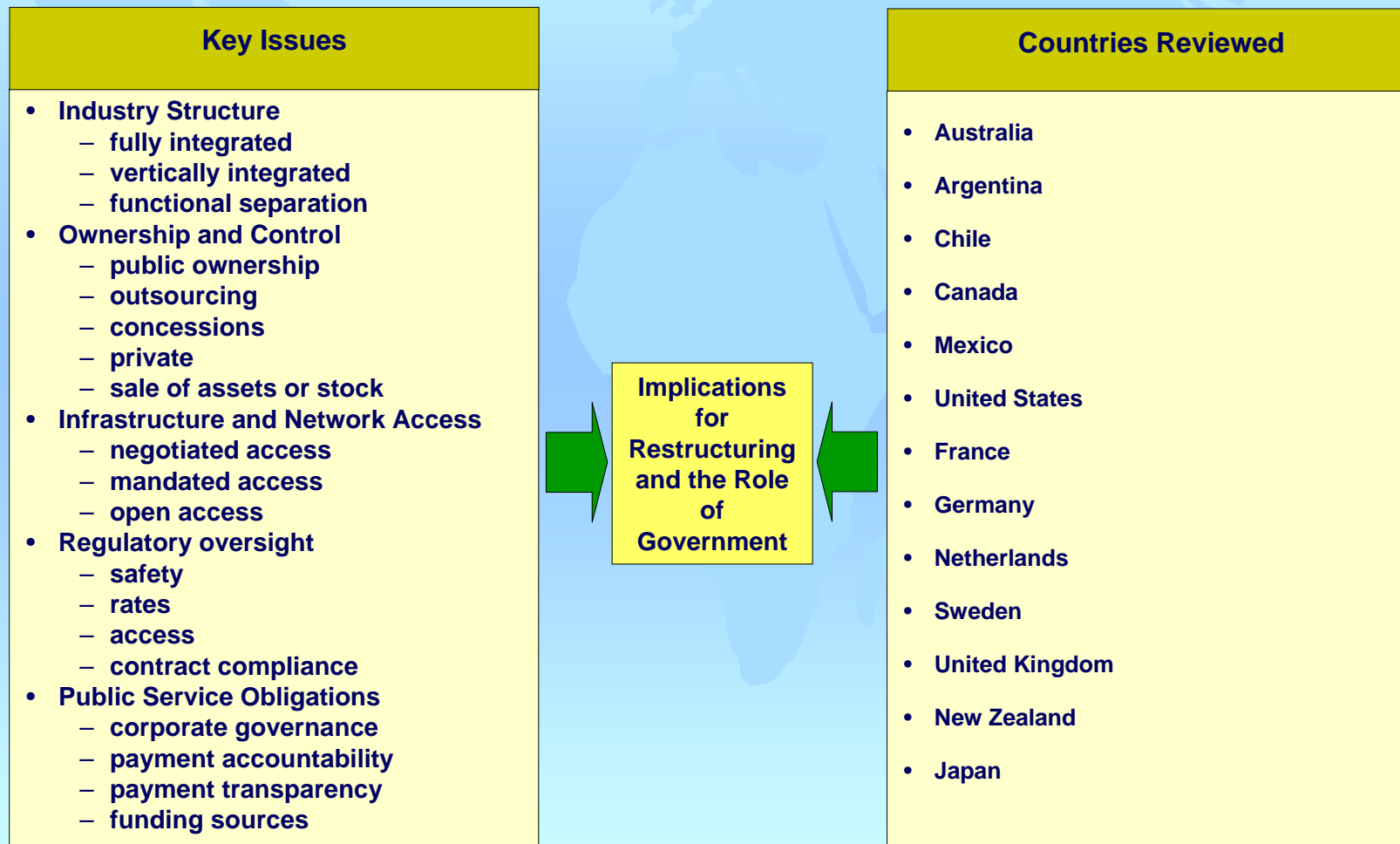
Contents:

- Review worldwide experience across a range of issues relating governments and railways undergoing restructuring
 - Ownership and control
 - Network access
 - Separation of infrastructure management and railway operations
 - Regulatory oversight in a restructured environment
 - Public service obligations
- Post restructuring role of government

Governments generally restructure railways to create more competitive transport markets. As restructuring evolves and market forces become stronger, the role of government must also evolve.

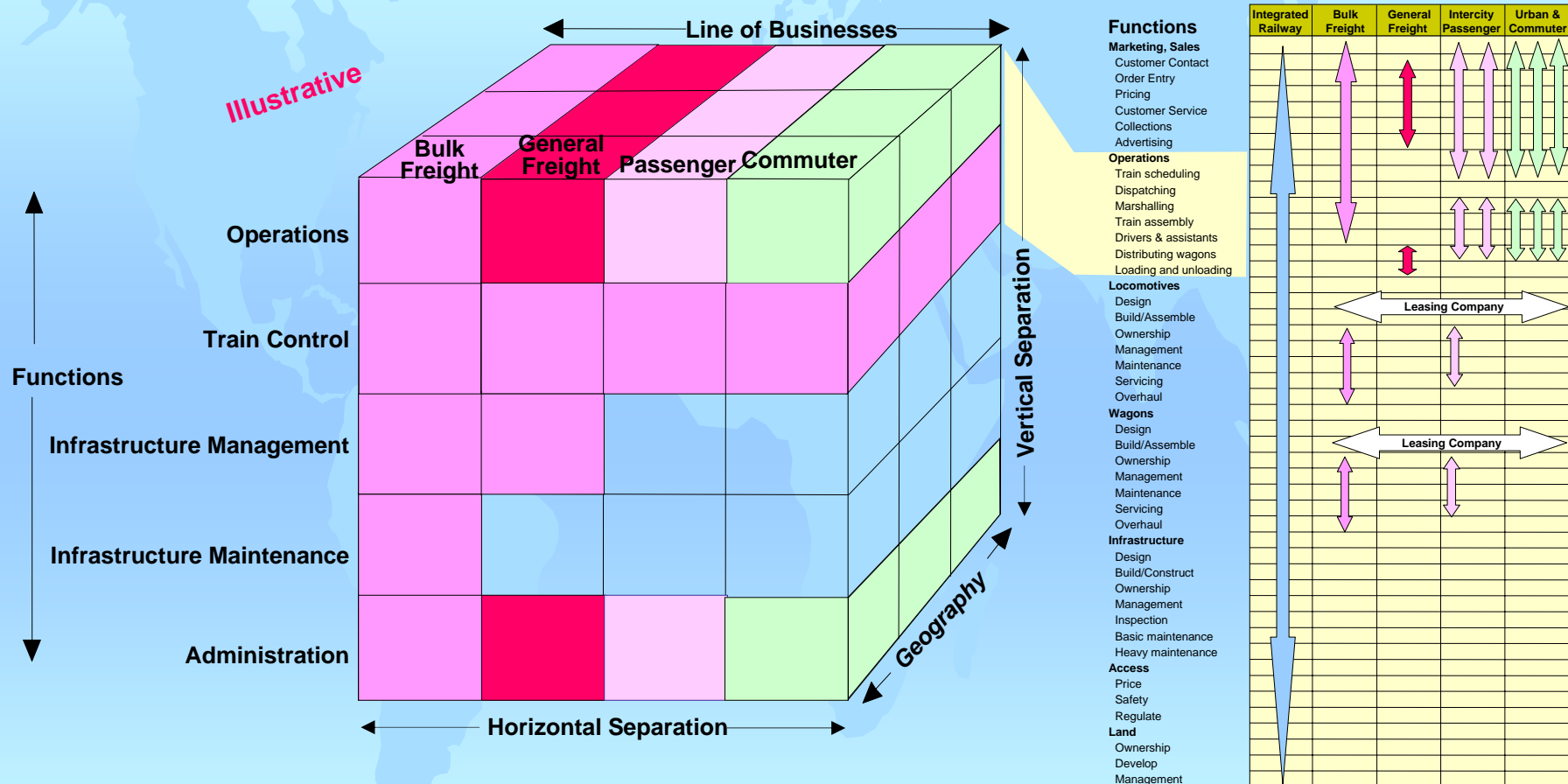
- Competitive markets create very powerful forces for efficiency, cost reduction, better services, and greater choice.
 - In market economies, interventions working against market forces will fail
 - Interventions that make use of market forces can be more effective and continue to provide the benefits of markets
- The Role of Government is to ensure a fair market place and to compensate for market deficiencies.
 - Provide for public goods (like transit services)
 - Provide fair solutions where there is no competitive market
 - How these roles are carried out and what mechanisms are employed depends on the structure of the industry and nature of the markets
- This presentation reviews the mechanisms governments have adopted as they have restructured their railways.

