

Making Urban Transport Investments efficient and affordable

The Role of Public Private Partnerships

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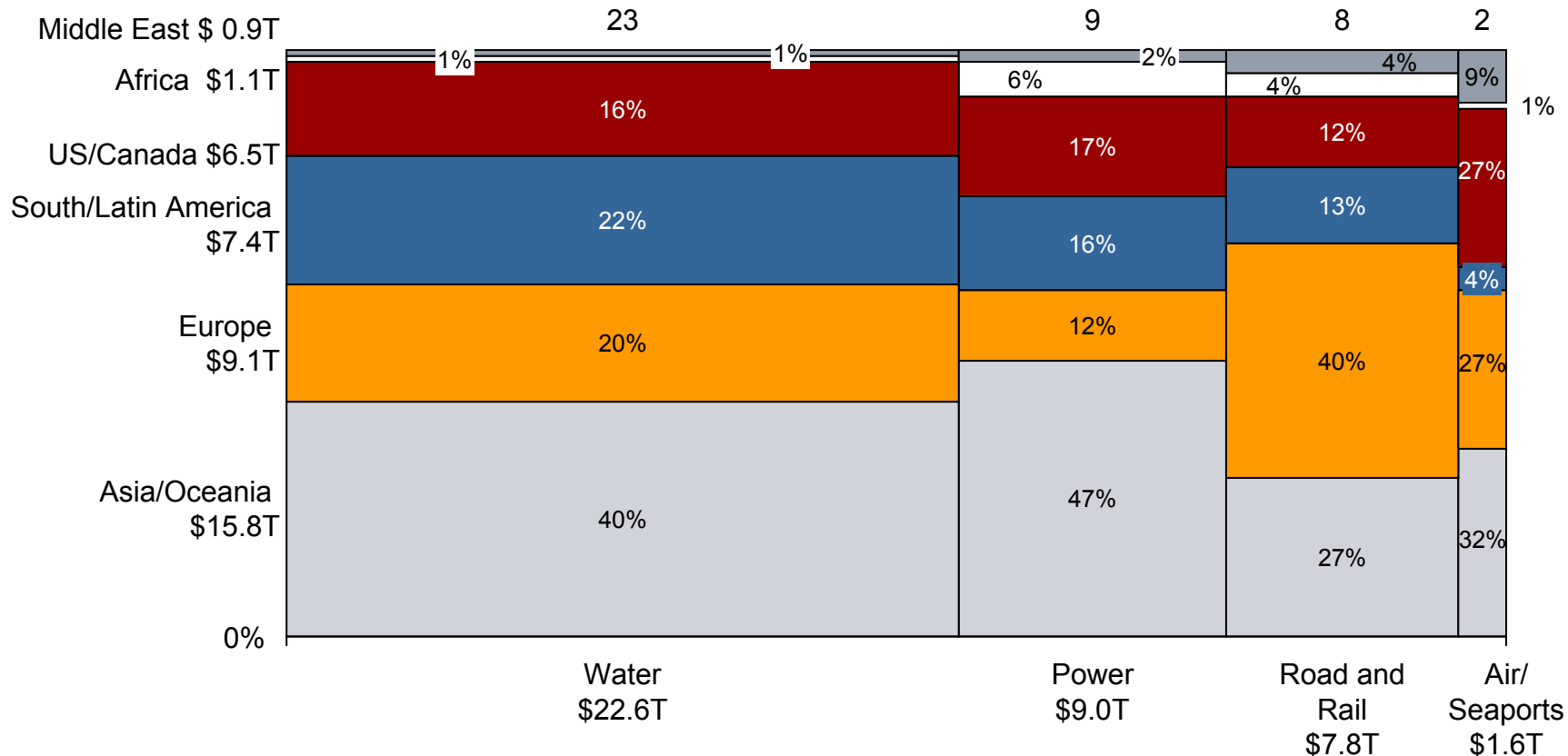
September 12, 2007



Enabling infrastructure investments

The Infrastructure Challenge: Infrastructure investment needed over the next 25 years* according to decision-makers

Total Projected cumulative infrastructure spending 2005-2030: \$41 trillion



*Source: Booz Allen Hamilton, Global Infrastructure Partners, World Energy Outlook, Organisation for Economic Co-operation and Development (OECD), Boeing, Drewry Shipping Consultants, U.S. Department of Transportation

