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Prospects for High Speed Rail in the U.S. Mercer Perspectives

Prepared for:
U.S. House of Representatives
Committee on Transportation & Infrastructure



A Marsh & McLennan Company

Summary Perspective

With a suitable policy framework to support it, high speed rail could and should play an important role in America's future transportation infrastructure

- The increasing congestion of highway and airport infrastructure—along with ecological and energy security concerns—provides a compelling public policy rationale for high speed rail
- Although the U.S. has lagged far behind other advanced economies in high speed rail, the purported reasons why “it can't work here” do not hold up to closer scrutiny
- Around the world, passenger speed rail systems have achieved lower operating costs and higher ridership under private-sector operating models
- Developing a high speed rail network in the U.S. will require public and private sector investment; to ensure that this investment actually translates into a meaningful contribution to transportation infrastructure, it will be critical to establish a suitable structural and regulatory framework
 - Focus on regional high speed corridors with connections to airport infrastructure
 - “Unbundling” the integrated passenger transportation package
 - Concession agreements for private sector operators and infrastructure investors
 - Public-private financing provisions where required to make capital investments

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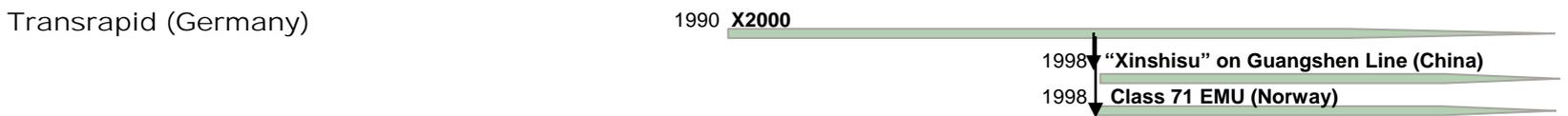
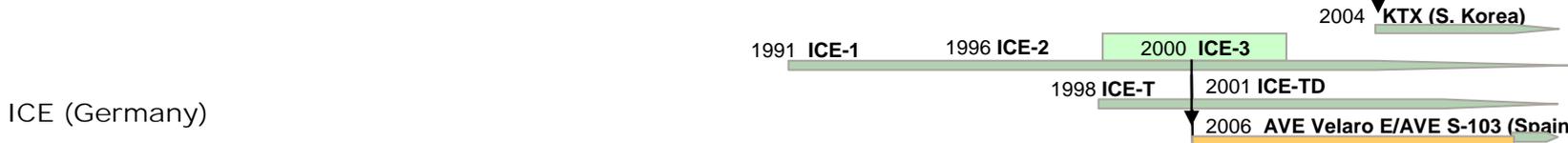
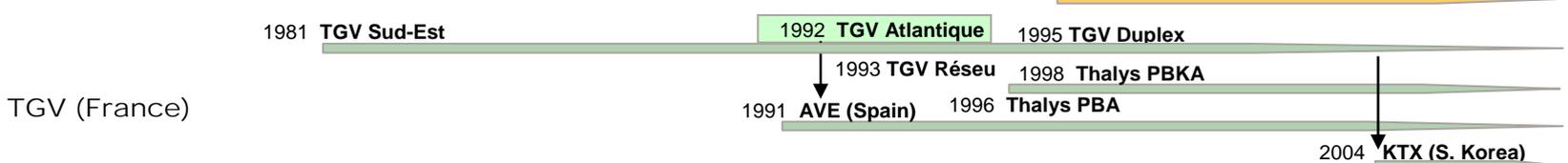
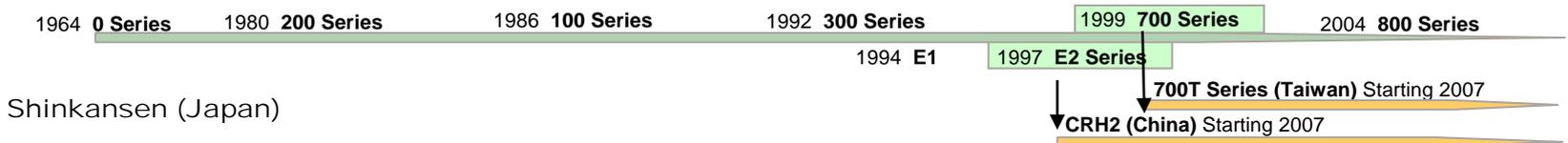
- Introduction
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High Speed Rail Trains

“True” high speed rail refers to trains capable of speeds over 250 km/h and running on dedicated high speed tracks

	Shinkansen (Japan)	TGV (France)	ICE (Germany)	Talgo 350 (Spain)	Transrapid (Germany)
					
Top Speed in Commercial Use	300 km/h	320 km/h	300 km/h	330 km/h	430 km/h
Route kms (2006)	2304 km	1573 km	1300 km	Approx. 600 km upon completion of Madrid-Barcelona line	30.5 km (Shanghai-Pudong Line)
Builder(s)	Kawasaki Heavy Industries; Mitsubishi Electric Corporation and Hitachi.	Alstom	Siemens AG	Talgo and Adtranz	Siemens AG and ThyssenKrupp AG

Genealogy of High Speed Rail Technology

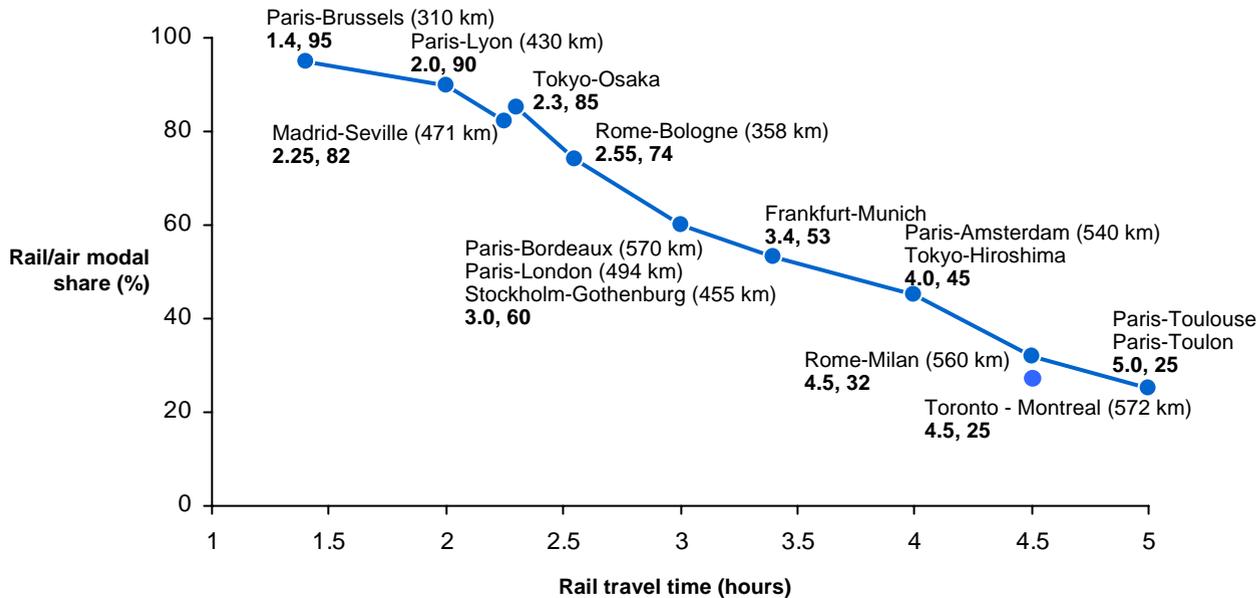


Travel times and rail market share

The “sweet spot” for high speed rail is a travel time of 2.5 – 3.0 hours or less, which is associated with a very high modal share for rail compared to air