Countries have handled restructuring in many ways, the role of government varies depending upon the form and substance of the restructuring program.



Government must first consider industry structures

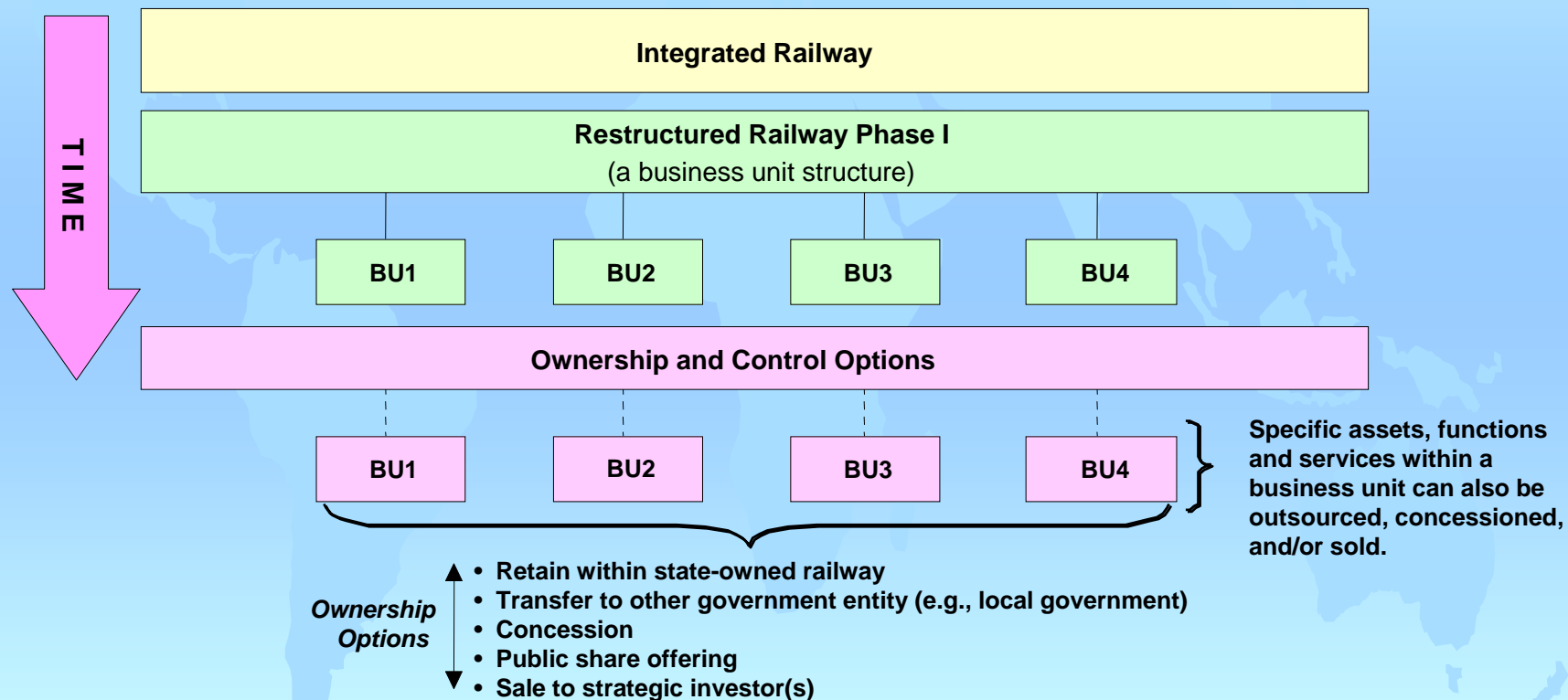
Illustrative



- Restructuring for more participants can increase competitive pressures, encourage innovation and private investment, and increases efficiency. If the restructuring does not set up competitive markets, however, more participants can simply increase the number of small monopolies and complexity in the sector.
- However, it also increases the complexity of the transport marketplace.

Railways and the Role of Government: Implications of Restructuring

Governments have a range of options and most restructuring programs move through several structures in the process.

