



*Empowered lives.
Resilient nations.*

“PPP Masterclass” for senior officials from Belarus

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PPPs in the Transport Sector: Roads, Case Studies

Speaker:

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Overview

I. Some Basics

1. Overall approach: Good governance, strategy
2. Funding: PPPs = *not building without money*
3. Why and how of private participation
4. PPP Contracts built on Phases in the Life-cycle
5. The Concession structure / model
6. Risk Transfer – vital issue in PPPs

II. Case studies

1. World wide case studies: Experience
2. Warnow-Querung (Germany) an instructive failure
3. The Portuguese motorway PPP programme
 - overall programme // Vasco da Gama Bridge
4. The Annecy-Geneva motorway (A41)

I. Some Basics

1. Overall approach: Good governance, strategy

1. Policy & Strategy
2. Putting people 1st
 - assess user needs & demand
 - involve all other stake holders
 - scope economic projects
3. Admin. Capacity Building
4. Adequate legal frameworks & Regulation
5. Risk identification/ transfer
6. PPP Procurement
7. Environment / sustainability
8. *Add:* PPP contract management & ex post evaluation

I. “Vital conditions”

- *Project preparation*

II. “Enabling conditions”

- *Project preparat. & framing*

III. “Operating conditions”

2. Funding: PPPs \neq *Building without money*

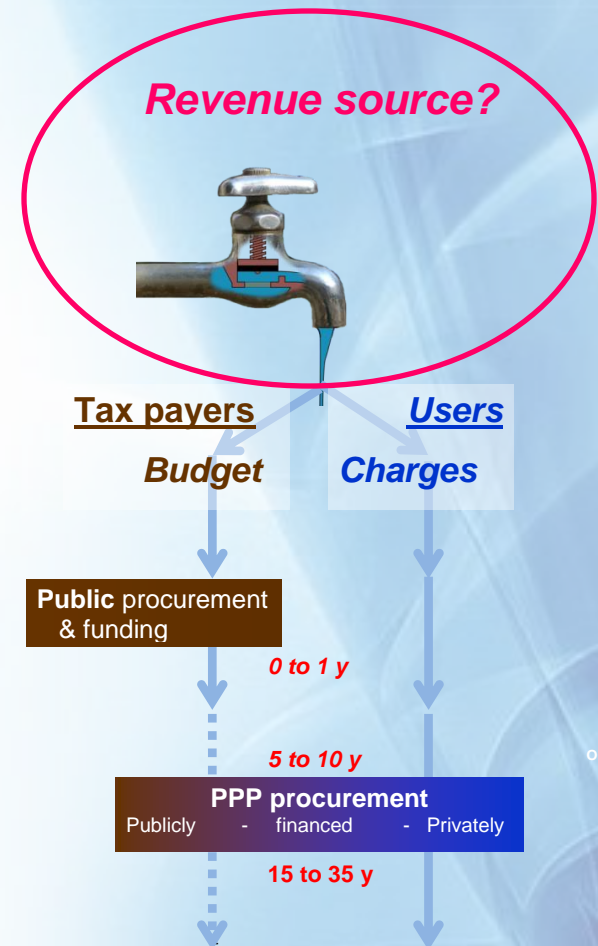
Vital to find **realistic revenue stream**
neither private sector, nor banks donate money.
They pre-finance a project, to recoup
the investment from the budget or the users

1. Tap new revenue sources (direct user charges supplementing or replacing future rents paid by public authority): develop more projects that are **self-financing** through users and private investors.

2. use public & user funds more efficiently :

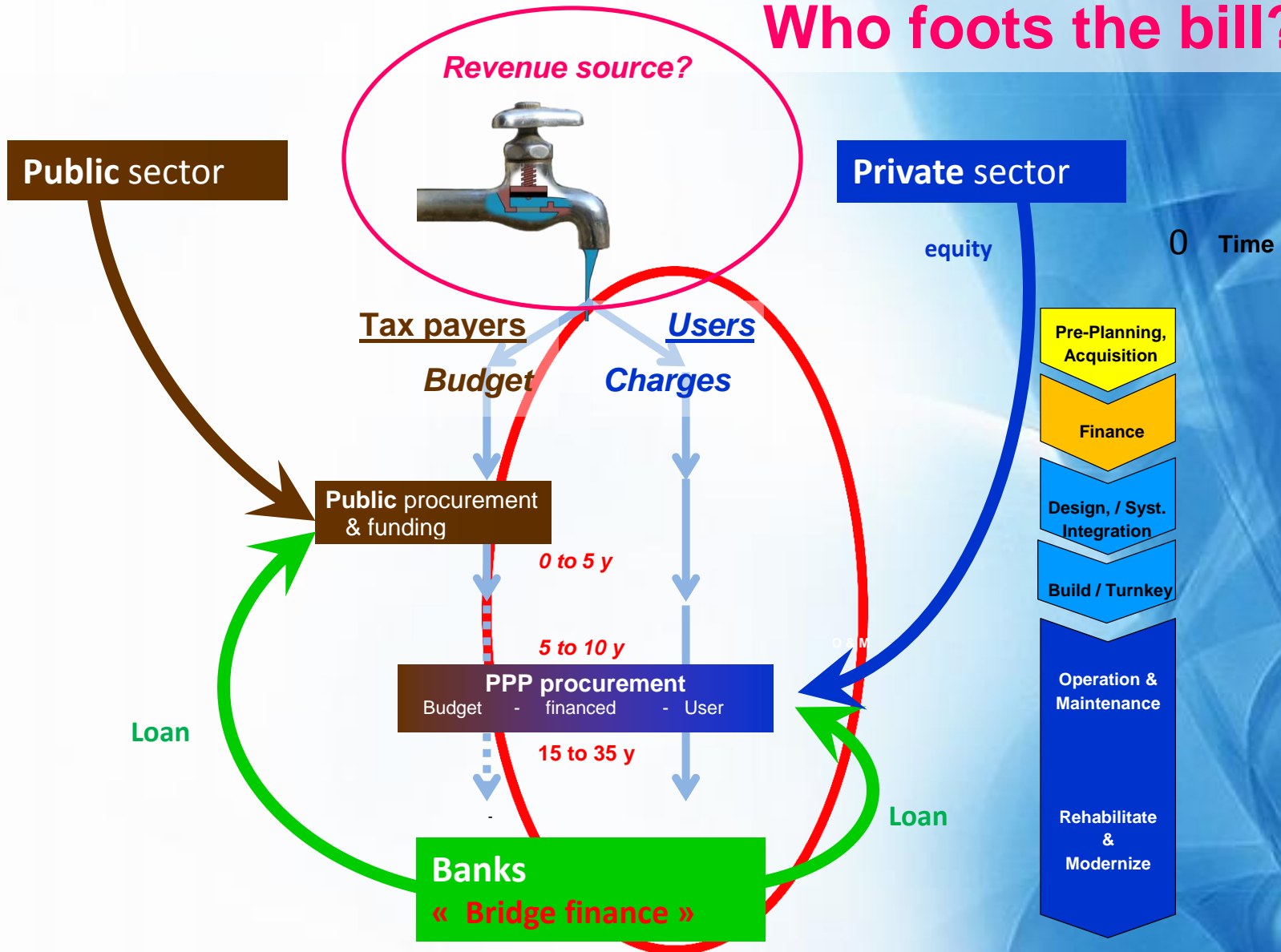
thanks to performance orientation,
tapping private efficiency in investment,
cost-efficient design and operations
& maintenance: Thus, PPPs achieve

- lower life-cycle cost and
- increase operational efficiency.