EU Rail/Air Modal Share

Distances, rail travel time, rail/air modal share



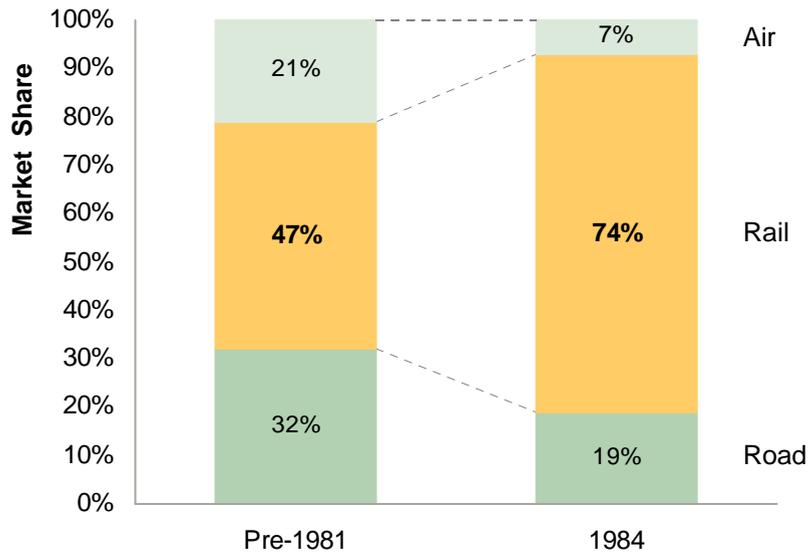
Rail Travel Times	Approximate Rail Market Share ¹
<2h	>90%
2.5h	~80%
3h	~60%
4h	40-50%
5h	20-30%

¹ As percent of combined rail and air market. Does not include total market including car and bus.
Source: UIC High Speed Rail November 2000, Rail International Sept/Oct 1998.

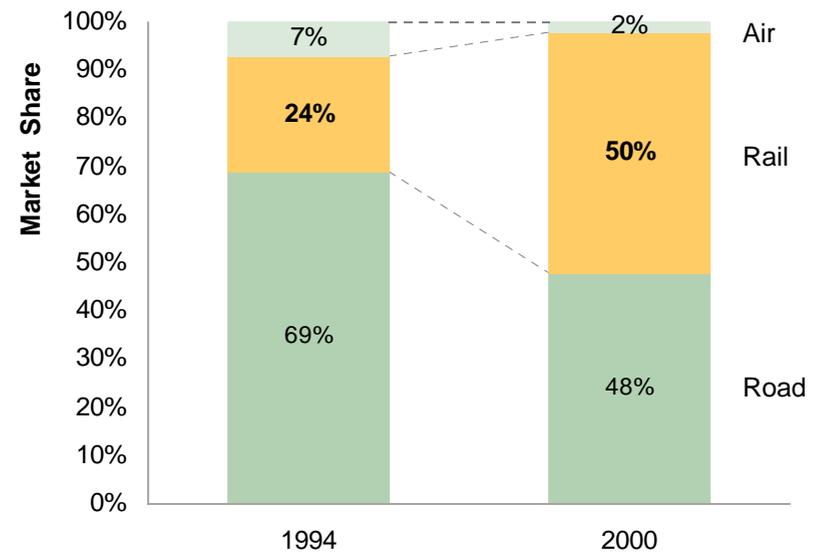
Modal Shift: Example of French TGV

The example of the French TGV shows the potential for high speed rail to reduce pressure on highway infrastructure as well

Paris-Lyon: Modal Share of Total Market
(Distance: 430 km)



Paris-Brussels: Modal Share of Total Market
(Distance: 336 km)

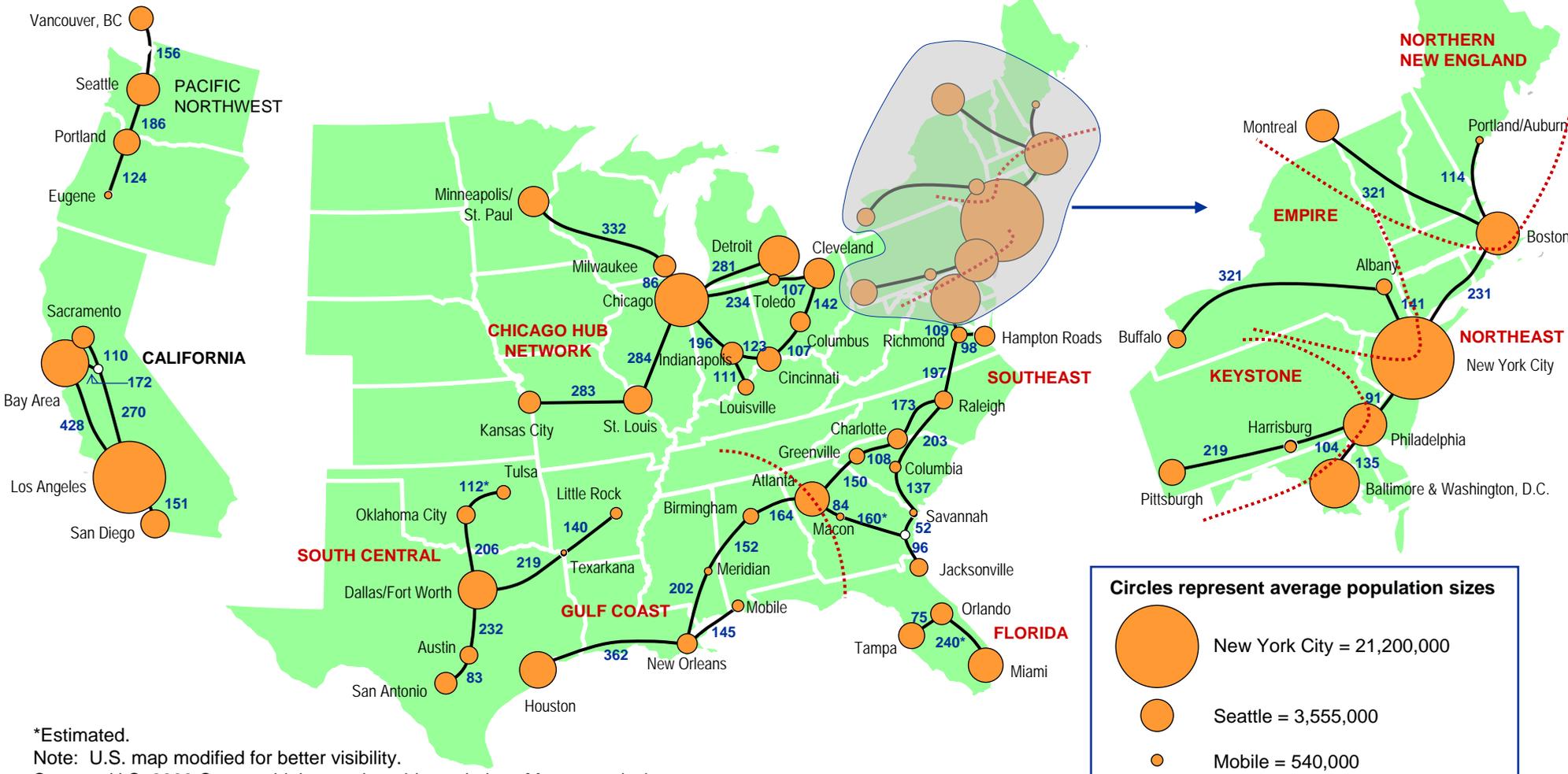


Sources: Paris-Lyon: <http://www.southeastalliance.com/files/businesscase2028-03.ppt#410,6,slide6> citing Air Inter; Thalys; McKinsey&Co.; CER
Paris-Brussels: UIC, CER & UNIFE, *High Speed Trains in Europe* (October 2002) at 5, available online at http://www.cer.be/files/Br_01_10_2002_ENb-112515A.pdf.

Potential Markets

Many U.S. city pairs are appropriate candidates for high speed rail service, which has led various planning authorities to call for building high speed corridors.

**Proposed High Speed Corridors
Compared to Size of Urban Centers and Distance Between Points (Miles)**



*Estimated.

Note: U.S. map modified for better visibility.