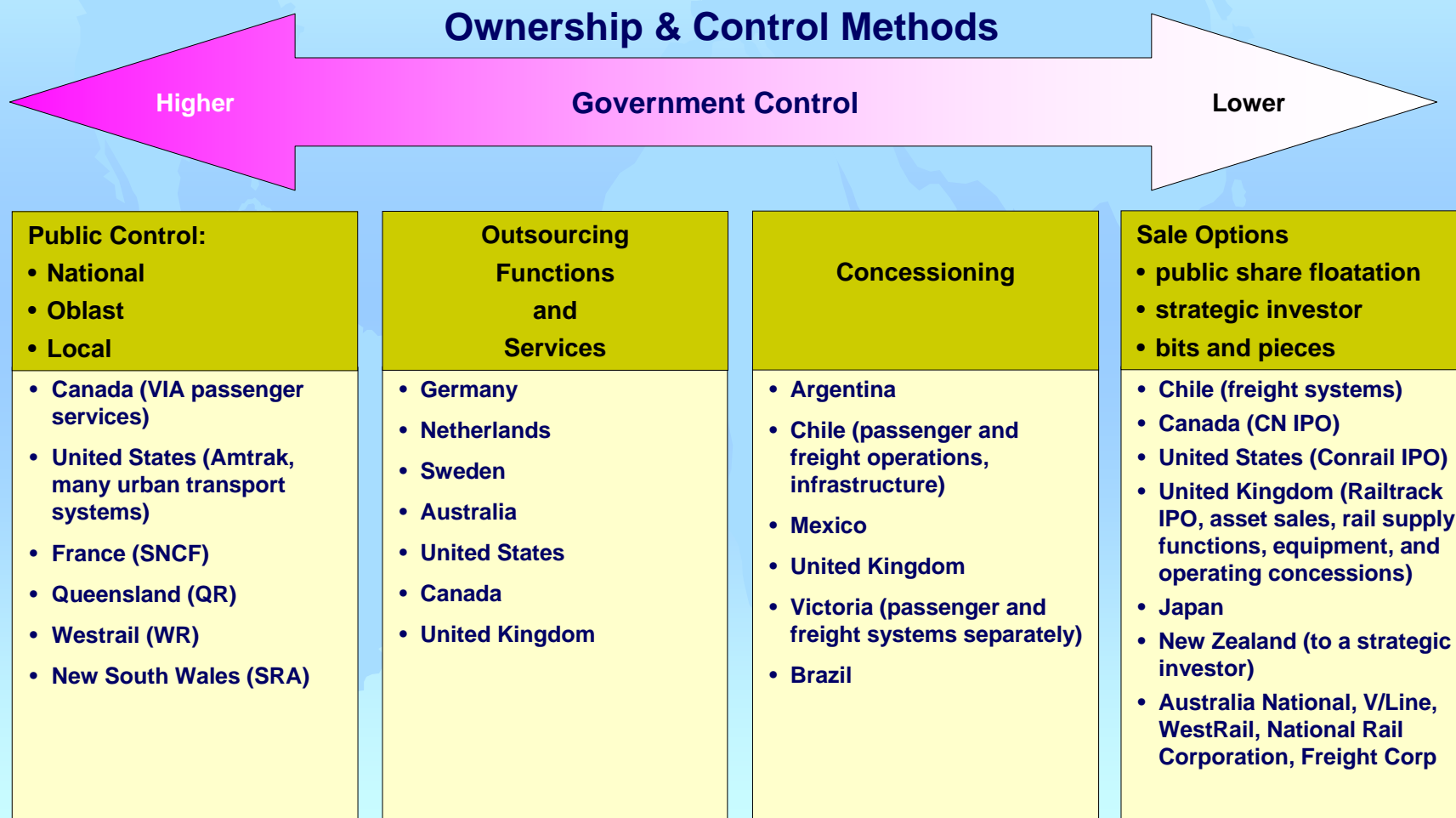


Governments may use alternative ownership and control options to achieve different objectives



Keep Government Control (National/Regional/Local)	Reduce Cost (Outsource)	Use Private Capital (Concession)	Eliminate from Government Control & Responsibility (Privatize)
<ul style="list-style-type: none"> • Retain control of transport modes • Avoid conflicts with Employees • Legal & administrative barriers to change • Services transferred from national to regional and local governments to relieve national government budget pressures and better match funding sources with beneficiaries 	<ul style="list-style-type: none"> • Reduce cost to government • But, retain ownership and control of strategic railway assets • Make use of specialized capabilities and technology of industry specialists • Reduce investment requirements for railway (and government) • Break entrenched restrictive work practices of labor unions 	<ul style="list-style-type: none"> • Reduce need for government capital investments • Attract more private investment • Create financial incentives to improve railway performance and services • Retain ultimate ownership and regain control after concession period or upon bankruptcy 	<ul style="list-style-type: none"> • government programs • Involve private-sector capital • Involve commercial and competitive pressures to drive efficiency and effectiveness • Transparent government purchases of transport services

Many countries rely on concessions and sales to private investors to introduce private capital and competition, especially where no public policy objective is served by continued government ownership.



Ownership and Control Alternatives

Conclusions

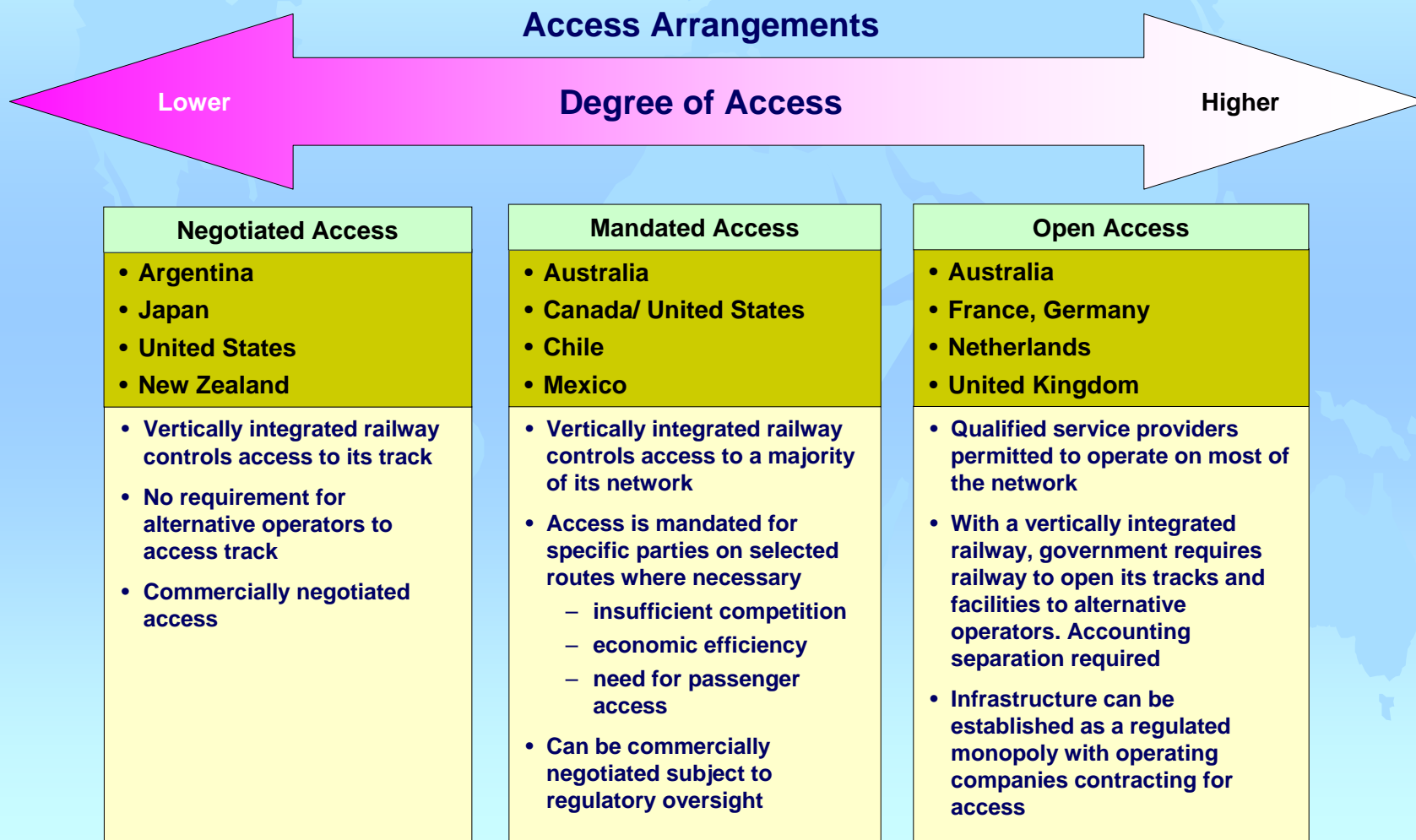
- Shifting some responsibility for funding services closer to the end user can help ensure a rational mix of services
- Outsourcing is an effective means of using the core competencies of outside parties without reducing Government control over service delivery
- Privatizing non-core functions can be successful in developing a competitive rail supply industry, care must be taken not to create new smaller monopolies.
- Concessioning and sale can be effective in attracting private capital and rapidly improving performance.
- Privatization most directly impacts commercial behavior and can raise large sums for Government, depending upon industry structure and the competitive environment.
 - A cultural transformation,
 - Transparent price regulation system, and
 - Well developed legal structure for recourse are prerequisites