PPP does not mean building without money -

Who foots the bill?



3. Why and how of private participation

Basics of *public & private participation*

Finance, Source <hr/> Operation & Management	Tax payers (T) « Budget »	Price (P) (toll = direct user charge)
State (S)	<i>ST</i> (= S+T) Budget finance +operation, road admin.	<i>SP</i> (= S+P) 1) Public toll road 2) Vignette
Private (P) - outsourcing - contract - concession	<i>PT</i> Governm.pays, private sector operates: e.g. maintenance contracts, .. DBFO shadow toll, availability payment, ...	<i>PP</i> BOT / DBFO: Private toll road, ...

The Revenue stream - > Payment Mechanisms

Payment Mechanism	Description
Direct user charges	Tolling , (interurban + tunnels / bridges) is a common charge for road use, with 2 objectives: revenue generation and demand management. Care has to be taken to win users to tolling as a fee for service Parking fees are an even more common payment method for drivers, do not meet public resistance
Access control to Cities / Area tolling	Urban charging / road pricing with fixed or variable tariff (peak hour). Difficult to introduce (politicians fear public resistance). Access control systems that privilege area inhabitants over incoming visitors, meet generally stronger acceptability. A clever way is the combination of access and parking charges ("Parkraumbewirtschaftung": users get a grace period for a "free ride" during 20 to 30 minutes. Either they park their car then with a tag, or when they still drive, the same tag is used for urban charging.)
Traffic fines	Traffic fines from speed and red light enforcement (and other violations) create a project budget, the technology provider retains x % or possibly funds other systems, in addition (e.g. red light and speeding fines funding UTC system). Although unpopular, have advantage that drivers are already used to them.
Energy savings (liberating budget)	By upgrading a Traffic Management System to energy saving technology, up to 90% of the previously due electricity bill and O&M cost can be saved; up to 60% for public lighting. The advantage is that it takes the existing budget (governments cannot switch off street or traffic lights), and uses the liberated funds for the new project. Also environmentally very acceptable.
Shadow tolls	A shadow toll is a payment based on traffic volumes made by the public sector partner rather than users paying directly through a toll. In the United Kingdom traffic is divided into bands representing different levels of annual traffic volumes with different per-vehicle payments attached to each. Banding is intended to cap the public sector partner's liability.
Availability payments	Currently main payment mode for > 80% of new PPPs, but not affordable for governments any more. These payments are based on availability of infrastructure and/or services to an acceptable standard. They typically vary for on-peak/off-peak periods and additional features such as cycle ways or bus lanes. Effective availability payments need to be easily measurable, take into account factors affecting availability (damage, accidents, ...) and define unavailability (max.time before being re-stored).
Lump sum contributions	Lump sum payments towards the cost of the project are used in both conventional & PPP procurement. 1. In public procurement, such payments are usually paid upon completion of construction.
Annuity payment	2. In PPPs they usually are annuity payments, within a fixed schedule over the contract duration.
Active TM payments	Active traffic management payments are based on combination of traffic volumes, average traffic speed & availability. This payment mechanism can be used to create incentives or drive desired outcomes.