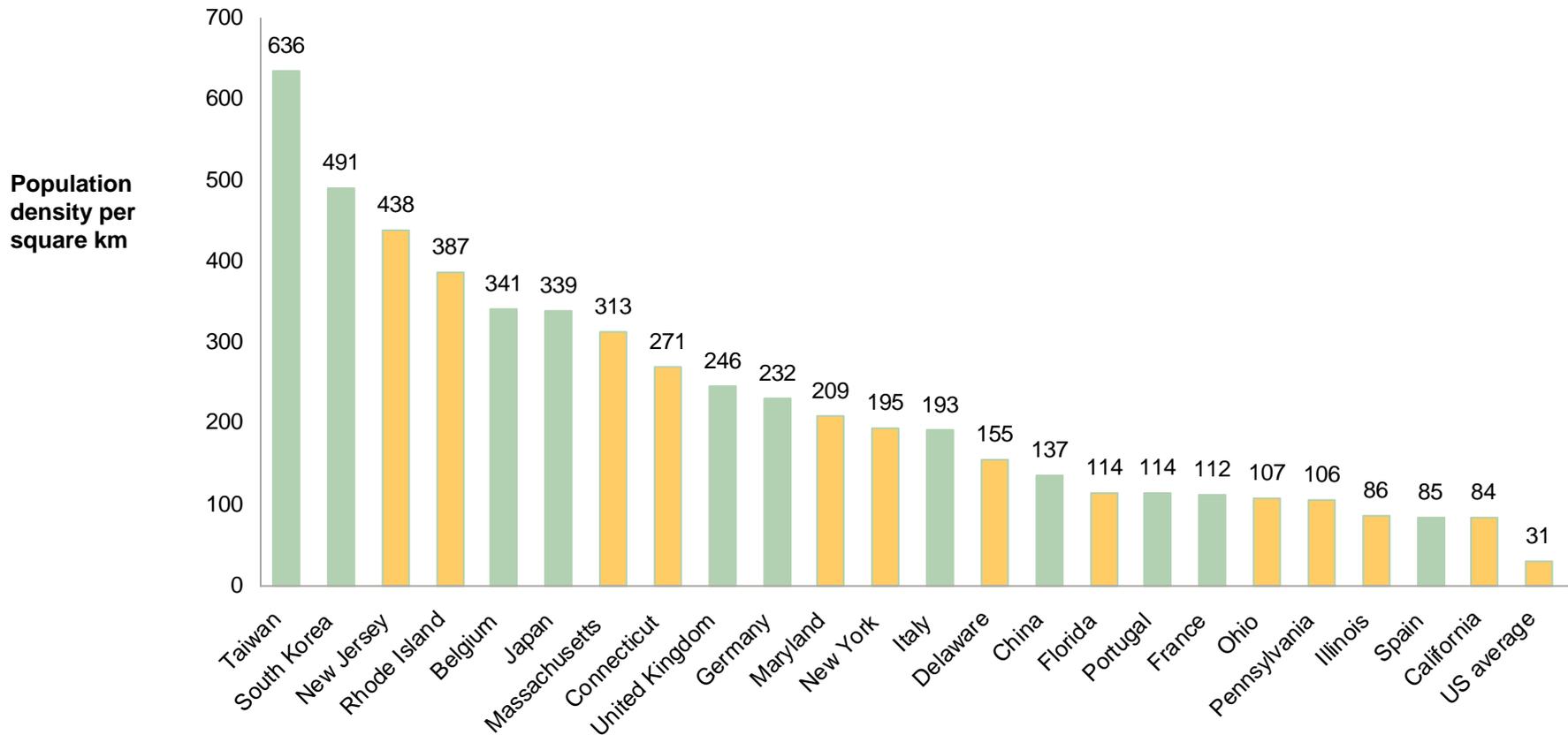
Source: U.S. 2000 Census, high speed corridor websites, Mercer analysis.

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The Myth of Inadequate Population Density

The densely populated portions of the U.S. are comparable in population density to nations with high speed rail systems

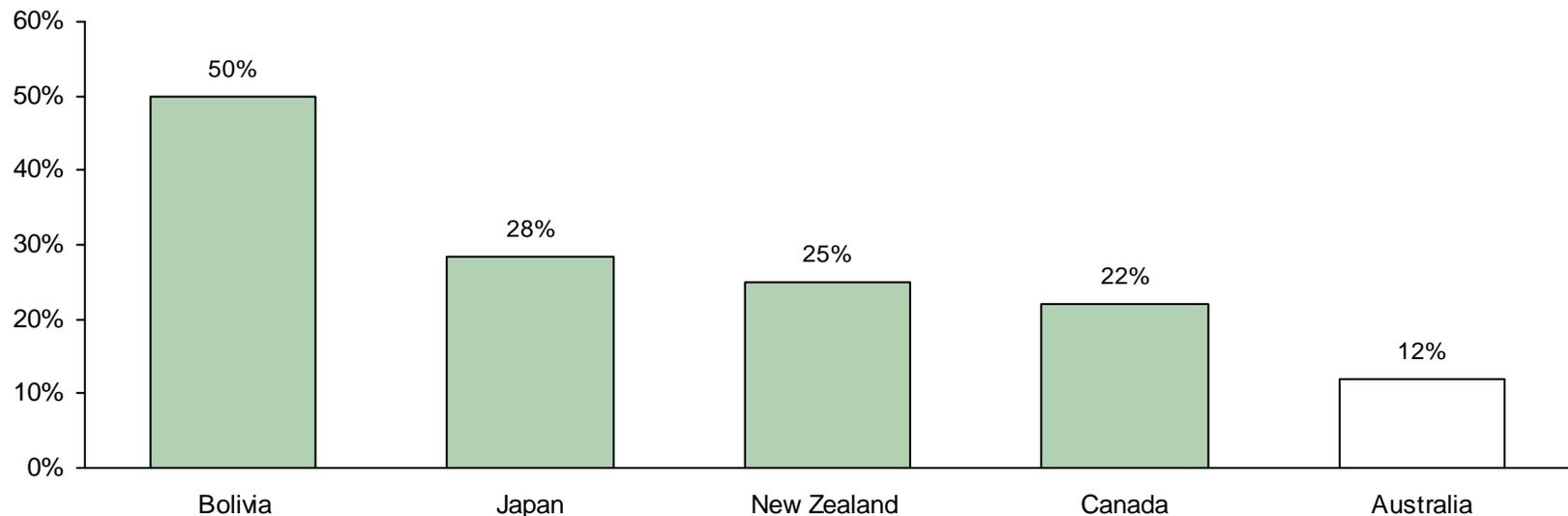
Population Density of Nations with High Speed Rail and Selected U.S. States



Operating Efficiency Improvements from Privatization

Around the world, rail companies have achieved significant savings in operating expenses as a result of private sector participation in operations.

**International Rail Privatizations:
Calculated Opex Savings¹ of First Three Years of Private Operation**
(based on per-unit data)



Name of Railroad:	FCA	Japan Rail	TranzRail	Canadian National	Australian Southern
Year of Privatization:	1996	1987	1993	1995	1997
Mode²:	F/P	F/P	F/P	F	F

Notes: ¹Efficiency savings are calculated as a decrease in operating costs in constant currency per unit of output (traffic units: passenger-miles plus ton-miles).

²F: Freight; P: Passenger.

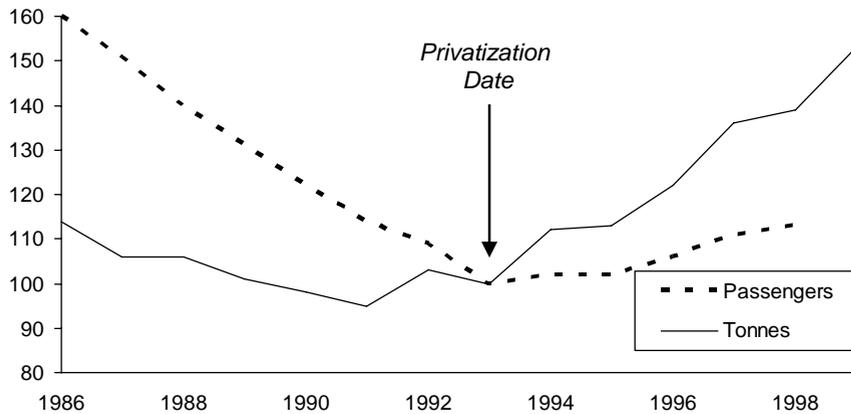
Source: World Bank data; Industry reports; Mercer analysis.