Implications for Restructuring

- Separating urban, commuter, and even regional services can have significant benefits.
- National rail systems can increase efficiency with greater freedom to outsource some functions and services--rollingstock and infrastructure maintenance, for example.
- Competitive concessioning of Government supported services is a means to introduce competition, increase efficiency, and reduce costs
 - Branch line services requiring government support can be concessioned or contracted out to reduce support requirements
 - Similarly, passenger services can also be concessioned
- Privatization of commercially viable portions of railways presents a significant opportunity for Government to generate income, attract private investment, and promote innovation
 - However, existing price regulation mechanisms must be modified
 - The legal structure defining monopoly and competitive sectors will need to be clarified

Network access arrangements are often a major restructuring issue. Countries have adopted a wide range of options to encourage competitive rail sector development



Network Access

Conclusions

- The primary reason for access to infrastructure is to increase or rail competition.
- In some cases, the threat of competition, real inter-modal, product, or geographic competition can provide similar constraints and competitive pressures as access regulation
- Market entry is dependent on network architecture and the number of point-to-point flows that might be captured by competitors - low densities and highly disaggregated flows probably cannot sustain more than one operator economically
- Infrastructure access arrangements require complex regulatory mechanisms and performance agreements. The transparency necessary can reduce the opportunities for railways to price in a discriminatory manor, leading to a reduced network or increased requirement for subsidy.
- Where PSOs are required, there is a reluctance for new operators to provide on-rail competition due to the potential risk of deficits.



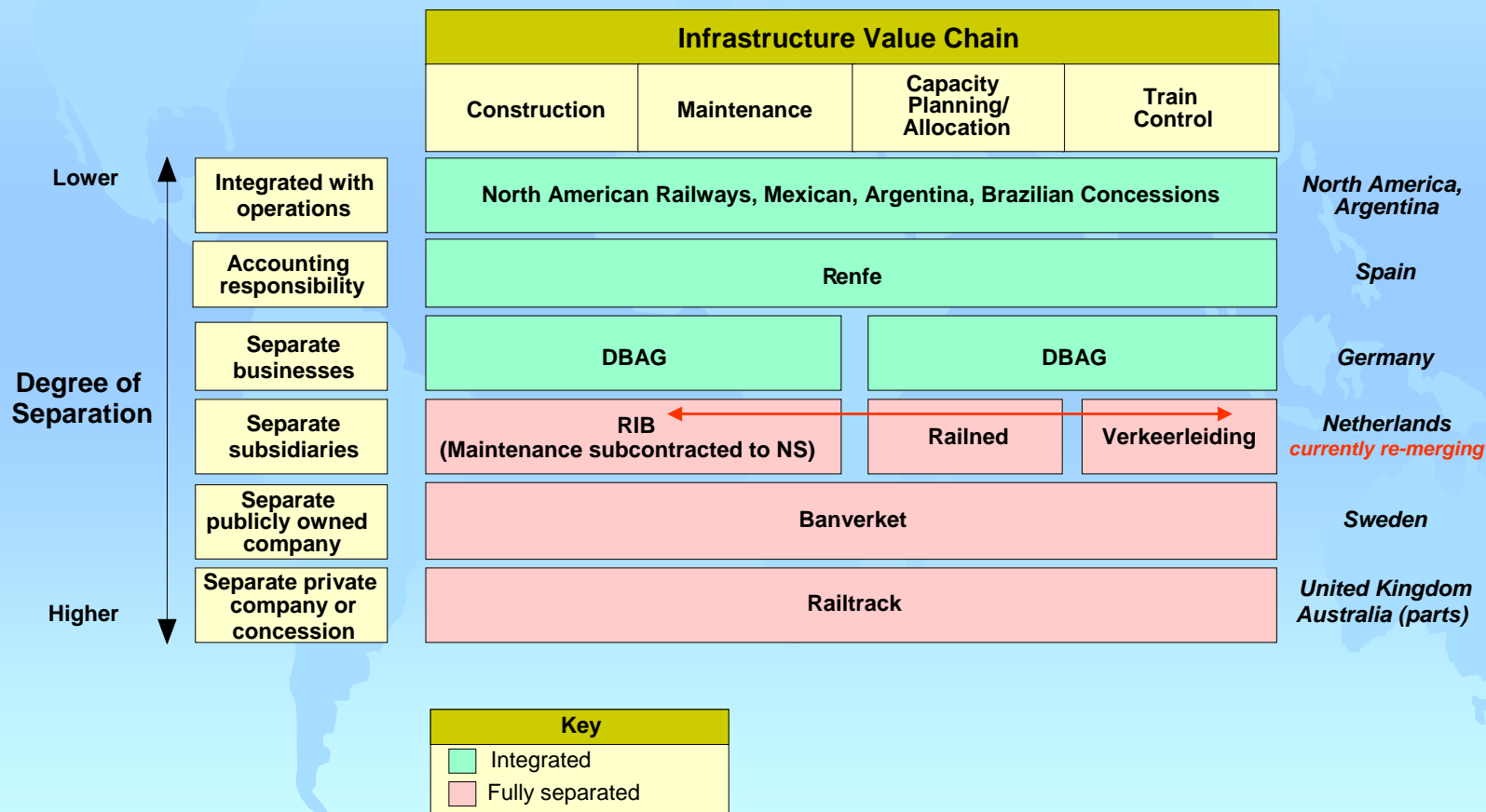
Implications for Restructuring

- The highest density network segments (e.g., those serving coal fields) are likely to attract independent operators in a competitive market with infrastructure access environment
- Many general freight flows are light density and disbursed. These may not attract many independent operators.
- Introduction of open access will end the national railway's ability to cross-subsidize light density lines and provide nationwide services without direct subsidies.
- The threat of competition may be sufficient in the highest density portions of the network to produce close to the competitive outcomes expected from open access
- Transparency of the access regime, pricing freedoms and other features of access regulation are important determinants of the success of infrastructure enterprises.