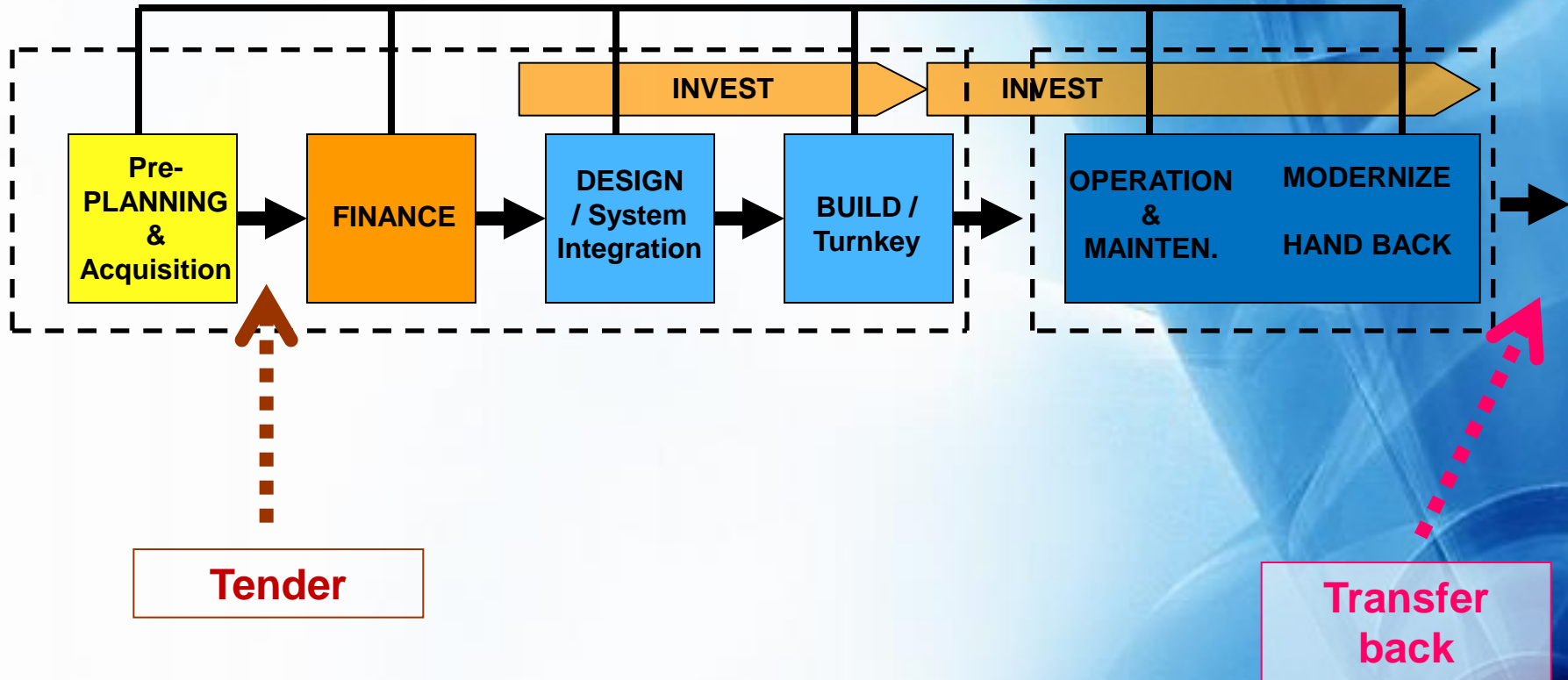
Self-financing = Future

Budget financed

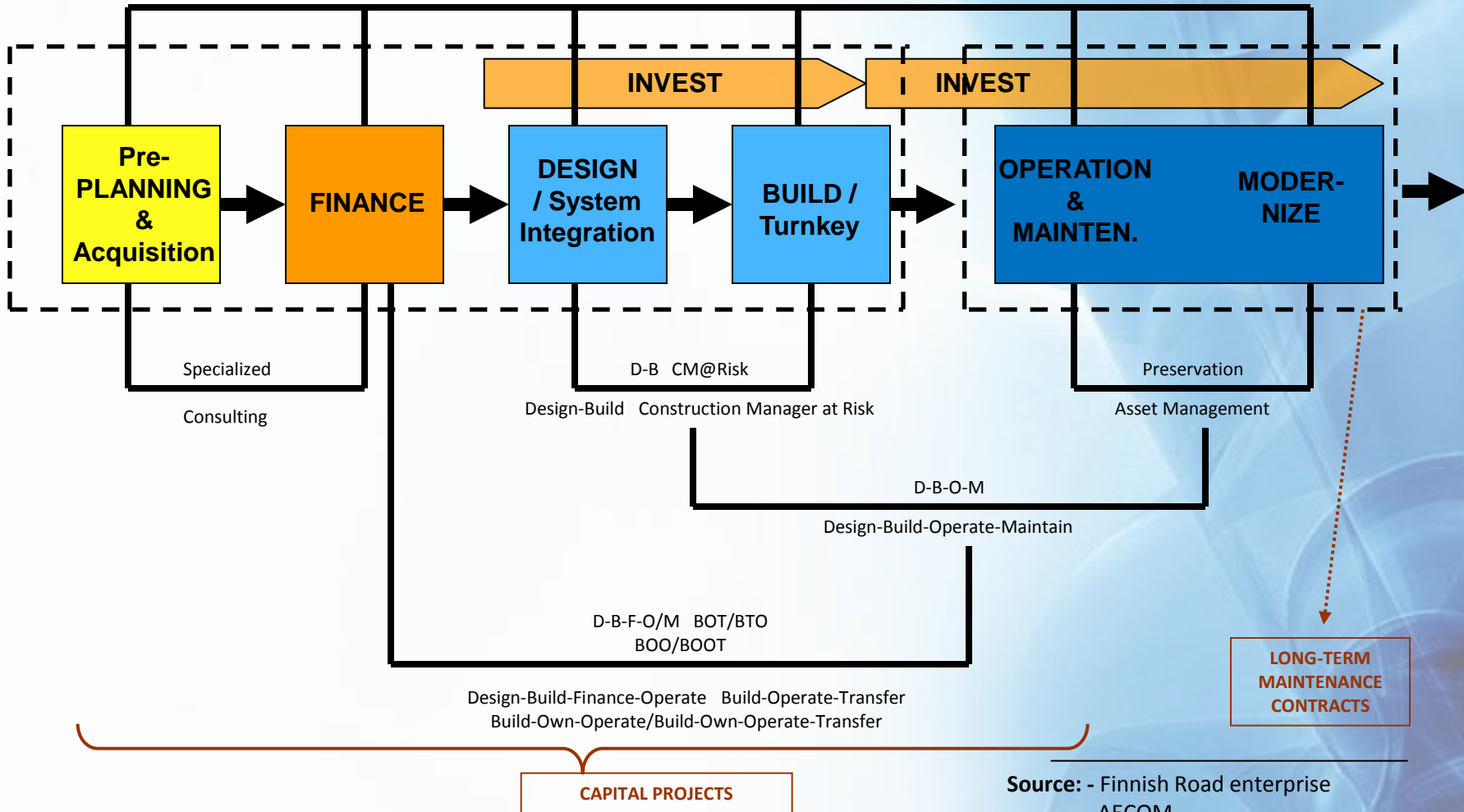
Combine Payment Mechanisms *with PPP options*

		PPP Model		
		Concessions	//	Long term contracts
Payment Mechanism		BOT - DBFO/M	Contracting model	DBOM - O&M
Self-financing	Direct user charges - Toll - Parking fee	X		
	Traffic fines	(X)		X
	Energy saving creating budget	X	X	
Budget financed	Shadow tolls	X		
	Availability payments	X	X	X
	Lump sum contributions	-		
	Annuity payment	X	X	X
	Active traffic management payments		(X)	X

4. PPP Contracts built on Phases in the Life-cycle



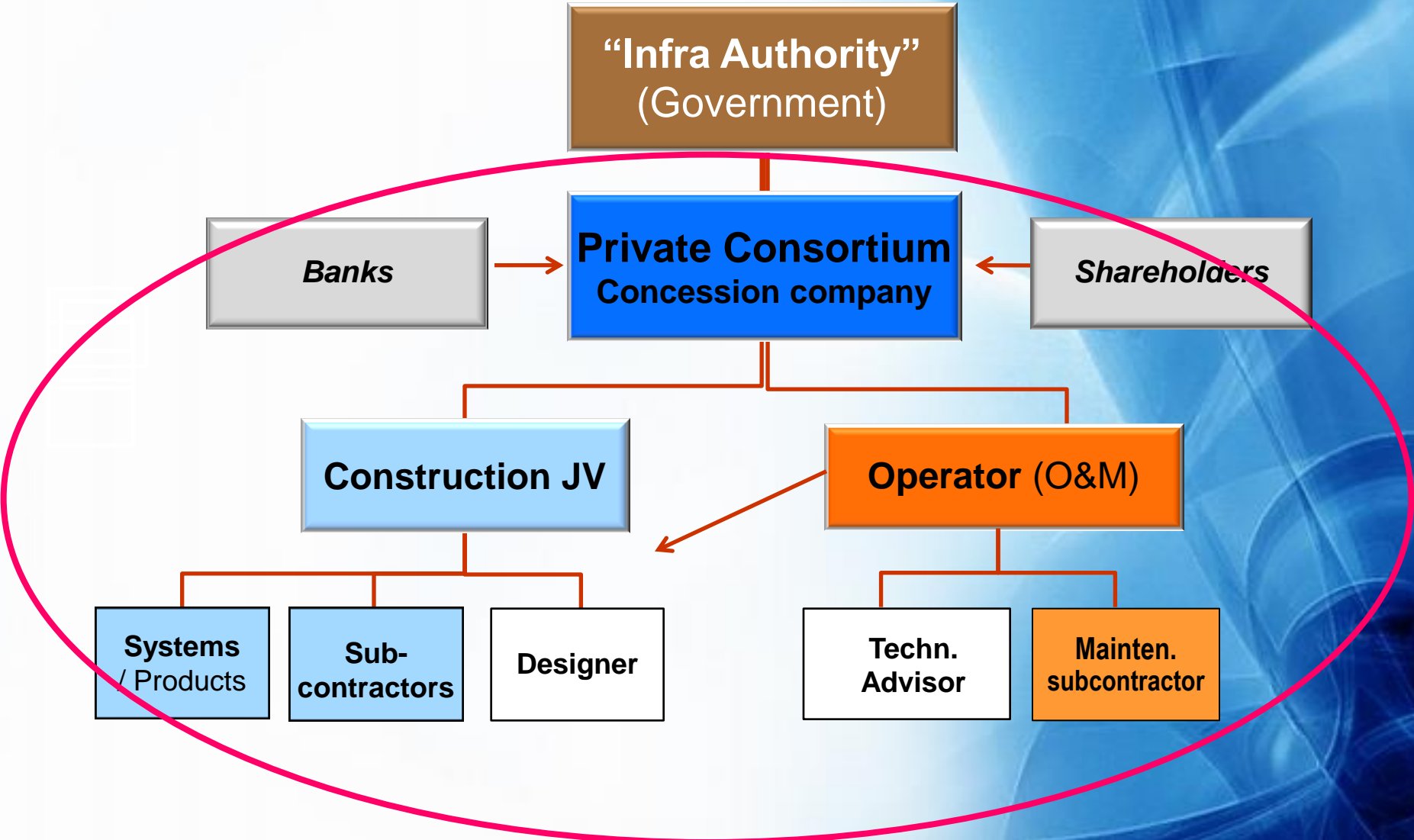
The PPP life-cycle : phases and Contracts