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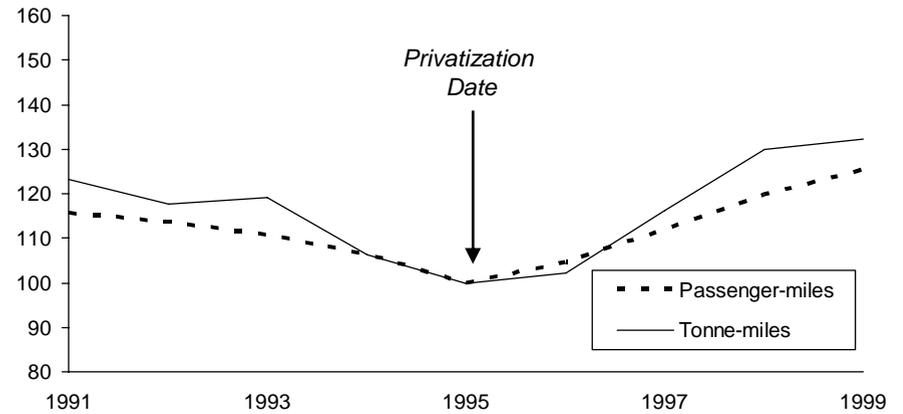
Growth of traffic after privatization

International examples show a strong trend of increasing traffic when private operators take over a line. This can be attributed to the superior marketing and better line maintenance.

Comparative Analysis of Traffic Data for New Zealand Rail (TranzRail)
(1993=100)



Comparative Analysis of Traffic Data for British Rail (Railtrack)
(1995=100)

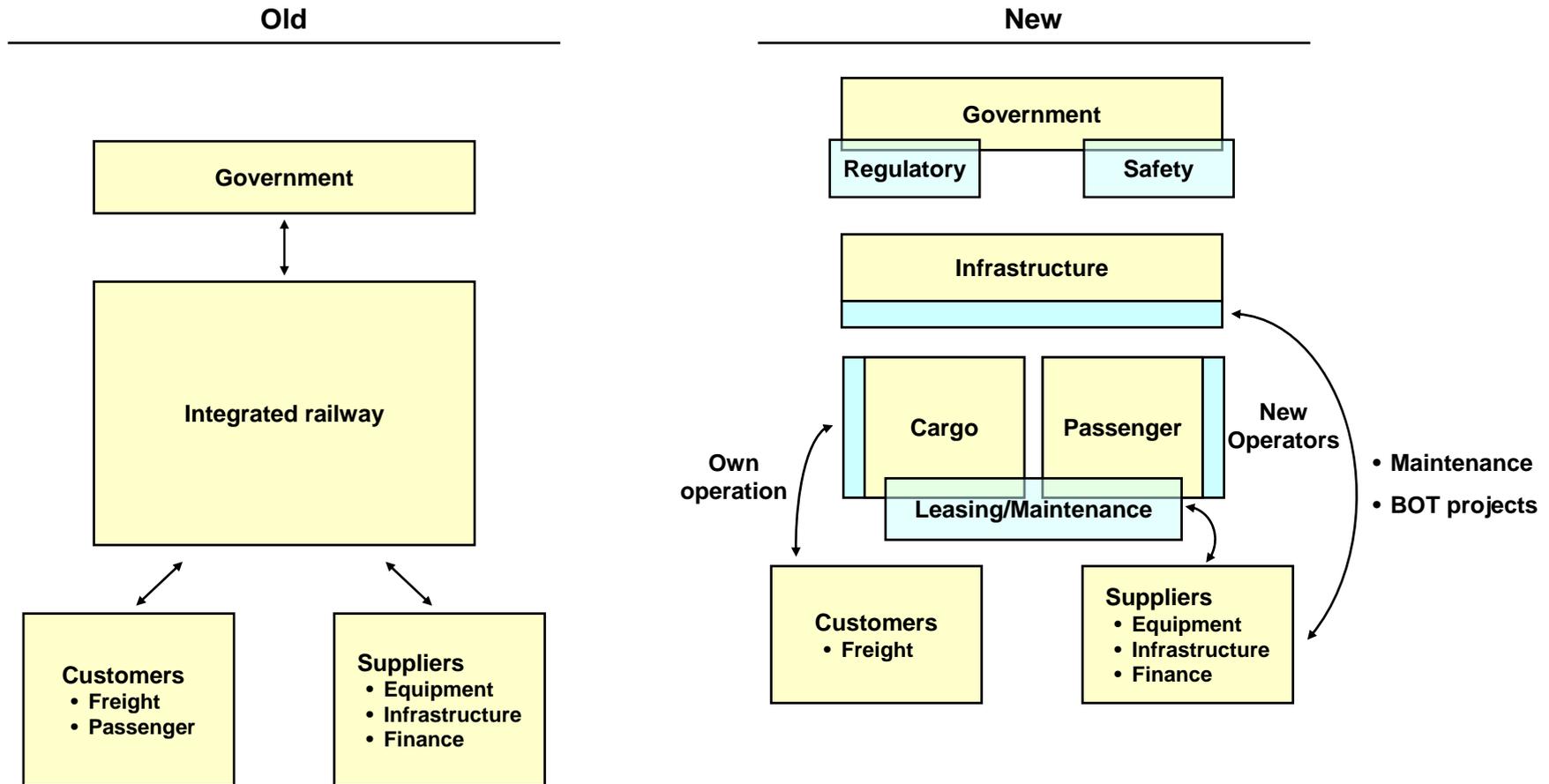


	Before Privatization CAGR 1986-1993	After Privatization CAGR 1993-1999	Total Growth 1993- 1999
Passengers	-6.6%	2.5%	13.1%
Freight Tonnes	-1.0%	7.3%	74.0%

	Before Privatization CAGR 1991-1995	After Privatization CAGR 1995-1999	Total Growth 1995- 1999
Passenger-km	-3.6%	5.8%	25.3%
Tonne-km	-5.1%	7.2%	32.3%

Structural Reform: the European Example

A major feature of railway liberalization has been the unbundling of the integrated railway. Unbundling in turn has brought new operators into the business.



Structural Reform: an Alternative to Amtrak?

Past attempts to reform Amtrak have failed; the possibly the future of high speed rail should be decoupled the future of Amtrak

Failed Strategies				Potential Alternative
Policy	Kill Amtrak	Reform Amtrak	Expand Amtrak (Amtrak Proposal)	Revitalize & Redefine Rail
Key Arguments	<ul style="list-style-type: none"> • Amtrak is inefficient and should be eliminated • If services are worthwhile, someone else will provide them 	<ul style="list-style-type: none"> • Amtrak is important, but inefficient • Amtrak should be reformed to make it more efficient 	<ul style="list-style-type: none"> • Amtrak would work if it just had more investment • Amtrak's funding should be increased 	<ul style="list-style-type: none"> • Rail is valuable, but Amtrak may not be • Focus should be on maximizing "bang-for-the buck" from rail investment
Outcome	<ul style="list-style-type: none"> • Political resistance is too strong, and change is too difficult • Amtrak is reauthorized 	<ul style="list-style-type: none"> • Little or no impact on actual efficiency • Results in numbers games to be "self-sufficient" 	<ul style="list-style-type: none"> • Increased investment does not improve efficiency • Investment diversion • Wasted money 	<ul style="list-style-type: none"> • Separate the future of passenger rail from the future of Amtrak • Get Amtrak to focus on operations with more accountability
Politics	<ul style="list-style-type: none"> • Opposed by labor, rail users • Failure wastes political capital 	<ul style="list-style-type: none"> • Avoids hard choices • Bad policy / will not produce real results 	<ul style="list-style-type: none"> • Ignores / eliminates Amtrak accountability • Diverts money from higher priorities 	<ul style="list-style-type: none"> • Increased role for private sector / reduced role for government • More competition • Pro-rail / environment

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- **Public – Private HSR Development Structures**

Public – Private HSR Development Structures

Rail passenger and transit systems in the U.S. have traditionally been developed by local governments with Federal capital funding and have generally underperformed with respect to their cost, service quality, and demand.