Current investments do not cover the needs

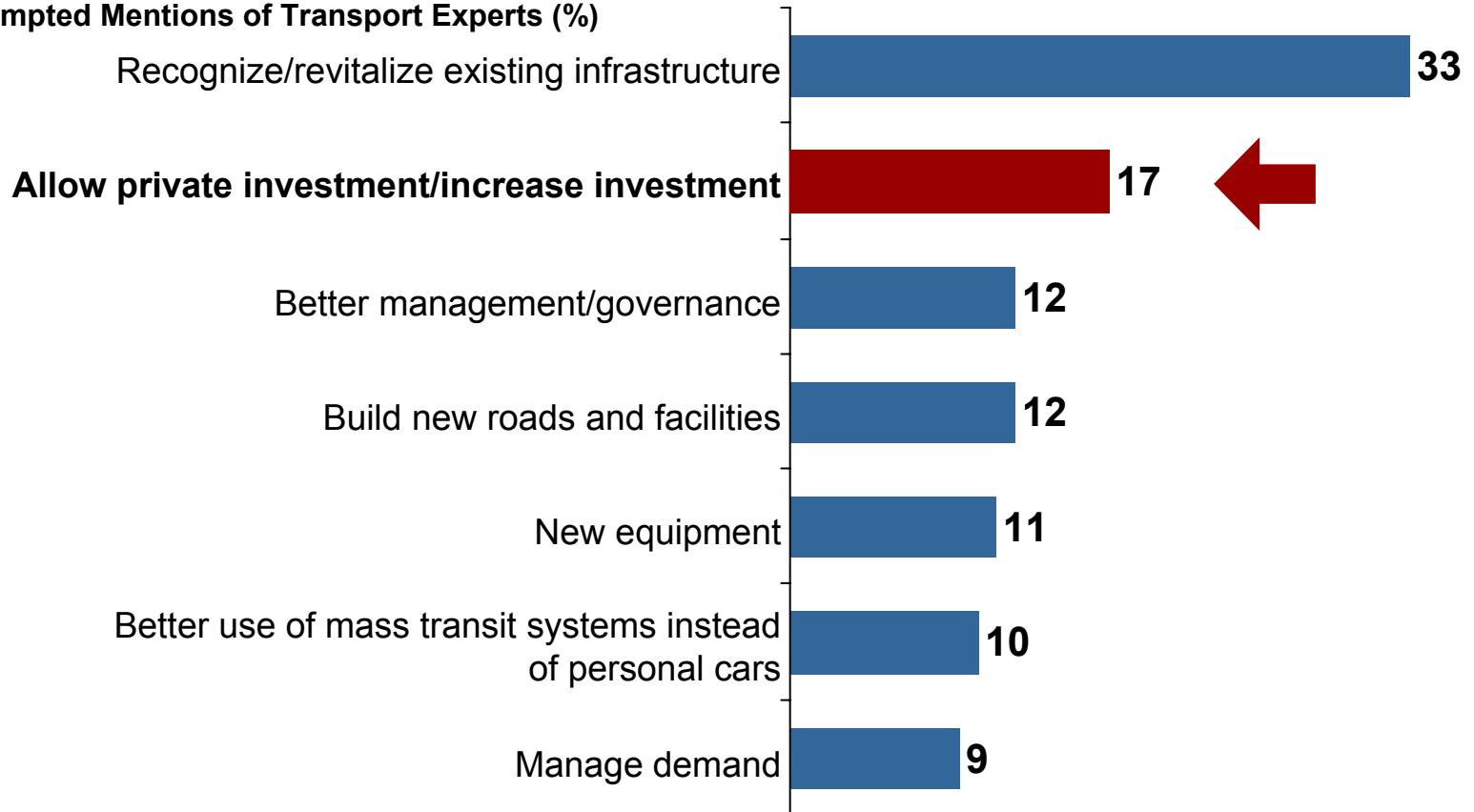
Despite significant differences from sector to sector

	Road & Rail	Air/Seaport	Water	Power
Estimated cumulated investment needs by 2030 in bn USD	7,800	1,600	22,600	9,000
Current investments by sector in bn USD	230	400	80	256
Necessary increase in investments	x34	x4	x283	x35

Urban planners say: The private sector plays an increasingly important role in helping cities provide adequate infrastructures

Example: Solutions to Transportation Problems

Unprompted Mentions of Transport Experts (%)



Source: Siemens, Globescan, McLean Hazel 2007

Siemens Project Ventures:

Investing equity in infrastructure projects worldwide

- Founded in 1994 as Siemens Power Ventures
- Re-named in 1998, reflecting its broadened policy perspective towards activities in all infrastructure sectors
- 100 % subsidiary of Siemens Financial Services and therefore Siemens AG
- As a legally distinct entity, SPV is charged with an independent profit responsibility
- The multi-functional team consists of 21 professionals
- 14 Projects brought to Financial Close predominantly in power, also in telecoms and airports
- Project volumes range from EUR 100mn to EUR 1 bn

Project Participations in the power plant, telecommunications, airport and security sectors

Project	Sector	Type	Country	Total Investment Volume (Mn USD)
Jawa Power	Energy	Power Plant (1.220 MW Steam)	Indonesia	1.710
Elcogas	Energy	Power Plant (280 MW CCGT*)	Spain	720
Rousch	Energy	Power Plant (412 MW CCGT)	Pakistan	560
Bangalore	Airport	International Airport (5 Mio Pax)	India	420
Tahaddart	Energy	Power Plant (384 MW CCGT)	Morocco	280
iBahn	Telecom	Broadband Internet Access	USA	205
Commerce Guard	Transport	Container Security	Sweden	125
Total				4.020

Project	Sector	Type	Country	Total Investment Volume (Mn USD)
Hanfeng	Energy	Power Plant (1.320 MW Coal fired)	China	1.050
Tapada	Energy	Power Plant (990 MW CCGT)	Portugal	670
Rizhao	Energy	Power Plant (700 MW Coal fired)	China	645
Paguthan	Energy	Power Plant (655 MW CCGT)	India	580
Cottam	Energy	Power Plant (385 MW CCGT)	UK	270
DigiPH	Telecom	GSM Network	USA	150
Oakey	Energy	Power Plant (300 MW Gas)	Australia	90
Malzenice	Energy	Power Plant (Site Development)	Slovakia	n.a.
Total				3.455

*combined cycle gas turbine

Bangalore: Total equity investment for SPV 22' EUR, total contract value for Siemens 90' EUR

High speed rail project HSL ZUID – a successful infrastructure PPP Project in the Netherlands

Key data

- 100 km of dedicated track (fixed installation part) with no level crossings from Amsterdam to the Belgium/Netherlands border for speeds of up to 300 km/h
- EPC partners: Siemens, Flour Infrastructure, BAM NBM

Financial Solution

- Financial close: October 2001
- Total Project Cost: € 1.2 bn
 - Commercial loan facility: € 605m
 - EIB loan facility: € 400m
 - Sponsors Equity and subordinated debt: € 120m (provided by Flour, Siemens, Bam, HSBC Infrastructure and Innisfee)

Awards

- ‚European Deal of the year‘ 2001 (by PFI Magazine) and ‚Best Strategic Infrastructure Project‘ (by PFI Report)

Role Siemens Project Ventures

- In house financial advisor to Siemens TS TK as strategic investor in the project

A worker wearing a yellow hard hat and a white uniform is shown in profile, talking on a mobile phone. The worker is standing on a construction site, with a blurred background of airport infrastructure and power lines. A semi-transparent white banner with a fine grid pattern is overlaid across the middle of the image, containing the text "Example Bangalore Airport".

Example Bangalore Airport

Bangalore International Airport – experience with public infrastructure: case study

- First Public Private Partnership (PPP) in the airports sector in India
- Project has been pioneering in that
 - a) Indian legislation had to be amended to allow private sector participation in green field airports
 - b) Concept of a Concession had to be introduced to the Ministry of Civil Aviation
 - c) Substantial State Financial Support was required to make the project viable
 - d) Privately financed Greenfield Airport Construction Project
- Hyderabad Airport adopted similar structure

Bangalore International Airport – experience with public infrastructure: case study

1	1. Tendering - Broke down because of difficult legal situation	1991
2	MOU between AAI and KSIIDC for the development of New Bangalore International Airport Project at Devanahalli	3rd May 1999
3	Request for Expression of Interest issued by Government of Karnataka	June 1999
4	Project Proposal submitted by Airport Partners	30th April 2001
5	Award of Preferred Bidder status to Siemens Consortium	July 2001
6	Signing of Shareholders' Agreement between Siemens Consortium and GoK and AAI	23rd January 2002
7	Concession Agreement	5th July 2004
8	1st Financial Close	23rd June 2005
9	Start of Construction	2nd July 2005
10	Redesign of Initial Construction Phase	April 2005
11	2nd Financial Close	October 2006
12	Airport Opening	Expected for April 2008
13	Autumn 2007: Terminal 2 projected – though airport not yet openend	Expected for April 2008