Range of Options: from tradit. procurement to PPP

Approach	Contract type	Risk & Duration
Fully Privatize	<p>Generally not in public infrastructure / service</p> <p>Asset Sale BOO: Build-Own-Operate</p>	High Risk
	<p>Concession (private finance / equity)</p> <p>BOT: Build-Operate-Transfer DBFO/M: Design-Build-Finance-Operate/Maintain</p>	Long Term
PPP	<p>← Contracting model (incl. modernization) ← Leasing / Affermage</p> <p>Long Term Contract ("pre-finance", no equity)</p> <p>DBOM: Design-Build-Operate-Maintain O&M: Operation & Maintenance</p>	
Tradit. Public	<p>Works contracts (including turnkey)</p> <p>DB-W: Design-Build with Warranty DB: Design-Build = Design & Construct (DC) CM@Risk: Construction Manager at Risk</p> <p>Services contracts</p> <p>Contract Maintenance Fee-Based Contract Services (consulting, installation, technical)</p> <p>Product Delivery</p> <p>B2B</p>	Short term Low Risk

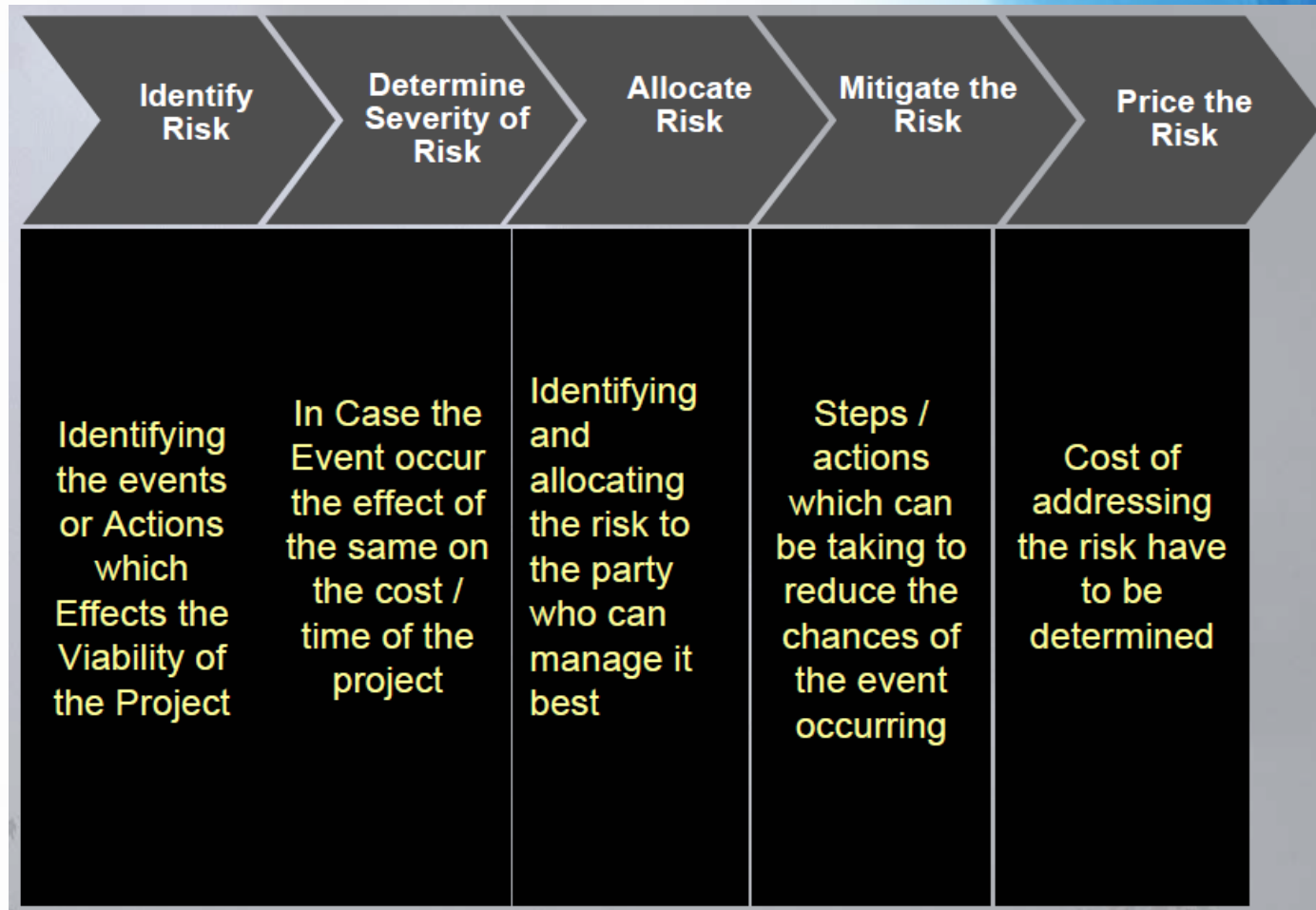
5. The Concession structure / model



6. Risk Transfer – vital issue in PPPs

- Allocate risks to the party that is in the best position to mitigate it
- > Price risk to be included in PPP price. That is why a PPP project is more expensive in absolute terms.
- > This additional cost is then compensated by efficiency gains and, most importantly a price cap for capital expenditure (CAPEX) and operating expenditure (OPEX)
- i.e. all cost overruns (usually some 20 – 100% are at the expense of the concessionaire, apart from exceptions stipulated in the contract

Risk management principles



Source: Vijay Sarma, Risk Management in PPP Projects, 2007

A true Partnership !



6. Risk Transfer – vital issue in PPPs

A World Bank Cartoon, used in many PPP presentations, also tookit for highways

II. Case studies

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 - overall programme
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1. World wide case studies: Experience

Europe very advanced PPPs; mature procedures and experience
High level of activity in the **UK** (more than 800 PPP/PFI – however, financial problems, as budget financed; stop of PFI 1, now PFI 2),
Italy, France, Spain, Portugal: since 1950s toll motorway operators, were finally privatized, highly successful, despite certain failures)
Greece successful until 2010, then several insolvencies **Ireland** recently successful

“New and now vibrant markets” – **Germany, Austria, Netherlands, Belgium**, CEEC / SEE countries: **Poland, Croatia**

Diversity of national PPP markets. Long term political commitment to PPP in some countries (Croatia, Czech Republic, Ireland, Portugal, Spain, Italy, UK, recently France, Germany, Poland, Sweden) in some others mixed signals (Finland, Denmark)

North & South America (**US** 1st publ.concessions, **Canada**, successful private concessions), **Chile, Colombia, Argentina** successfully private, bit failures in **Mexico** (politically manipulated traffic forecast)

North & South Africa few countries **Morocco, South Africa, Namibia**, .

!!! Asia and Oceania: most vibrant markets: **Australia, China** (> 30'000 km tolled motorways), **India, Korea, Malaysia, Philippines**, etc.

2. Warnow tunnel (Germany) – instructive failure

- 1st private toll road in Germany.
- links both shores of Warnow river in Rostock
- tunnel that is 790 meter long, 4 lanes.
- has been one of the most modern road tunnels in Germany, also from traffic safety viewpoint.



Consortium around **Bouygues Travaux Publics S.A.** won the project in a European wide tender in 1996. Bouygues TP being the general contractor, construction started on 1st Dezember 1999.

Warnow tunnel - Key Project Data

- Finance:** concession consortium invested 219 million Euros, providing
- **equity: 20%**. Initially Bouygues, Australia's *Macquarie Infrastructure* later on took 70%).
 - **debt: 68%** an international consortium of 14 banks, under the leadership of Deutsche Bank, NORD/LB, KfW and the EIB arranged debt;
 - **subsidy: 12%** The European Union provided a grant, public subsidies.