Alternative development options that have been pursued overseas can achieve higher performance levels by engaging the private sector in project planning, design and construction, financing, and operations.

- For U.S. passenger rail and transit systems, the local government traditionally is responsible for planning, design, operations and operating deficits, while the capital funding is provided largely by the Federal Transit Administration. Private contractors generally undertake the construction based on detailed specifications.
- U.S. passenger rail transit systems have generally taken long periods of time to complete, have been overbudget, and have not attracted the projected levels of demand.
- Alternative approaches employed in such countries as Argentina, Chile, Brazil, and Colombia have involved the private sector in project design and construction, operations, and financing. These approaches have demonstrated dramatic improvements in system performance.
 - For example, ridership on the commuter railroads in Buenos Aires, Argentina has more than doubled in the four years since privatization.

Project responsibilities

Designing a public-private development structure requires an appropriate division of project responsibilities between the public and private sectors.

T = Traditional Approach
I = Innovative Approach

Potential partners		Local government	National government	Private design and construction firms	Private operators/ investors	Vendors
Planning and approvals	Conception	T			I	
	Financial analysis	T			I	
	Permitting and approvals	T			I	
Design and construction	Preliminary design	T			I	
	Detailed design	T		T, I		I
	Construction			T		I
Operations	Train operations	T			I	
	Maintenance	T			I	
	Fare collection	T			I	I
Financing	Capital funding	T, I	T, I		I	I
	Operating funding	T				
Legal ownership	Rolling stock	T			I	I
	Infrastructure	T			I	I
Regulation	Safety	T	T			
	Performance	T				
	Tariffs	T				
Ancillary businesses	Retail concessions					T
	Real estate development				I	

Public-private development options

A range of options are available for developing transit systems.

	Government Control				
	← Higher				Lower →
	Traditional public procurement and operation	Design-build and operating (DBO) contract(s)	Design, build, operate (DBO) concession	Bridge financing concession	Design, build, finance, operate (DBFO) concession
Design and construction	<ul style="list-style-type: none"> Government controlled design and separate construction contract 	<ul style="list-style-type: none"> Design-build contract for project design and construction 	<ul style="list-style-type: none"> Concession agreement specifies preliminary design, performance requirements, and timetable Concessionaire fully responsible for design and construction 	<ul style="list-style-type: none"> Same as DBO concession 	<ul style="list-style-type: none"> Same as DBO concession except may involve less government oversight (e.g., timetable may not be specified since financing creates strong incentive for concessionaire to minimize construction period)
Operations	<ul style="list-style-type: none"> Operation by government agency or corporation 	<ul style="list-style-type: none"> Design-build contract may include operating contract or private operator may be contracted separately 	<ul style="list-style-type: none"> Concession agreement specifies minimum performance requirements Concessionaire fully responsible for operations 	<ul style="list-style-type: none"> Same as DBO concession 	<ul style="list-style-type: none"> Same as DBO concession
Financing	<ul style="list-style-type: none"> Capital costs fully funded upfront Operating period deficits funded annually based on actual deficit Government assumes operating cost and revenue risk 	<ul style="list-style-type: none"> Capital costs fully funded upfront Operating period deficits funded with annual payments equal to a fixed fee for operating period costs less actual revenues Private operator assumes operating period cost risk Government assumes revenue risk 	<ul style="list-style-type: none"> Capital costs fully funded upfront Operating period deficits funded with annual payments that are fixed or based on performance (e.g., seat-kms or passenger-kms) Private operator assumes operating period cost risk and revenue risk Government may extend a minimum traffic or revenue guarantee 	<ul style="list-style-type: none"> Same as DBO concession except capital costs financed by concessionaire and reimbursed by government after project completion 	<ul style="list-style-type: none"> Same as DBO concession except capital costs financed by concessionaire with only a partial upfront contribution or no upfront contribution from the government
Example	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Puerto Rico Light Rail New Jersey Light Rail 	<ul style="list-style-type: none"> Argentina commuter rail 	<ul style="list-style-type: none"> Chicago, South Shore Project 	<ul style="list-style-type: none"> Toll roads - Chile

Design and construction

Governments are moving away from traditional contracting to options that reduce public risk and responsibility for project development, and stimulate private sector innovation and efficiency.

Design and construction options

Greater
public
control

Options	Description	Advantages/disadvantages
Traditional contracting	<ul style="list-style-type: none"> Government oversees full design process and separately awards construction contracts. Government remains responsible for design risk, delays and cost overruns. 	<ul style="list-style-type: none"> Government retains control over project design and development. Little or no opportunity for designer and contractor to work together to accelerate schedule. Government responsible for key project risks.
Design and build "turnkey" contracting	<ul style="list-style-type: none"> Government awards single contract for design and construction of a complete system based on pre-defined preliminary design, performance specifications, and schedule. Project elements may be contracted separately ("split turnkey") or use a combination of turnkey and traditional contracting ("hybrid turnkey"). Private contractor is responsible for design risk, delays and cost overruns. 	<ul style="list-style-type: none"> Potential for lower cost due to economies of scale of using one contractor. Potential for shorter development schedule due to flexibility in design and timing of construction. Government transfers project control to contractor but also transfers key project risks. Contracting process may be more complex and time consuming than traditional approach.
Private concession	<ul style="list-style-type: none"> Government awards private concession to design, build, operate, and, in some cases, finance the project based on preliminary design and/or performance specifications. Private concessionaire is responsible for design risk, delays, and cost overruns. 	<ul style="list-style-type: none"> Provides maximum incentive to private partner due to the assumption of revenue risk and, in some cases, financial risk. Key design and construction risks transferred to private concessionaire. Government has least control over project development. Private sector often adds significant "risk" penalties to protect against unexpected contingencies.