Railways and the Role of Government: Implications of Restructuring

A wide range of infrastructure control options has been developed to support competitive access arrangements.

EXAMPLES OF INFRASTRUCTURE CONTROL OPTIONS



Determining infrastructure access charges is a critical component of an open access regime. There is no theoretically correct method and little apparent consensus in practice.

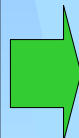
	France	Germany	United Kingdom	Italy	Sweden
Level	~30% cost recovery	100% cost recovery	100% cost plus Profit ?	~30% cost recovery	~15% cost recovery
Basis	Ability-to-pay by business unit	Cost-based with some variation by train type	Ability-to-pay with minimum equivalent to marginal cost	Cost-based	Cost-based
Mechanism – Tariff or Negotiated – Disaggregation	Tariff Five networks	Tariff 1,200 sections	Negotiated Thousands of line sections, hundreds of flows	Tariff Main vs. secondary lines	Tariff By vehicle type and facilities used
Scarcity Pricing	None	Auction to resolve conflicts	By negotiation	None	None
Penalties & Incentives	None	None	Punctuality, environment (intermodal)	None	None

- A wide variety of systems - little convergence on any main elements
- It is too early to say empirically which systems will work best but inappropriate pricing can lead to disasters (see Railtrack bankruptcy where under-pricing led to too much demand, capacity shortages, investment needs)
- The EU and UIC want to harmonize access rates in Europe - similar issues are being raised in Australia

Inappropriate access pricing can adversely affect railway financial performance and reduce the amount of rail network that is economically viable, or increase the cost to government.

Railway Economic Issues

- Railways are high fixed-cost businesses - long-run average costs significantly exceed long-run marginal costs.
- Because of these high fixed costs, railways have substantial economies of scope and density
- Many railway fixed costs are not caused by any specific traffic, but are “joint” or “common” to all traffic for having capacity available, and hence are difficult to attribute to specific traffic.
- To fund these difficult to attribute costs, vertically integrated railways can employ Ramsey Pricing to allocate common network costs based upon the price sensitivity of individual shippers, commodities and routes
- Ramsey pricing is not transparent and requires some kind of oversight function and is almost impossible in vertically separated systems.



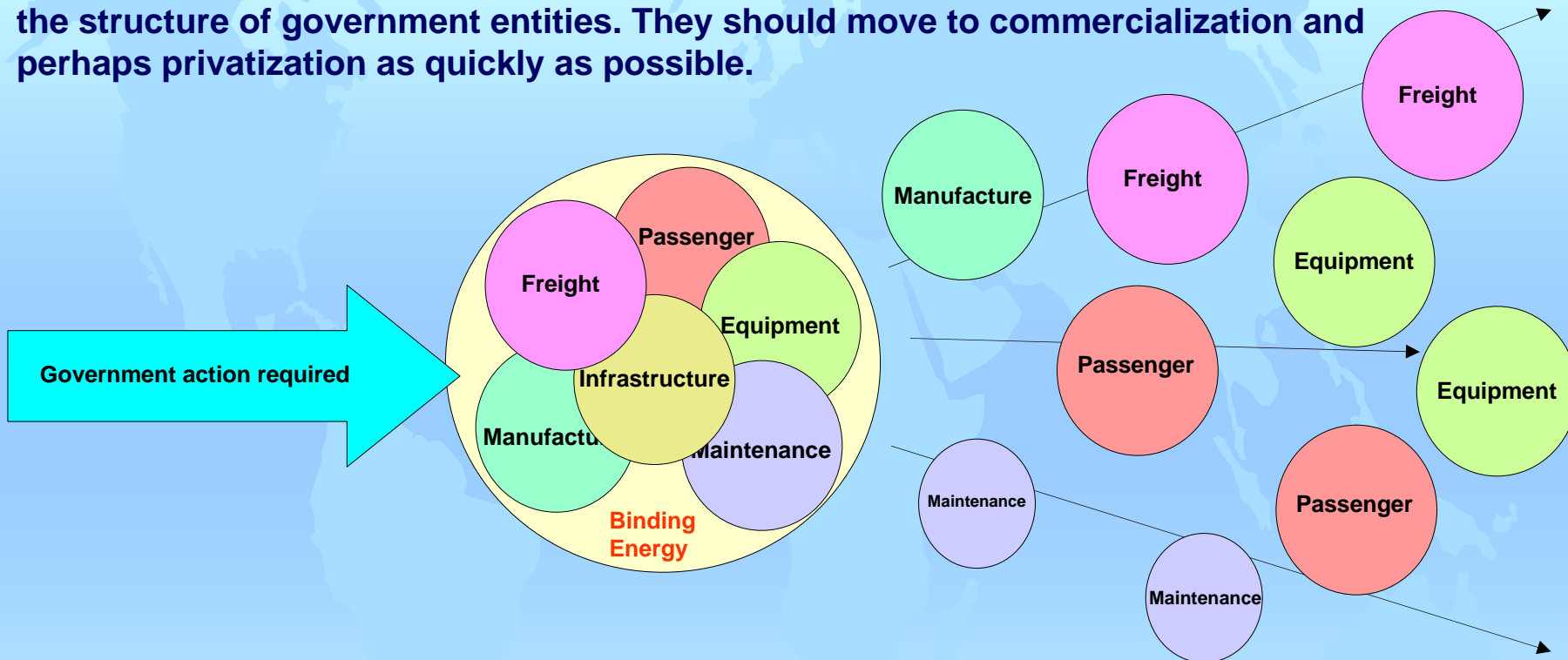
Impacts of Access Arrangements on Railway Financial Performance

- Average pricing discourages traffic from low volume routes where there is spare capacity, while encouraging traffic on dense routes potentially creating a need to add capacity
- Increased transparency discourages Ramsey pricing which can lead to low-contribution traffic being forced off the network while reducing the yield from high-contribution traffic
- Competition reduces margins on high-contribution businesses; rate reductions must be accompanied by cost reduction programs
- New entrants can “cherry pick” the most lucrative traffic, potentially reducing the ability to retain low margin segments
- There will be increased transaction and coordination costs, adding further pressure to reduce costs
- In the absence of outside funding, track condition and network size may decline

Infrastructure separation and open access have produced many of the competitive outcomes sought, although this has seldom meant increased competition on the track.