Concession duration: initially 30 years.

Toll rate: cars: betw. 1,50 & 2,50 Eur; trucks: betw. 7,50 & 17,50 Eur

How did this PPP work out? *Construction phase*

- During planning stage **considerable construction cost overruns** have been included (much to the advantage of the general contractor and its partners)
- Due to initial arrangement - cost overruns to be borne by public sector or by increasing toll rate – general contractor did not have incentives for exerting cost control and delivering the project efficiently.
- He rather followed tradit. motivation to increase construction margins by “**cost padding**” and **hidden action**, considerably increasing construction expenditure. (See analysis by T.Becker attached).
- Finally public sector did not provide additional funds, tolls could not be increased.

How did this PPP work out? *Operations, traffic*

Traffic: 65% below forecast (*vehicle n°s*) Since tunnel was opened to traffic in autumn 2003, it lagged far behind expectations, as readiness of Eastern German drivers to pay toll had been overestimated. Traffic forecast was far too optimistic (far too high toll rate).

However, **City of Rostock did not respect its commitments** to take flanking measures: it had promised to close down alternative route, design signing in a way to channel drivers into the tunnel. Rostock politicians later even encouraged the use of alternative routes that were free of charge, as they were afraid of losing future elections.

German toll regime is too rigid not allowing to vary toll rate (lowering it initially, leaving tunnel utilization at night for free would have considerably increased traffic by getting motorists used to this tolled link).

How did this PPP work out? – operations, traffic

Development of AADT (= Average Daily traffic) Warnowquerung (D)												
Year	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003	Construction phase								7.014	6.196	6.124	6.151
2004	5.681	6.292	6.907	7.956	7.870	7.878	8.224	9.022	8.179	8.218	7.800	7.923
2005	7.302	7.397	7.888	8.806	9.017	9.122	9.278	10.344				

2009: 11'000 vehicles AADT (annual average daily traffic: .

expectations 2025:16'000 AA (table, see enclosed extract Th.Becker

- To operate concession at profit: AADT of 20.000 vehicles needed.
- In 1994 Traffic forecast commissioned by City of Rostock assumed AADT of 30.000 during week & 15'000 AADT on weekends

An instructive failure: *Results & conclusions*

In December 2004 banking consortium declared the **project unable to pay back debt** between 2005 and 2006, based on current conditions. In order **to avoid insolvency** of the concessionaire (WQG) wrote off its equity and got 20 years extension of the concession contract to 50 years (initially 30 years), before the right to operate the project is transferred back to the City of Rostock.

Conclusions:

- A) Economically not warranted project, financially not viable** (75% below revenue forecast, traffic below 65% in terms of vehicles counted) **due to initial mistakes**
- overoptimistic traffic forecast and excessive toll rate** (compared to Eastern German drivers' readiness to pay / purchasing power);

Instructive failure: *conclusions Germany & beyond*

- B) lack of construction cost control** (general contractor took advantage of unclear regulation failing to cap the overall CAPEX, producing considerable cost overruns and, thus, maximizing its margins.)
- C) Lack of government support and keeping its commitments: insufficient / counterproductive flanking measures, i.e. non-respect of commitments by City of Rostock's** (promised to oblige drivers to use tunnel & to make alternative routes unattractive). Always difficult for tolled project to compete against free route (of sufficient quality) for drivers (location, driving time, comfort).
 - > **major blow** for PPPs + user/charges (cars & trucks – “F-model”)
 - > *investors frightened, years lost*
 - > **success** (later on): motorway PPPs + truck tolls (“A-model”)
 - > **greatest success** (later on): public buildings, schools, prisons based on availability payment DBFOs in Germany

3. Case study: Portugal

Several road concessions

Brisa toll motorway concessionaire (since 1972, first public, end 1990s privatization)
1000 km

Private concession programme

1. started in 1990 with **Vasco-da Gama bridge** concessions, Lisbon

2. **West- and north motorways**

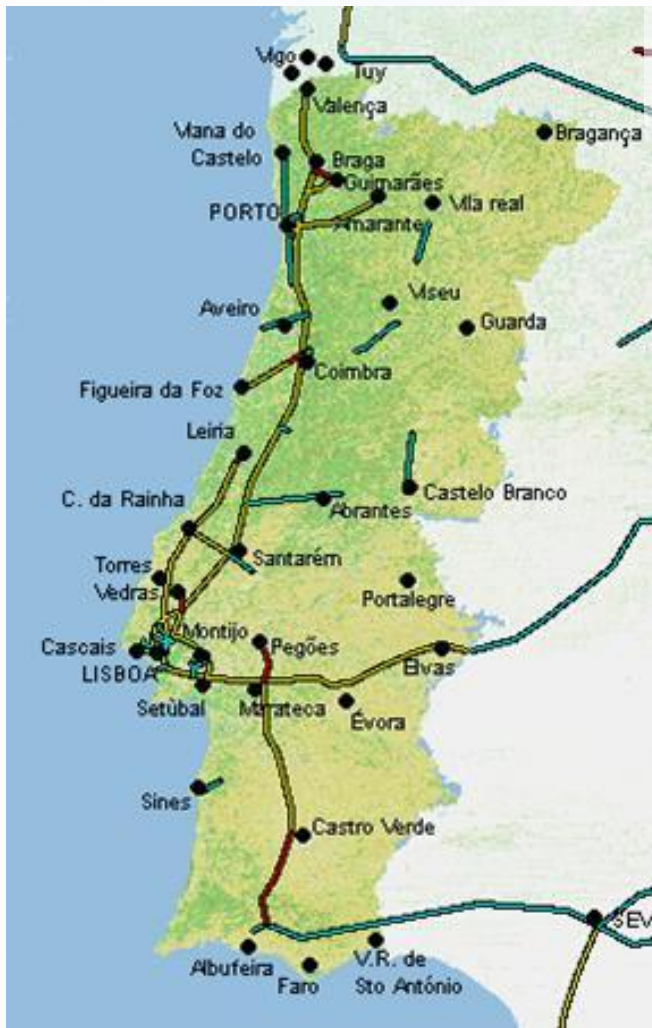
3. **PFI type concessions (6 “SCUTs”)**

- PPP framework **successful for speedy implementation**, 10 billion € progr.,

- **severe budget problems** shadow tolls (gov. authority bankrupt)

-> successful change: toll 4 of them (reduce budget funds)

4. **New concessions**



— Toll Motorway in service

— Bridge

— Highway or Motorway without toll

— Tunnel

— Under construction

- Vasco da Gama bridge

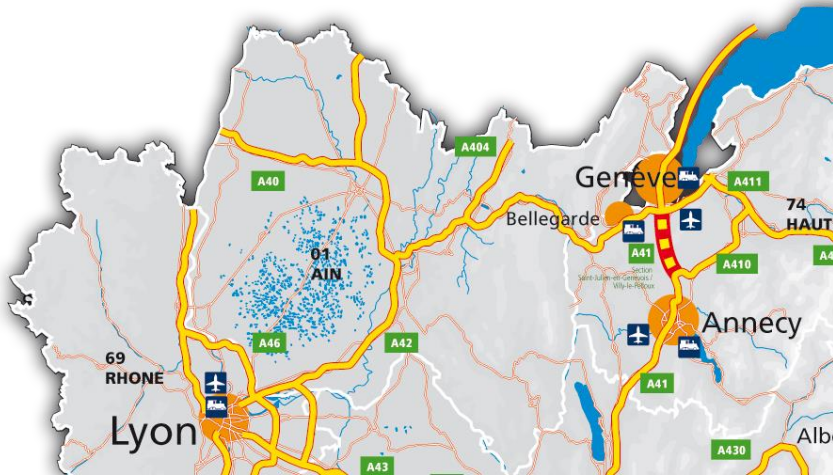
- planned in 1990, 2nd bridge, relief for 25. April bridge in Lisbon (10,3 km + 826 m main bridge),
- 2 British toll bridges as pilot projects: Dartford bridge and 2nd Severn Crossing: right of the private concessionaire to levy toll on existing parallel bridges and for using this revenue for financing part of the new infrastructure
- Jan. 1991 creation of public authority: GATTEL;
- Oct. 1992: prequalification; Oct. 1993 finished
- Apr. 1994 award of concession to Lusoponte