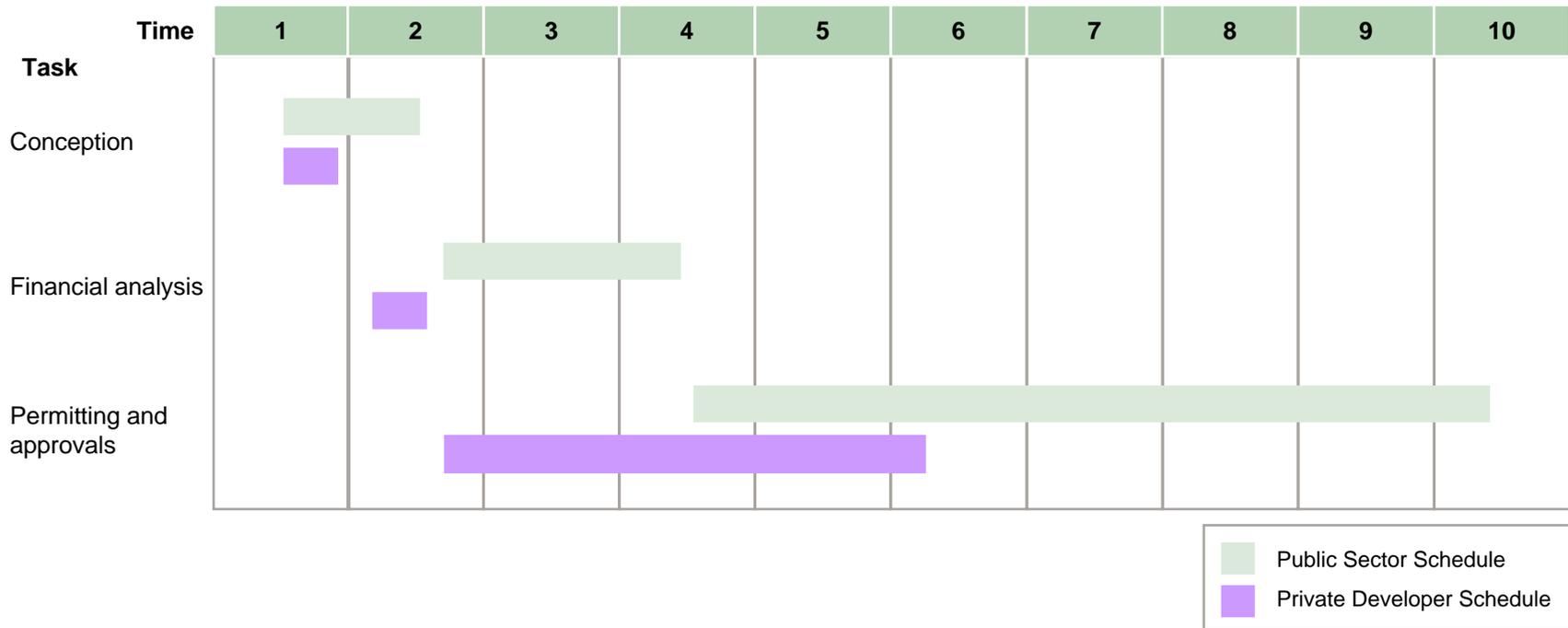
Lower
public
control

Planning and approvals

A private developer with a long-term interest in the success of a project can streamline the planning and approval process and significantly reduce the time to project initiation.

Illustrative

Planning and approval process

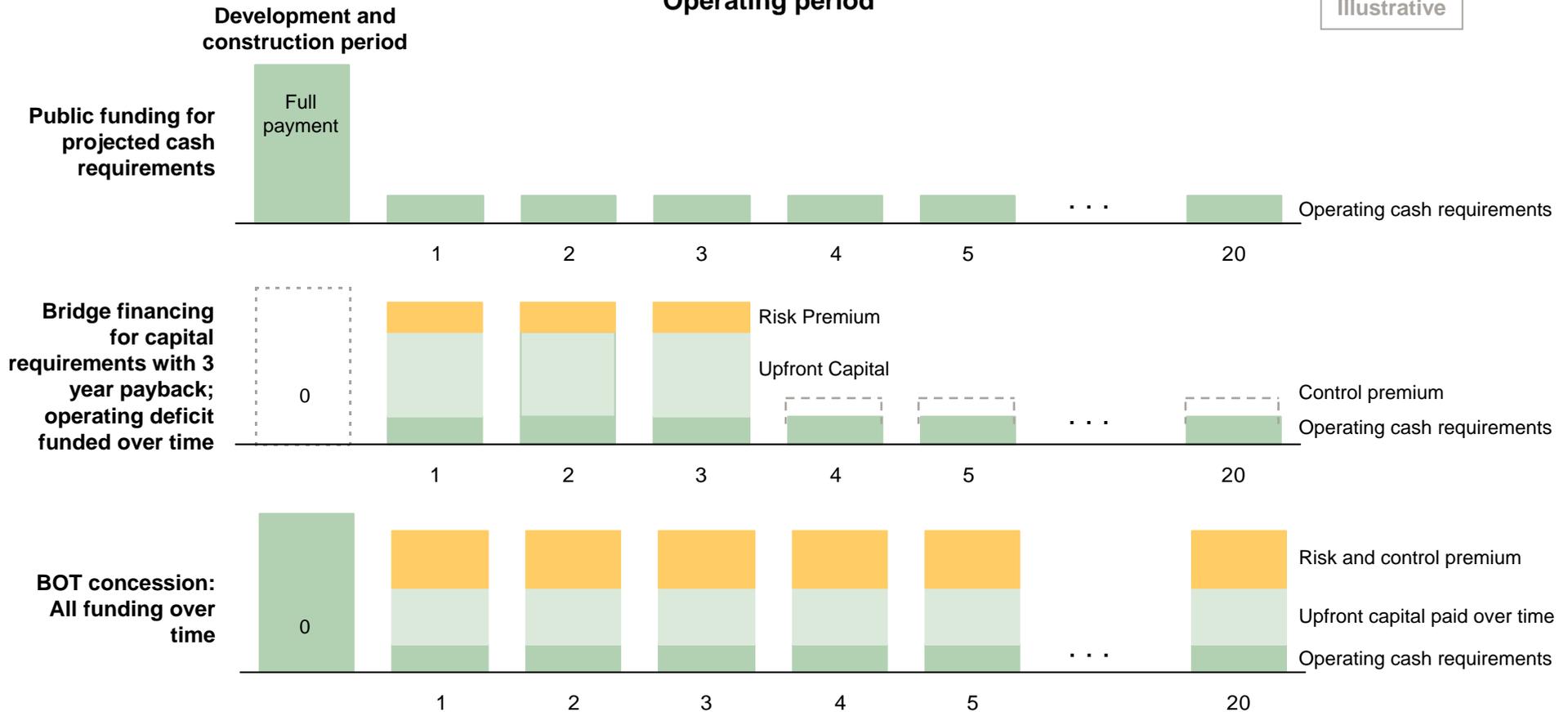


Financing

Public funding for transit projects can either be timed to match cash requirements, or be spread over time, requiring the private sector firm to seek private financing.

Timing of government payments
Operating period

Illustrative



► **Private financing may allow the private developer to command a risk premium to compensate for the risk of government repayment and a control premium for limiting competition to operate the facility.**

Financing

Bridge financing and build-operate-transfer (BOT) concessions can be used to employ private capital in the development of transit systems.

Financing options

	Option	Description	Advantages/disadvantages
More public control 	Public funding	<ul style="list-style-type: none"> ■ Funding requirements provided on an annual basis through government budget process 	<ul style="list-style-type: none"> ■ Avoids costly financing process ■ Relies on government appropriations ■ Government responsible for key project risks
	Public finance	<ul style="list-style-type: none"> ■ Government corporation issues bonds or other debt instruments to finance improvements ■ Government is usually responsible for key risks ■ May be combined with design-build and operating contracts 	<ul style="list-style-type: none"> ■ Lower financing costs than private finance due to government responsibility for risks ■ Private efficiencies can be captured through private design-build and operating contracts
	Private bridge financing	<ul style="list-style-type: none"> ■ Private contractor raises private bridge financing for project capital requirements which is secured by government repayment obligations after project completion ■ Government reimburses capital funding immediately after or within several years of project completion ■ Government funds operating deficit on an annual basis 	<ul style="list-style-type: none"> ■ Allows project to proceed prior to availability of public funds ■ Conforms government payment schedule to the availability of public funds ■ Incentive for efficiency due to financial obligations of private contractor
	Build-operate-transfer (BOT) concession	<ul style="list-style-type: none"> ■ Government awards private concession to design, build, operate and finance improvements base on preliminary design and performance specifications ■ Concessionaire raises financing privately and is responsible for most commercial risks 	<ul style="list-style-type: none"> ■ Strong incentive for efficiency due to long term financial interest of private concessionaire ■ Government receives facility free of charge at the end of the concession term ■ Private financing may increase the time and complexity required to implement the project.
Less public control 			

Financing

However, private financing may increase the time and complexity required to implement the project.

- Toll projects are financed on a limited-recourse, project-finance basis in which investors rely on project cash flows for payment with limited recourse to the sponsor.
- Investors must conduct thorough technical and financial evaluation of the project, including:
 - Traffic and revenue projections
 - Construction cost and operating cost estimates
 - Financial feasibility studies
- The financial package requires complex loan and security documentation, often involving several lenders, investors, project sponsors, and government agencies.
- Light rail infrastructure assets have limited liquidation value for investors in the event of default.

 **Project financings in the toll road sector often take up to two years to complete.**

Financing

If private financing is required, a range of mechanisms are available to support the transaction in addition to the ongoing government payments. Toll road projects provide good examples of creative financing options and historically have been more frequent than transit projects.