Country	Experience
Sweden	<ul style="list-style-type: none"> • Little rail-to-rail competition has evolved for SJ freight traffic due to lack of attractive market opportunities and barriers to entry such as financing for rolling stock • Competition for exclusive operating franchises has occurred <ul style="list-style-type: none"> – BK Tag, a private bus operator, operated three regional franchise services – Some customers operate own or subcontract train operations to other private companies • Financial improvement at SJ has reduced government interest in increased competition • Significant reduction in freight tariffs because of competitive threats • Infrastructure investments increased substantially because Government wanted to upgrade rail system on a comparable basis to road transport
United Kingdom	<ul style="list-style-type: none"> • Restructuring has resulted in limited direct on-rail competition, competition is for franchises • Freight business has one operator, but ability of customers to operate own trains results in 30% tariff drop • Concessioneering process has resulted in substantial reductions in operating subsidies • Competition in rolling stock and infrastructure maintenance results in 30% - 40% reductions in cost. • Privatization of Infrastructure company to Railtrack initially very successful but Railtrack recently bankrupt • Railtrack financial failure does not mean restructuring was unsuccessful <ul style="list-style-type: none"> – Pricing structure increased trains by 200+%, increasing capital costs for capacity increases – Safety standards increased (even though Railtrack had better safety record than old BR) – Government would not pay increased costs--could not separate safety costs from commercial capacity increases.
Netherlands	<ul style="list-style-type: none"> • Limited rail-on-rail competition as yet due to barriers to entry such as financing rolling stock • Some competition is emerging, several operators beginning to operate short services & want to do longer • There has been a reduction in rail tariffs on some bulk services • Government actively promotes growth of competition--infrastructure was free till 2001 • Capacity management and train control functions separate from NS passenger operations

Most important, Governments should not stop railway restructuring having made changes in the structure of government entities. They should move to commercialization and perhaps privatization as quickly as possible.



- The “binding energy” of former state agencies is very strong, preventing or at least slowing restructuring processes.
- Absent some outside force by government, government owned railway entities will continue to act as they did in the past.
- Competition forces efficiency, customer responsiveness, price pressures, investment, releasing “binding energy” to productive uses.

As state-owned railways restructure, new governance and regulatory oversight roles must evolve.

- In the past, most state-owned railways were self governing
 - Internal safety inspectorate
 - Engineering and design groups were responsible for developing internal standards, practices, and customs
 - Prices were set by precedent (past practice), statute, or as a function of cost
 - Often, the Transportation Minister, Director General, or other government officials were involved in dispute resolution
- As railways are restructured and more commercial relationships begin to apply, new forms of performance oversight are often required
 - Safety
 - Transport pricing oversight
 - Infrastructure access and pricing
 - Contractual compliance
- **Only critical, rail-specific issues that have a significant impact on public safety or the competitive marketplace need receive new or specific regulatory attention**

Most regulatory oversight deals with four specific areas.

Type of Regulation	Objectives	Where Needed	Regulatory Approaches
Safety	<ul style="list-style-type: none"> • Ensure safety of workers, passengers, and public 	<ul style="list-style-type: none"> • In all cases • For operator certification 	<ul style="list-style-type: none"> • Generally regulated by government agency • Approved safety plan (subject to audit)
Transport Prices	<ul style="list-style-type: none"> • Protect customers from non-competitive pricing • Achieve Government mandated social objectives 	<ul style="list-style-type: none"> • When competition is limited (considering intermodal, intramodal, product substitution, geographic sources) 	<ul style="list-style-type: none"> • Set rate ceiling based on formula costs • Set minimum prices to avoid cross subsidies • Provide PSOs • Set rate ceiling at fully allocated cost to allow “Ramsey” pricing
Access Rights and Charges	<ul style="list-style-type: none"> • Protect customers from non-competitive pricing and service provision • Protect operators from non-competitive charges for infrastructure access • Provide a non-discriminatory access regime 	<ul style="list-style-type: none"> • Where there is a dominant or single service provider but multiple operators/users 	<ul style="list-style-type: none"> • Mandate access to specific competing operators on selected routes • Require open access to qualified operators • Set price ceiling based on formula costs, set minimum prices • Encourage efficient pricing to attract marginal traffic (i.e., ability of traffic to pay above SRMC)
Contractual Compliance	<ul style="list-style-type: none"> • Ensure compliance with concession agreements and other contracts 	<ul style="list-style-type: none"> • Where there are concessions or other public-private contracts (contract law can suffice) 	<ul style="list-style-type: none"> • Establish a compliance department within department of transportation or in an appropriate independent regulator

Railways and the Role of Government: Post Restructuring

Countries have employed a wide variety of regulatory approaches.

Country	Safety	Transport Prices					Access Charges			Contract Compliance
		Price Cap	Cost Based	Return on Capital	Government Approved	Indexed (CPI)	Access Rights	Formula Based	Negotiated	
Argentina	X									C
Chile	X						C			C
Canada	X		S	S			X ¹			
Mexico	X						C	X		C
United States	X		S					X		
France	X				X		X			
Germany	X				X		X			
Netherlands	X				X		X	None		
Sweden	X				X		X	X		
United Kingdom	X	X		S		X	X	X	X ²	X
New South Wales	X		X	X		X	X		X	S
Queensland	X		X		X					
WestRail	X			X			X		X	
New Zealand	X									
Japan	X			S						C

Key

C = Specified in contract

S = Complaint must be raised by party to the transaction

¹ 30 kilometer open access provided by statute

² Freight access prices are negotiated with RailTrack

Competition and Pricing

Conclusions

- In recent years there has been a tendency in many countries to de-regulate tariff setting for railways, relying on competition, either *for* the market (from other modes) or *within* the market (from other railways).
- Greater pricing freedom has been accompanied by greater flexibility, innovation, and responsiveness.
- Railway profits can increase where there is greater ability to discriminate among clients.
- In all cases, some governmental oversight capacity over tariffs has been retained. Those countries with the most efficient railway industries limit governmental intervention in tariff matters to cases where there is market failure, specifically only where there is a complaint initiated by shippers or carriers.
- Countries with well developed regulatory systems have established juridical or quasi-judicial procedures and rules of evidence. The outcome of the regulatory system is seen as reasonably predictable, equitable and timely for all parties.



Implications for Restructuring

- The prospects for intermodal competition are limited in some markets and countries. Either the opportunity for competition within the rail sector must be created and encouraged, or there will be a need for continued regulatory controls on rail tariffs.
- Allowing and facilitating competitive access by large industrial enterprises to run their own trains (crews, locomotives, and wagons) for their own cargo creates significant competitive potential for bulk cargo, permitting deregulation of tariffs for that important market sector.
- Allowing third party carriers to offer general transport services can permit more general tariff deregulation. Deregulated road transport can often provide adequate competition.
- Railway and shippers should be permitted and encouraged to negotiate contract rates rather than have a tariff established by regulatory processes.
- Remaining necessary regulatory processes should be as simple as possible.
- Regulatory process be seen as equitable and predictable if private investors are to be attracted to either the railway industry or those industries that rely heavily on rail transport.

Every country reviewed specifically regulates railway safety practices.