- *Vasco da Gama bridge*

- **Financing:** 1 bn \$US (12 % equity, 14% government subsidy, 30 % subsidy European cohesion fund, 30 % EIB loan;)
- **completion** on schedule: March 1998
- **project is a great success:** traffic forecast surpassed by far; Lusoponte has undertaken far reaching environmental measures;
 - thanks to its strong financial position Lusoponte could refinance the EIB loan in 2000 and complete financing in summer 2000

4. Annecy-Geneva motorway (A41) outline

- **Missing motorway link which allows users to commute from Annecy to Geneva in less than 30 minutes.**



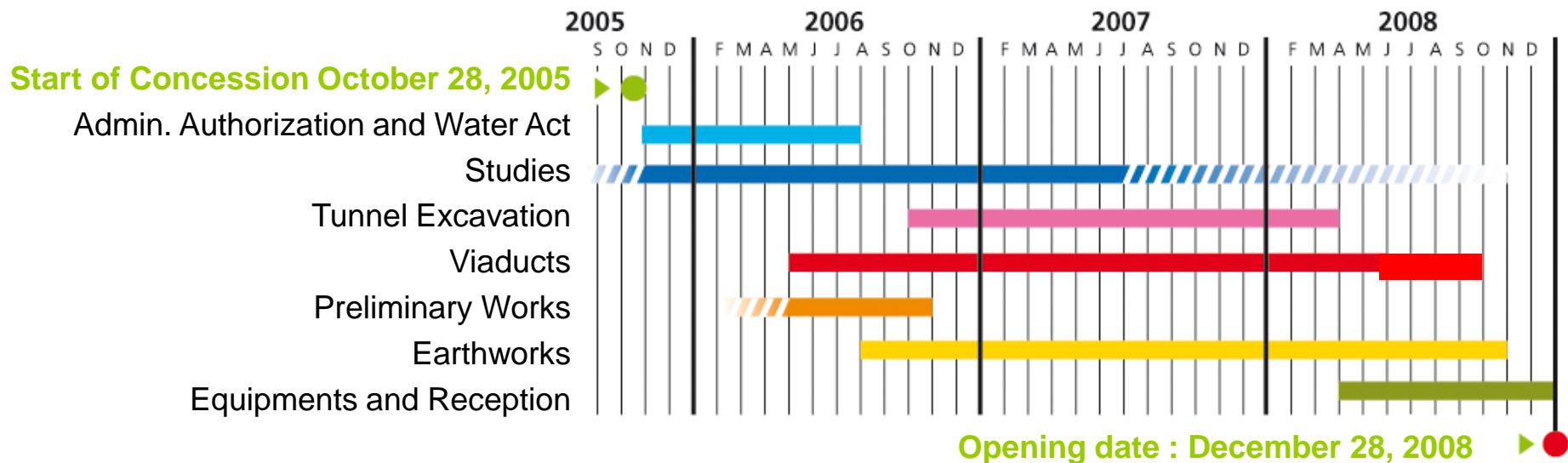
A41 Project - Description

- **Total length: 19.6 km, through 12 communities**
- **3.1 km twin tube tunnel**
- **1 Cut & cover trench of 1.1 km covered for nearly 300 meters**
- **4 viaducts**
- **29 under/over passes**
- **1 main Toll plaza / 1 full & 1 half interchange**



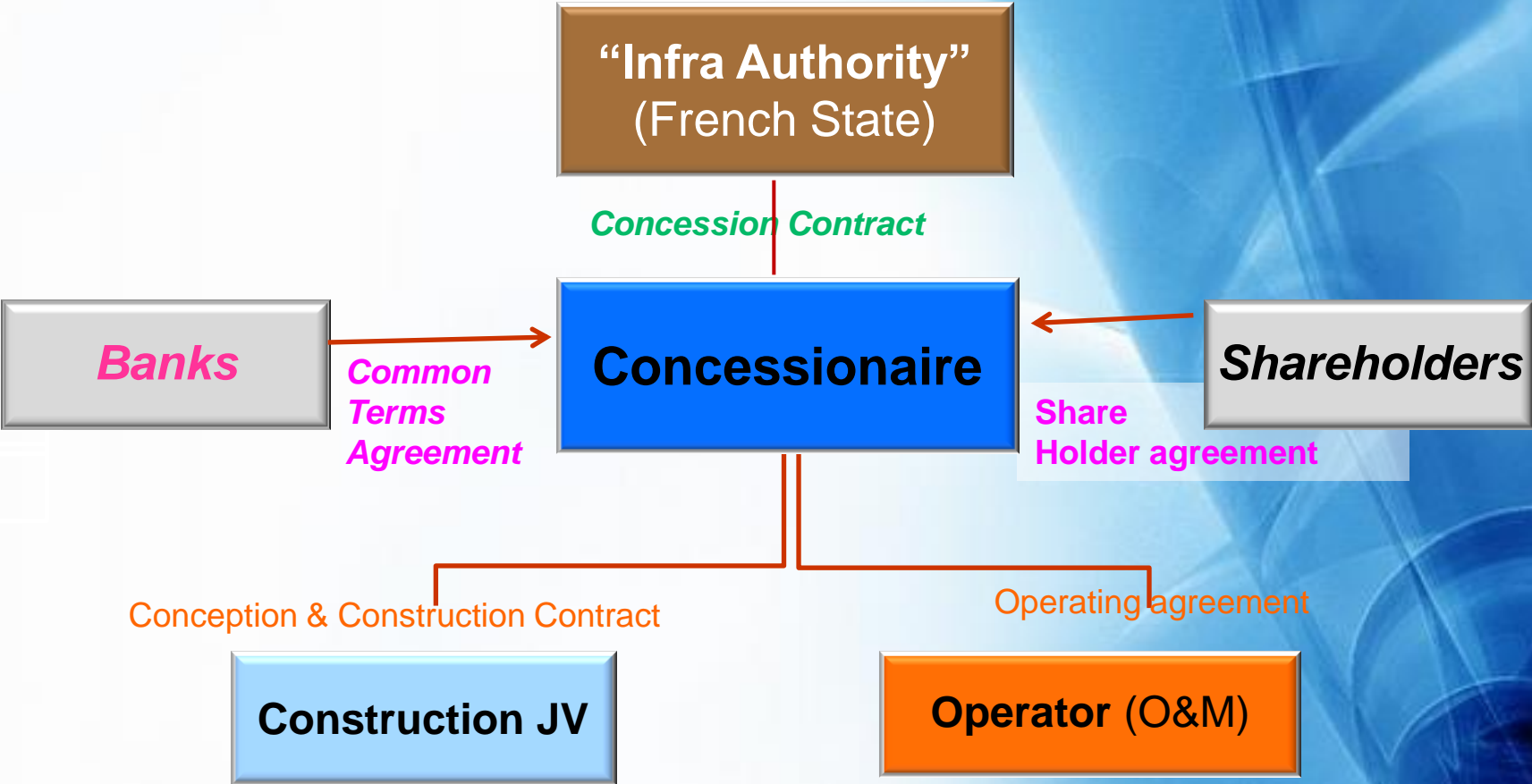
A41 Project – Programme, key dates & data