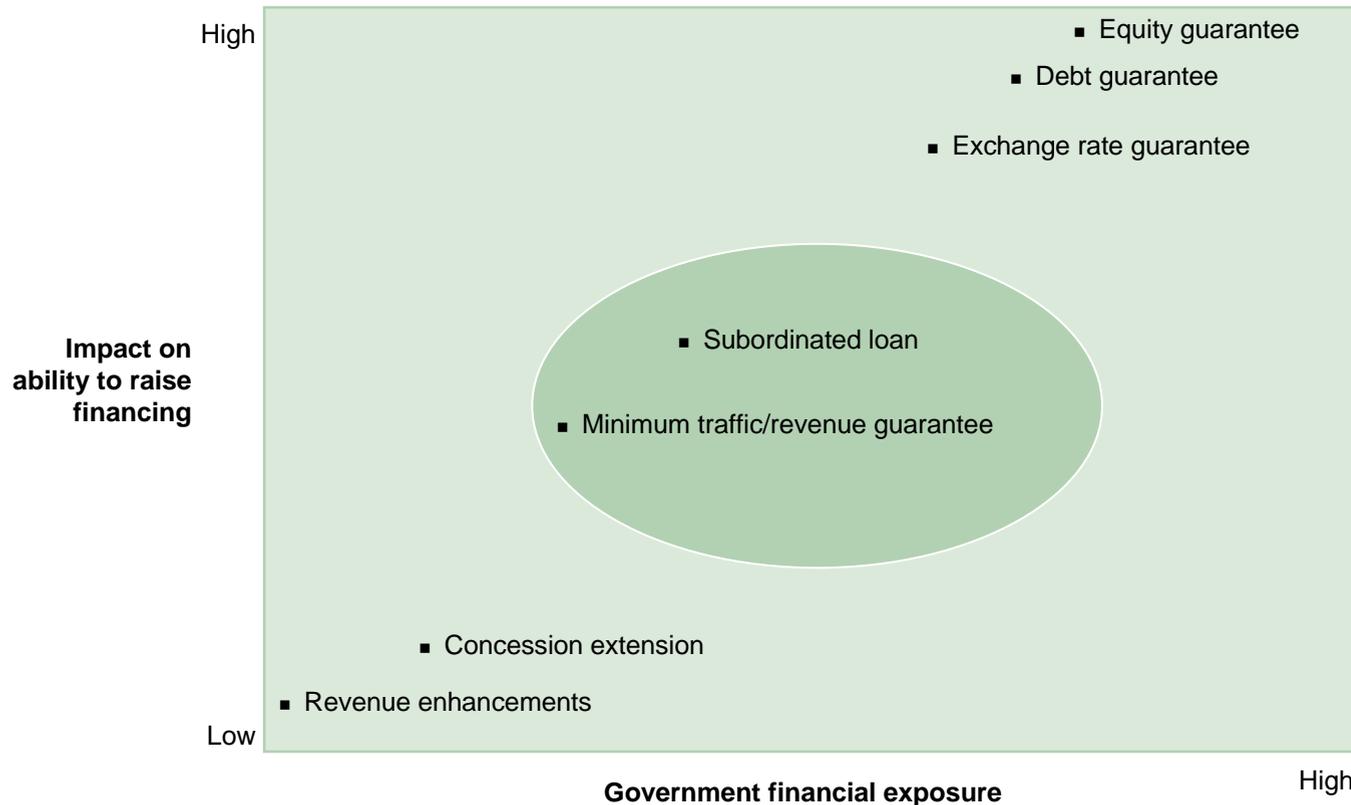
Greater
public
exposure

Lower
public
exposure

Options	Description	Advantages/disadvantages	Example of location used for toll road project
Equity guarantee	<ul style="list-style-type: none"> Government provides option to concessionaire to be bought out with minimum return on equity 	<ul style="list-style-type: none"> Provides strongest protection to equity investors with no public cost if project returns minimum ROE, but creates extremely high government exposure and severely reduces private sector incentives 	<ul style="list-style-type: none"> Puerto Rico
Debt guarantee	<ul style="list-style-type: none"> Government provides full guarantee or cash flow deficiency guarantee for debt 	<ul style="list-style-type: none"> Provides strongest protection to debt investors with no public cost if project can service debt, but creates extremely high government exposure and reduces private sector incentives 	<ul style="list-style-type: none"> China
Exchange rate guarantee	<ul style="list-style-type: none"> Government compensates concessionaire for increases in local cost of debt service due to exchange rate movements 	<ul style="list-style-type: none"> Covers important project risk but creates high government exposure and an artificial incentive to raise foreign capital 	<ul style="list-style-type: none"> Spain
Subordinated loan	<ul style="list-style-type: none"> Government provides subordinated loan to concessionaire 	<ul style="list-style-type: none"> May fill important gap in financial structure between senior debt and equity but requires substantial up-front government contribution. Provides for repayment to government, although subordinated position makes repayment risky. 	<ul style="list-style-type: none"> Malaysia
Minimum traffic/revenue guarantee	<ul style="list-style-type: none"> Government compensates concessionaire with cash in the event traffic or revenues fall below a specified minimum level 	<ul style="list-style-type: none"> Protects investors from traffic and revenue shortfalls but creates public financial exposure and may reduce private sector incentives 	<ul style="list-style-type: none"> Chile
Concession term extension	<ul style="list-style-type: none"> Government allows an extension in the concession term if revenue falls below a minimum amount 	<ul style="list-style-type: none"> No cash cost to public sector but does not protect investors from traffic and revenue shortfalls 	<ul style="list-style-type: none"> Mexico
Revenue enhancements	<ul style="list-style-type: none"> Government limits competition, builds complementary facilities to feed traffic to concession, or allows concessionaire to develop ancillary facilities 	<ul style="list-style-type: none"> Low risk to public sector but restricts public control over future development and unpredictable revenue stream may have limited value to investors 	<ul style="list-style-type: none"> U.S./California

Financing

Two of the alternatives can have a meaningful impact on the ability to raise financing without creating a high level of government exposure and distorting the concessionaire's incentive to perform.



Non-competition agreements, complementary facilities, and ancillary development can also play an important role under certain circumstances while concession extensions and equity, debt, and exchange rate guarantees should generally be avoided.

Operations

Operating efficiencies can be achieved by employing private sector technical expertise and structuring operating agreements that provide financial incentives to reduce operating deficits.

Operation options

Options	Description	Advantages/disadvantages
<p>Greater public control</p> <p>Government agency</p>	<ul style="list-style-type: none"> Government, usually through Department or Ministry of Transportation, operates the system. Chief executive of operating agency reports directly to senior government officials. Government generally makes strategic decisions. 	<ul style="list-style-type: none"> Greatest control over all aspects of operations (e.g., standards and actual performance), however, least institutional incentive for efficiency
<p>Government owned concessionaire or corporation</p>	<ul style="list-style-type: none"> Operating company, owned and controlled by government, operates the system. Board of Directors appointed by government generally make strategic decisions. Service may be provided under policy guidelines or commercial contract. 	<ul style="list-style-type: none"> Strong control over performance standards, but incentive for efficiency depends on governance structure and type of contract utilized.
<p>Partial outsourcing</p>	<ul style="list-style-type: none"> Government outsources some portions of the operations to a private company (e.g., maintenance) 	<ul style="list-style-type: none"> Offers opportunity to improve financial and operational performance of a government operation but only achieves a portion of the full potential
<p>Lower public control</p> <p>Private operating contract or concession</p>	<ul style="list-style-type: none"> Private company operates system under commercial contract or concession with Government. Minimum performance standards and payment levels explicitly defined in contract. 	<ul style="list-style-type: none"> Greatest incentive for efficiency due to technical expertise and financial interest of private operator Least Government control over operations, however, this can be mitigated with a tightly written concession contract.

Government payments

Government payments during the operating period may be fixed, performance based, or vary with operating results.