- Historically, national railways defined safety and technical standards internally. With the potential for new operators, safety and technical tasks must be placed in a new body.
 - A government agency is usually assigned the task for safety oversight and to set safety goals
 - Equally often, a new industry association is responsible for technical standards necessary to achieve those goals
- Several aspects of safety are usually covered:
 - Operating practices (e.g., hours of service for operating employees)
 - Equipment and rail specific infrastructure (e.g., braking systems, signal systems)
 - Matters of public safety and convenience
- New structures to “license” operators are required as access to the network is expanded
- In addition, railways (both operators and the infrastructure owner) must implement new internal practices and procedures and often upgrade the technology involved in train control to manage multiple operators on the network
- Some rail systems (UK, NSW, Netherlands) are finding the amount of effort that must go into safety regulation (both governmental and by the “dispatching” enterprise) increases with the number of operators

Regulation may be implemented through an independent regulator, the transport ministry, or a rail operator association

Entity	Regulatory Functions
Independent Regulator	<ul style="list-style-type: none"> • Regulator jurisdiction often includes <ul style="list-style-type: none"> – Disputes over infrastructure cost allocations between railways – Disputes over the adequacy of PSOs – Operator or railway conflicts and disputes with customers about rates, service • Regulator usually acts as a mediator to resolve these disputes through an adjudication process and, when necessary, promulgates regulations to govern railway operator and customer conduct • The existence of an independent regulator often increases the interest of third-parties in bidding for services, outsourced functions, or operations
Ministry of Transport	<ul style="list-style-type: none"> • The government requires an agency responsive to political mandates to ensure that railways achieve Government objectives • Transport railway ministries are usually responsible for: <ul style="list-style-type: none"> – Rail safety – Policy, research, and planning – Co-ordination with other units of Government for public funding and competitive oversight • Government usually divests or separates shareholder and regulatory departments <ul style="list-style-type: none"> – Difficult if government has an ownership position with one of several competitors
Railway Association	<ul style="list-style-type: none"> • Self-regulatory organization for multiple private operators • Provides a private sector alternative for setting technical, operating, and safety standards • Proposes carrier-to-carrier arbitration procedures for conflict resolution involving competing operators • Where possible, acts as a single, unified voice for private railway interests in communications with regulatory agencies, public

Regulatory Institutional Arrangements

Conclusions

- . Safety regulation becomes more complex as the number of operators with access to the network increases.
- . Infrastructure access and pricing regulations can be complex and have significant impacts on railway financial viability, network size, and service quality
- . Regulation is typically undertaken by the government transport department in conjunction with an independent regulator to resolve disputes and prevent anti-competitive practices