- **May 2003:** tender for the Construction and the Concession
- **October 27, 2005:** ADELAC is nominated concessionaire, with the signature of the Concession Agreement
- **Construction Period : 38 months**



- **Concession Period : 55 years !!!**

The Concession structure



Financing

- **A 871,50 million euros construction projet**

Uses	Millions Euro	%
Conception/construction	595,0	68,3
Studies and Work made by ATMB	72,4	8,3
Concessionaire Cost	56,4	6,5
Land, archeology, land regrouping	32,0	3,7
Financial Cost	115,7	13,3
Total uses	871,5	100,0

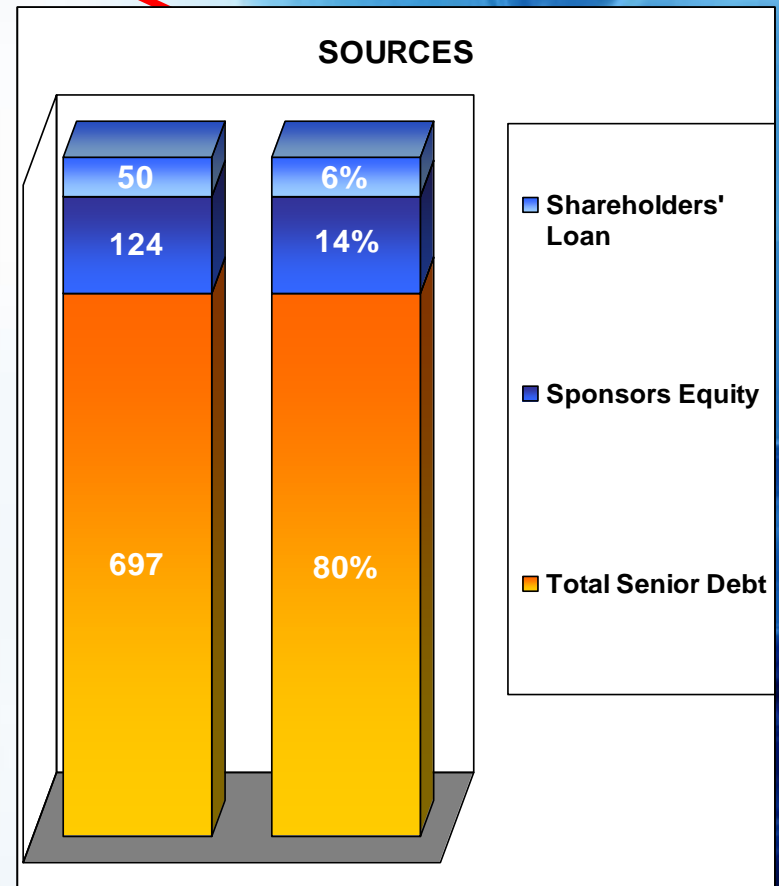
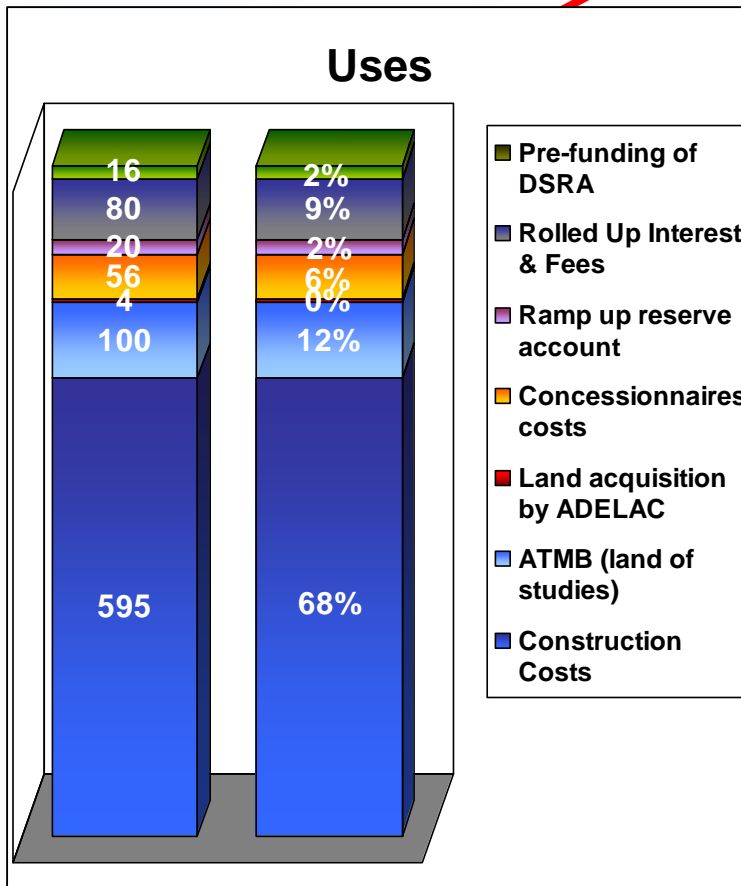
Sources	Millions Euro	%
Shareholders'equity	174,5	20,0
Loans	697,0	80,0
Total sources	871,5	100,0

→ No grant aid

Financing

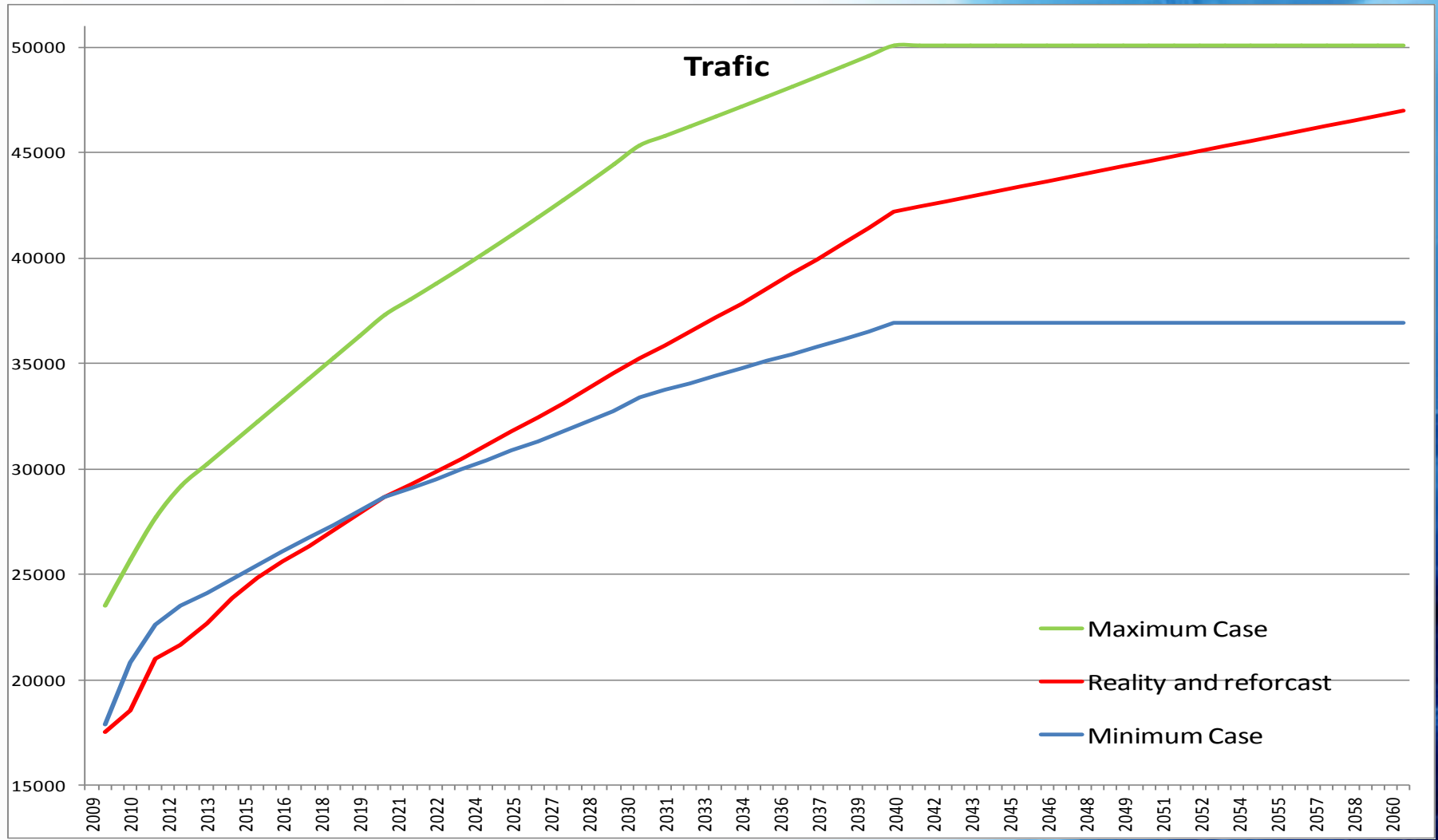
- A 871,50 million euros construction projet