Bangalore International Airport – experience with public infrastructure: case study

Key data

- Concession over 30 years to build, operate and transfer new airport
- Total Project Cost: € 259' (redesign + € 95', i.e. € 354')
- Equity: 60' Euro State Support: € 64'2
- Financing: Debt: € 134'9 (redesign + € 82'5, i.e. € 217,4')
{Internal Accruals € 12'5}
- Airport opening: April 2008
- Land area: 1.574 hectare
- Runway length: 4000 m
- Traffic data:

	Passengers (old study)	Passengers (new study)	
2008	4.052.000	12.585.000	(+ 210%)
2010	4.617.000	17.590.000	(+ 280%)
2015	6.404.000	28.970.000	(+ 350%)

Bangalore International Airport – experience with public infrastructure: case study

Success factors:

- Strong Private Equity Partners: Larsen & Toubro, Airport Zürich, Siemens
- Financial support through Government of Karnataka
- Clearly defined existing stream of revenues
- Legal framework now in place
- Strong Traffic / Market / growth rates
- Experienced operator: Airport Zürich
- Strong Supplier/Contractor consortium: Siemens electrical and Larsen & Toubro civil
- Professional Arranging Bank and sole Underwriter: ICICI Bank

Airport privatization in India: Is it profitable?

Siemens Project Ventures' perspective on Bangalore Airport

- Traffic/Passengers (and growth rates) are there
- Open sky policy of recent years most helpful
- However, size does matter - Bangalore and Hyderabad needed Investment Support
- Need clear stable revenue regulatory regime in the future (Role of future regulator?)
- SPV expectation: Bangalore will be a profitable investment for all participants!

Airport privatization in India: Is it profitable?

Perspective on future Greenfield-Opportunities

- Traffic/Passenger numbers (and growth rates) are there for almost all of India
- Experience is there; Legal and Regulatory Framework exists
- However, size does matter – check investment needs against traffic expectations
- Potentially need additional revenue sources (e.g. real estate development) or state support

Potential Threats

- Difficulties to employ and maintain sufficient numbers of good staff
- Political opposition grows - delay/frustration of future deals possible
- Driven by current successes, future tender conditions might become onerous
- Growing competition - deals might become commercially inviable



Increasing efficiency via financial solutions

Asbeck Christian
CTS CI

Sigm-Maria Frank
CTS CT

Aulbach Peter
CTS CT

Fenzels Ute
CTS CI

Barr Axel
CTS CS

Gundel Lutz
CTS CI

Diverse urban infrastructures need to cope with challenges

Impact of megatrends on city infrastructure – examples

Affected infrastructure

		Transport	Water and wastewater	Energy	Healthcare	Safety and security
Consequences	Increasing mobility	Traffic jams		Increasing energy demand of transport		Increase of road accidents
	Increasing scarcity of natural resources	Energy cost increase of transport	Sinking ground water by over-extraction	Cost increase of energy generation		
	Growing need for environmental care	Air pollution through cars	Contamination of ground water	Air pollution through energy generation	Diseases through toxic substances	
	Growing demand for health- and elder care		Water-borne diseases		Increasing wealth raises demand	
	Growing demand for safety and security	Safety of mass transport	Terrorist attack on water supply	Continuity of electricity supply	Medical care in emergencies / crisis	Crime due to social tension

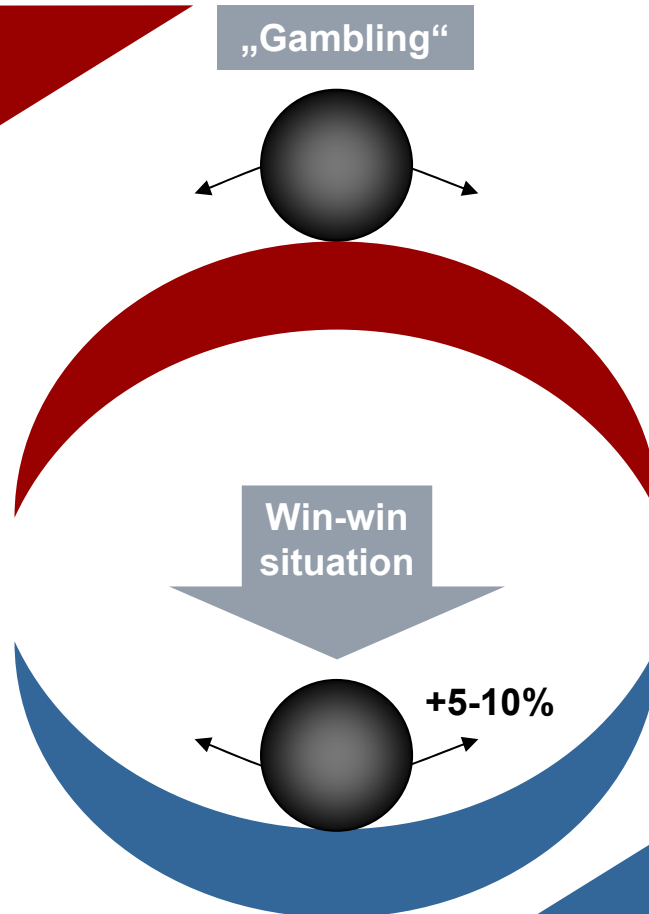
- **Goal: Enabling societies to master their most vital challenges**
- **Solutions must be comprehensive, sustainable, efficient, innovative**