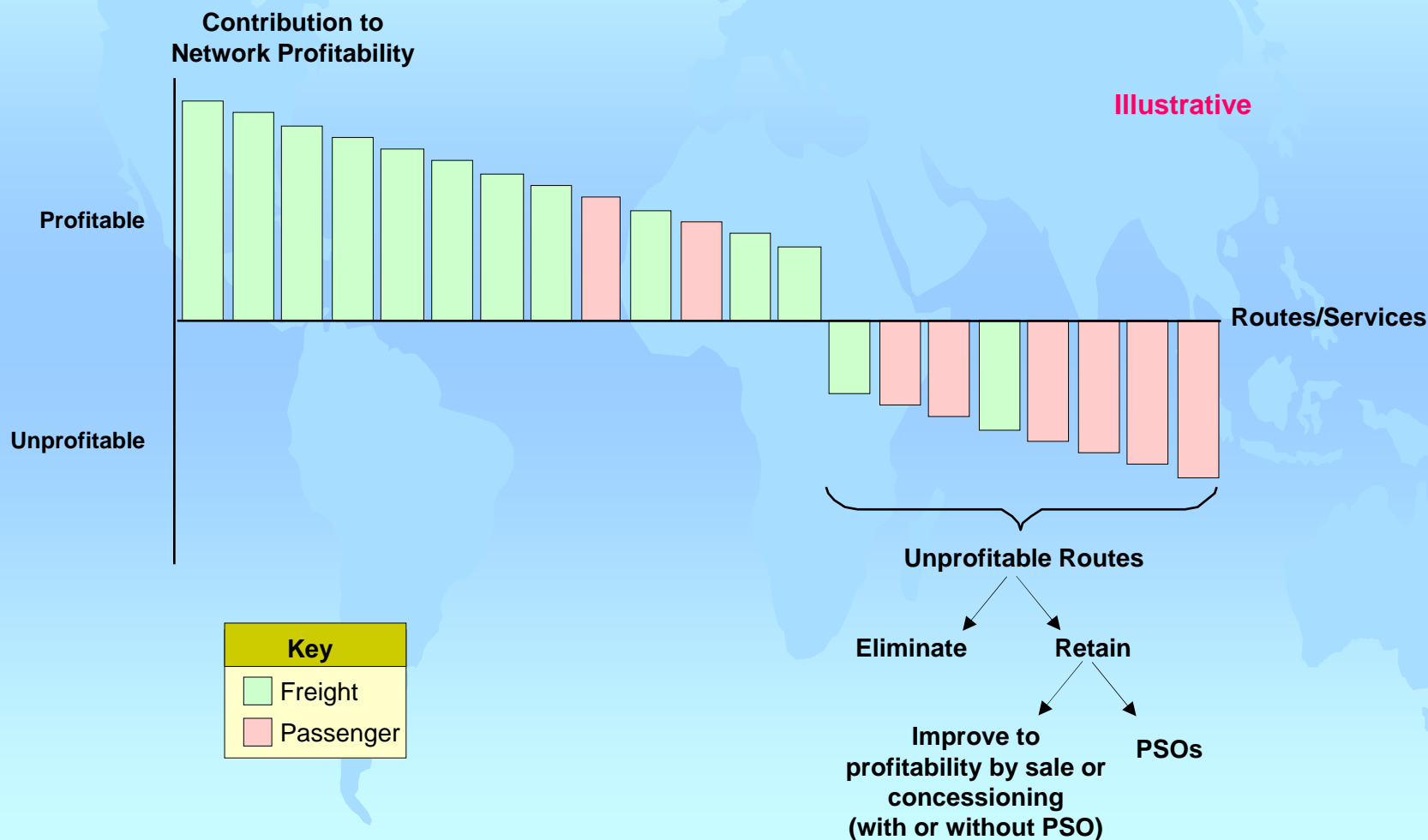


Implications For Restructuring

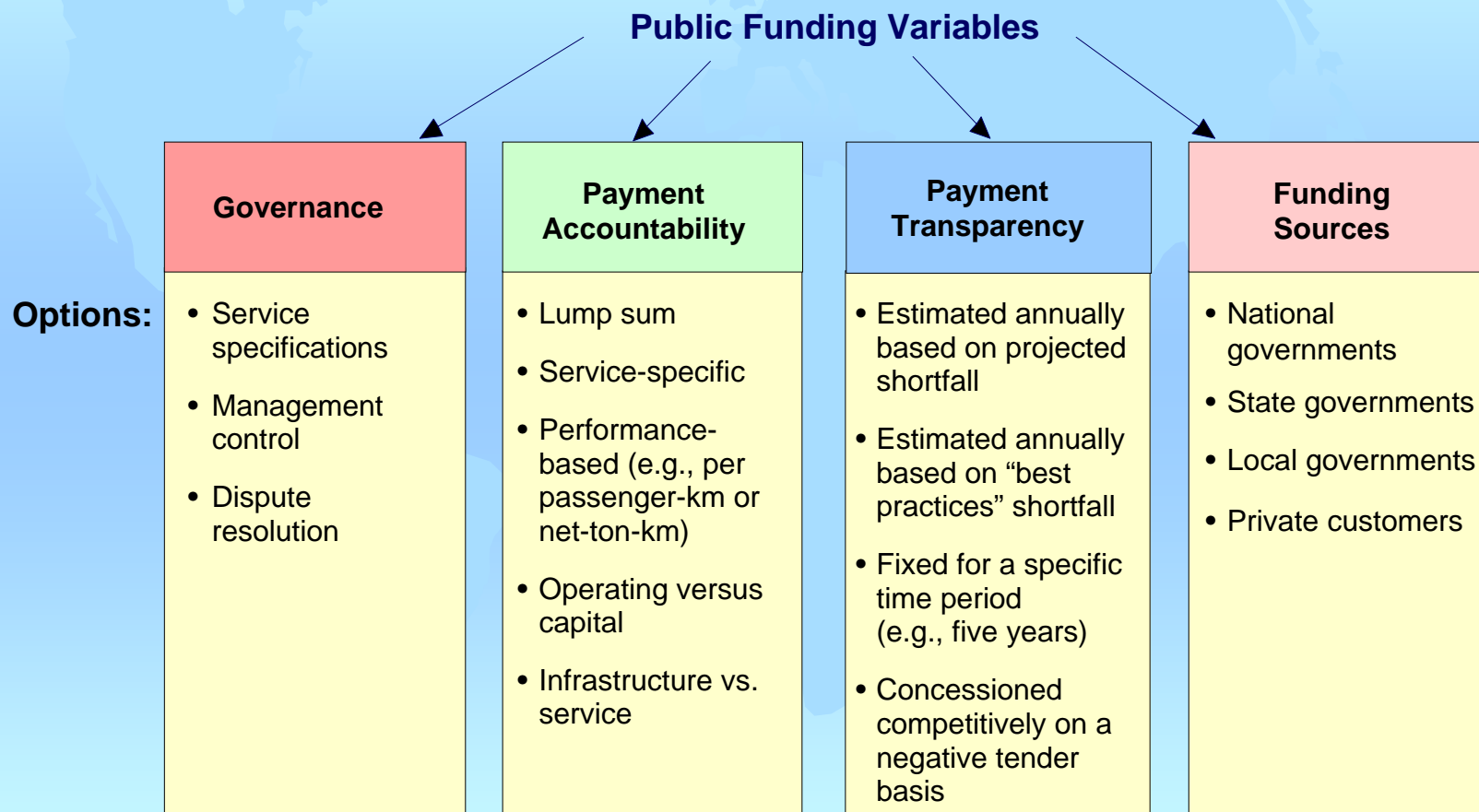
- . A governmental agency must be established as an independent regulator. Sometimes this agency can regulate across a wide range of sectors, including rail.
- . Railway and transport law must be modified to authorize the regulatory agency and establish the conditions of regulation.
- . Properly structured, a new unit can provide appropriate regulation/oversight to address both safety and open access issues (for example, prices, access rights and charges, contractual compliance) without the costs of establishing a separate government entity.
- . This can require significant changes in law, and particularly in how the natural monopoly laws are applied to railways.

Railways and the Role of Government: Post Restructuring

Governments may want to retain selected unprofitable routes and services for to social or political considerations. How should these services be provided?



Options for structuring subsidies, or public service obligation payments, for non-commercial services must address four key variables.



Railways and the Role of Government: Post Restructuring

Countries have taken a variety of approaches to funding public service obligations.

Country	Governance		Payment Accountability						Payment Transparency				Funding Sources		
	Service Specs	Mgmt Control	Lump Sum	Service Specific	Performance Based	Separate Operating & Capital	Infrastructure	Service	Projected Shortfall	"Best Practices" Shortfall	Fixed	Comp. Tendering	National/State	Local	Private
Argentina	X			X		X	X	X				X	X		
Chile	X		X			X	X	X				X	X		
Canada (VIA)		X	X					X	X				X		
Mexico	X			X	X			X			X		X		
United States (Amtrak)		X	X			X		X	X				X	X	
Germany	X	X	X				X	X	X			X ¹	X ²	X	
Netherlands		X	X				X	X	X			X ¹	X		
Sweden	X		X				X	X				X	X ²	X	
United Kingdom	X			X				X				X	X		
New South Wales		X	X	X				X		X			X		
Victoria	X			X	X					X			X		
New Zealand	X			X	X	X		X	X ³				X	X	
Japan		X				X	X				X		X	X	X

¹ Tendered regional services

² State provides funds to local governments who have discretion to allocate funds to bus or rail

³ Negotiated payment

There are many options for determining how PSO or public service obligation payments can be made.

Options	Important Considerations
Governance <ul style="list-style-type: none"> • Service specifications • Management and control 	<ul style="list-style-type: none"> • Service specifications should be closely related to accountability and transparency provisions of PSO contracts so that bonus/penalty can be easily related to performance against the specifications • More precision (e.g., by rate, type of service, time of day) requires more detailed accounting and performance measurement systems
Payment accountability <ul style="list-style-type: none"> • Lump sum • Service-specific • Performance-based • Operating Vs capital • Infrastructure Vs service 	<ul style="list-style-type: none"> • Lump sum easy to administer but not transparent and may incent undesired revenue/cost tradeoffs • Service-specific PSOs are highly transparent but calculating subsidy on a network can be complex • Performance-based payments recognize that the operator is often best placed to determine the most appropriate services. Requires agreed-upon measurement systems. • When more than one operator is involved, separating PSO payments between operators and capital charges (for both infrastructure and equipment) is more complex but permits greater flexibility in operator selection as well as in capital program financing
Payment transparency <ul style="list-style-type: none"> • Projected shortfall • “Best Practices” shortfall • Fixed payment • Competitive tendering 	<ul style="list-style-type: none"> • Projected shortfall is flexible but service provider has low accountability • Fixed price creates strong financial incentive to keep costs low, service quality can suffer • Tendered services creates competition to minimize subsidies
Funding sources <ul style="list-style-type: none"> • National government • Regional governments • Local governments/communities • Private 	<ul style="list-style-type: none"> • National and state governments may seek to reduce fiscal burden of PSOs by providing a backbone network of services and shifting responsibility to local communities, closer to the ultimate beneficiaries of the services • Service levels may decline if local communities are unable to fully fund previous service levels • Local funding may also inhibit coordination with national transportation networks

Railways and the Role of Government: Conclusions

In market economies, minimum government intervention in markets usually works best.

- Market economies work best when buyers and sellers freely enter into transactions for mutual benefit
- Governments should provide the framework for economic activity:
 - Protection for private property--the basis for most transactions is the transfer of some private property
 - A legal structure for the enforcement of contracts and commercial agreements and the resolution of disputes
 - Ensure a fair marketplace
- Governments can be customers of railway services (usually in the form of a fee for service contract or PSO)
- Greater government interventions tend to distort the marketplace, changing the basis of “freely enter into transactions for mutual benefit”
- From this framework flows some regulatory responsibilities--ensuring safety, protection from monopolies, ensuring fair prices where there is no market.
- Governments should seek the lowest level of intervention in transport markets possible, consistent with providing essential services.

“Minimum intervention” is very far from Government owned and operated railways.