Operating period payment options

	Options	Description	Advantages/disadvantages
Greater public exposure ↑	Vary with actual operating results	<ul style="list-style-type: none"> ■ Payment varies, depending on actual cash flow requirements ■ Payment may vary with actual operating costs and revenues, or payment may equal fixed amount for costs less actual revenues 	<ul style="list-style-type: none"> ■ Fully covers actual cost of service ■ Allows government to retain full flexibility over fare policies ■ Does not provide incentive for improved performance
	Performance based	<ul style="list-style-type: none"> ■ Payment based on specific performance criteria, such as seat-kms or passenger-kms ■ Payments may be in addition to farebox revenues, or revenues may go to government 	<ul style="list-style-type: none"> ■ Creates strong incentive to achieve performance criteria ■ Performance criteria may not induce efficient operating decisions ■ Involves payment risk for government and private partner
Lower public exposure ↓	Fixed	<ul style="list-style-type: none"> ■ Payment fixed according to a pre-defined schedule 	<ul style="list-style-type: none"> ■ Easy to administer ■ Creates incentive to minimize costs and maximize farebox recovery ■ Involves risk to private partner that fixed payments are inadequate

▶ **The fixed payment option allocates revenue risk to the operator, while the government retains revenue risk when payments vary with operating results. Under the performance-based option, the allocation of revenue risk depends on the performance criteria used.**

Experience

Two large-scale transit concessions in the U.S. provide examples of the separate and integrated design-build and operating contract approach.

	Tren Urbano, San Juan, Puerto Rico	Hudson-Bergen Light Rail Transit System, New Jersey
Public-private development model	<ul style="list-style-type: none"> Separate design-build and operating contracts 	<ul style="list-style-type: none"> Integrated design-build-operate-maintain (DBOM) contract
Design and build	<ul style="list-style-type: none"> Seven separate construction contracts <ul style="list-style-type: none"> 6 for civil works and 1 for systems (power, controls, and signaling) All contracts are fixed price, design-build, turnkey projects Total size of project 10.7 miles Project expected to enter revenue service in 2001 	<ul style="list-style-type: none"> DBOM contract for all design, build, and operation Total size of project 14.5 miles
Operations and maintenance	<ul style="list-style-type: none"> The systems contract includes rolling stock and a 5 year operating contract, with 5 year extension possible Fare collection system procured separately to better integrate it with other public transit systems 	<ul style="list-style-type: none"> DBOM contract includes operations for 15 years
Financing	<ul style="list-style-type: none"> Total cost \$1.5 billion Funds raised through tax-exempt municipal bonds and government grants Operator paid lump sum, less actual revenue collected - operator assumes no farebox risk Contractors paid as work is completed Minimum service levels specified with bonuses and penalties Contractor entitled to develop retail concessions 	<ul style="list-style-type: none"> Total cost \$1.1 billion, including operating period Funds provided by NJ State Transportation Fund Most upfront capital costs paid by government, except \$200 to \$300 million for rolling stock and other assets that were privately financed All fare revenue goes to the government – the operator assumes no revenue risk

▶ The Puerto Rico project was constrained from employing a concession or long-term operating contract by provisions of the U.S. tax code that apply when low-cost tax-exempt debt is used to fund project capital costs.

Experience

The Argentina commuter rail concessions demonstrate the use of DBO concessions, the Chicago, South Shore transaction employed bridge financing, and the Los Vilos-La Serena toll road project in Chile is being developed through a DBFO concession.

	Argentina Commuter Rail Concessions	Chicago, South Shore Commuter Rail	Los Vilos - La Serena Toll Road Concession, Chile
Public-private development model	<ul style="list-style-type: none"> Design, build, operate (DBO) concession 	<ul style="list-style-type: none"> Bridge financing concession 	<ul style="list-style-type: none"> Design, build, finance, operate (DBFO) concession
Design and build	<ul style="list-style-type: none"> Concession agreement specifies preliminary design, performance requirements, and timetable Concessionaire fully responsible for design and construction 	<ul style="list-style-type: none"> Existing system – no improvements required 	<ul style="list-style-type: none"> Concession agreement specifies preliminary design and performance requirements Concessionaire fully responsible for design and construction
Operations	<ul style="list-style-type: none"> Concession agreement specifies minimum performance requirements Concessionaire fully responsible for operations 	<ul style="list-style-type: none"> Commuter service operated by Northern Indiana Commuter Transportation District (NICTD) 	<ul style="list-style-type: none"> Concession agreement specifies minimum performance requirements Concessionaire fully responsible for operations
Financing	<ul style="list-style-type: none"> Capital costs funded by government as they are incurred based on payment schedule proposed by concessionaire in tender process Operating period payments are fixed subsidies to concessionaire (or canon payment to the government) based on payment schedule proposed by concessionaire in tender process Private concessionaire assumes operating cost risk and revenue risk 	<ul style="list-style-type: none"> NICTD wanted to acquire a bankrupt railroad with freight and passenger services but was unable to immediately obtain public funding Instead, a private freight railroad company acquired the railroad and provided passenger rights to NICTD until NICTD was able to obtain the necessary funding Approximately one year after the initial acquisition, NICTD obtained public funding, bought out the railroad, and provided freight rights to the private freight company. 	<ul style="list-style-type: none"> Capital costs financed by concessionaire with no contribution from the government Concessionaire receives fixed annual payments from the Government during the operating period as specified in the bidding documents Concessionaire receives a minimum revenue guarantee from the Government

Advantages and disadvantages

The options involving private financing provide funding flexibility for the government and enhance private sector incentives to perform. The private financing requirements, however, may add to the complexity and time required for project implementation.

	Traditional public procurement and operation	Design-build and operating (DBO) contract(s)	Design, build, operate (DBO) concession	Bridge financing concession	Design, build, finance, operate (DBFO)
Advantages	<ul style="list-style-type: none"> ■ Maximum government control over design, construction, and operations ■ Contracting is least complex 	<ul style="list-style-type: none"> ■ Allocates risk and responsibility for design and construction to private sector ■ Takes advantage of private technical expertise in operations ■ Allocates operating period cost risk to private operator ■ Integrating design/ construction and operating contracts may allow additional efficiencies in optimizing life cycle costs and coordinating design, construction, and operations 	<ul style="list-style-type: none"> ■ Allocates operating period cost risk and revenue risk to the private operator which increases the incentives to perform ■ Takes advantage of private technical expertise in operations 	<ul style="list-style-type: none"> ■ Private bridge financing allows project to be developed prior to availability of public funding and enhances private incentive to perform ■ Allocates operating period cost risk and revenue risk to the private operator which increases the incentives to perform ■ Takes advantage of private technical expertise in operations 	<ul style="list-style-type: none"> ■ Private financing requirements of concession create much greater incentive for private partner to perform ■ Government may delay payments to the operating period ■ Takes advantage of private technical expertise in operations
Disadvantages	<ul style="list-style-type: none"> ■ Government retains a high level of responsibility and risk during design and construction ■ Does not take advantage of private sector technical expertise in operations ■ Government assumes operating cost and revenue risk during operations ■ Limited financial incentives for government operator to perform 	<ul style="list-style-type: none"> ■ Government gives up some control over project design, construction, and operation ■ Contracting process is more complex than for traditional contracts ■ Government assumes revenue risk; contractors do not have as strong a financial interest in the success of the project as under the concession options 	<ul style="list-style-type: none"> ■ Government gives up some control over project design, construction, and operation ■ Contracting process is more complex than for traditional contracts 	<ul style="list-style-type: none"> ■ Bridge financing requirements add to complexity and time required for project implementation ■ Government gives up some control over project design, construction, and operation ■ Contracting process is more complex than for traditional contracts 	<ul style="list-style-type: none"> ■ Private financing requirements of concession add to complexity and time required for project implementation ■ Private financing may be more costly due to “risk premium” associated with making government payments over time versus up front ■ Government gives up more control than under other approaches

Introduction to Mercer

Mercer Management Consulting is a global leader in consulting to railways, network operators and rail-related industries

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