The aim is to create win-win situations between public and private sectors – leading to stable returns

From an instable equilibrium...

Low-performing projects e.g. due to:

- unsustainable approach to risk sharing
- high bid costs
- long procurement times
- lack of competition



...to stable returns for public and private sector

Criteria for project quality (UK):

- return expectations
- output specification
- risk allocation
- key terms and conditions
- bankability
- indicative timetable
- commitment of sponsors
- statutory process

Success factors

Definability

- Example power plant: capital good can be delineated
- Example transportation: delineation difficult

Stability of demand

- Example energy: power will always be needed
- Also true for transportation, more so with water

Substitute products

- Example bridge/road construction: Can an additional bridge be built alongside the bridge to be financed?
- Can the product be entirely substituted?

Contract structures

- Example transportation: Arlanda Airport, Stockholm
- What standards exist in the respective sector?

'Politicizability'

- Example: subsidized train tickets, cheap power as argument for election campaign
- Can the project become a controversial issue?

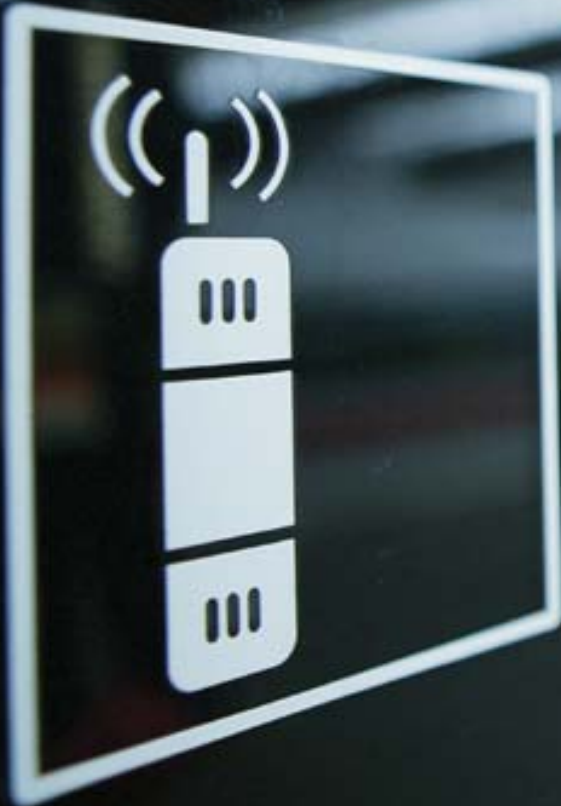
What else makes cities successful?

Seven Deadly Wins*

1. Transport is about moving people and goods not vehicles. Define the kind of city you want and fit the transport system to it not the other way round.
2. Maximise exchange space. Exchange space is the public space within the city that generates the economic vitality of the city. It enhances the environment of the city and increases the quality of life.
3. Minimise movement space. This is the space needed to allow people to move around the city. It needs to be minimised because it takes space from exchange space – the space vital to the life and economy of the city.
4. The city is a place of chairs – formal and informal. Chairs create exchange and allow people to stay longer. This is good for the economy and vitality of the city.
5. City is a place to enjoy. Create people places that people enjoy; especially the local people.
6. Create great arrival points. This can define the image of the city in a few minutes – it can be good or bad.
7. Get the governance right. The system should encourage strong leadership which is holistic, visionary and strategic/long-term.

* Prof Georg Hazel, OBE, MRC McLean Hazel

Questions and answers



Issued by

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