TOTAL: 872 M €



Motorway operation

- **Traffic update** (*February 2012*):



Motorway operation

Traffic update:

- Effective traffic at the opening of the project below initial forecast and still is, i.e. below the worst case scenario...
- According to the concessionaire yearly increase is quite encouraging and the model allows these discrepancies.
- **regular traffic reviews** and **accompanying measures** are vital
- **General trend for highway PPPs: availability payment**, concessionaires don't take full traffic risk or not at all.
- However, **avoid wrong generalizations**: difference between **brownfield projects** (traffic known, possible to control) and **greenfield projects** (traffic risk much more difficult to tackle)
- Standard and Poors traffic study rating gives wrong impression (only rated traffic forecast of winning bids: these had high uncertainty; 2nd and 3rd placed much more accurate)

Interactive part

- Questions
- Conclusions

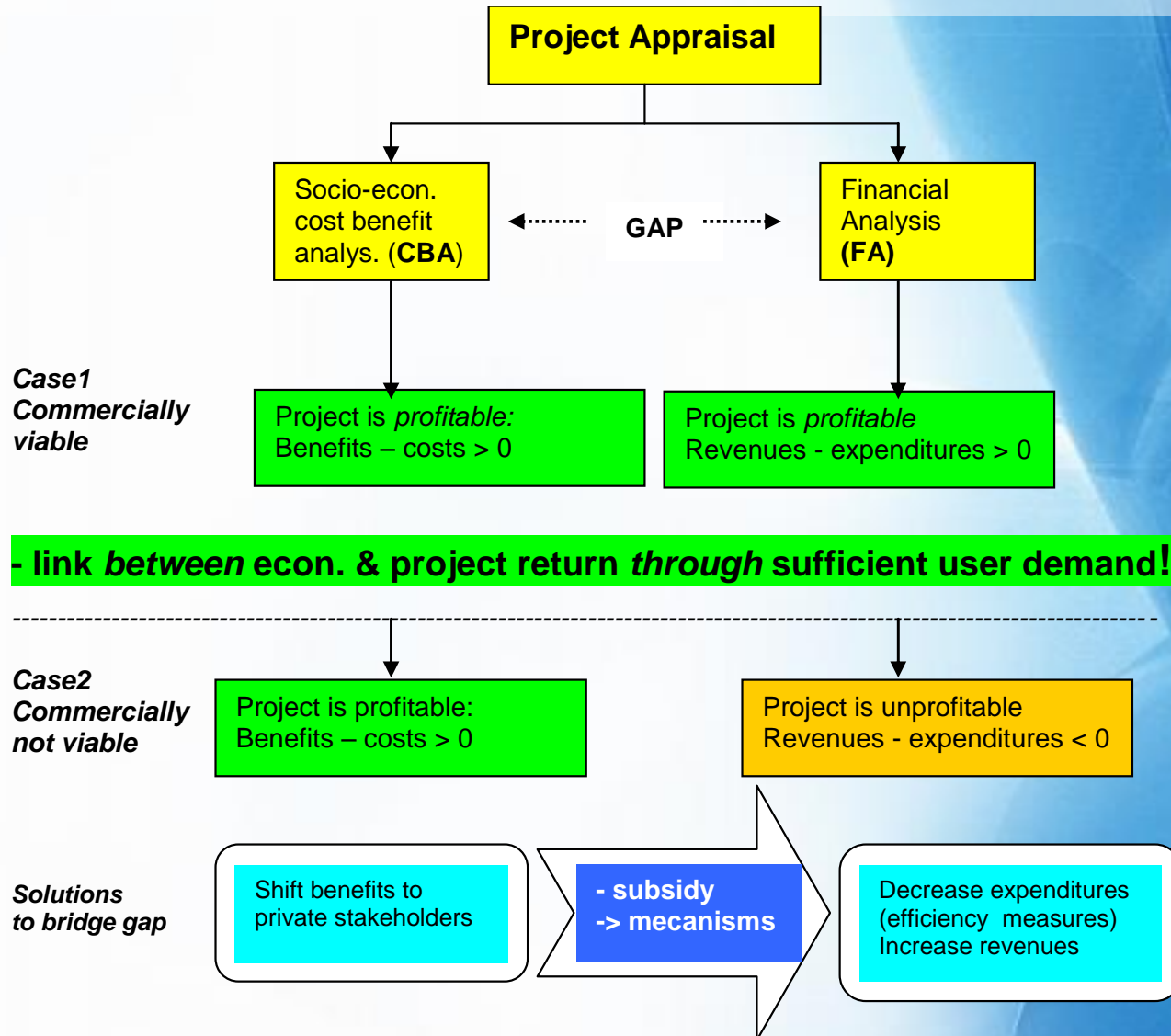
Good governance principles in PPP

(acc.to UNECE guidebook, proposing practice-oriented modifications)

1. **Policy & Strategy** (devising a coherent strategy and framework, in which PPPs have their place); ensure **full government support** !
2. **Putting people first, scoping adequate projects**
 - Is the project needed, for which users: 1. socio-economic justification
2. careful traffic forecast – user-financed, standalone?
 - involving all stake-holders
 - Develop project scope and functions acc.to needs and financiability
 - Project adequate for the PPP approach? PPP stress test
3. **Capacity-Building** (administrative)
4. **Adequate legal frameworks** and **Regulation**
5. **Risk** (appropriate transfer to private partner)
6. **PPP Procurement** (transparent, efficient, competition)
7. **The environment / sustainable development**
8. **PPP contract management** *(during operations phase)*

Annexes

“Stand alone project” or subsidy ?





THANK YOU FOR YOUR ATTENTION!

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