Session 1: The impact of PPP on commission
Evaluer les partenariats public-privé

Atelier international

29-30 November 2007
INHA – salle Vasari, Paris

Round Table 1:
PPP: What are they?

The diversity of PPPs
in the sector of Public Real Estate and Infrastructure Management –
an approach of defining and delimiting PPP
as an alternative provision
and procurement method

Chair of Construction Economics
Faculty of Civil & Structural Engineering

Prof. Dr.-Ing. Dipl.-Wirtsch.-Ing.
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Bauhaus-Universität Weimar
Réseau Activités et Métiers de l'Architecture et de l'Urbanisme
Bauhaus-Universität Weimar
Hans Wilhelm Alfen
Ph.D. and degree in civil engineering
degree in business administration
RWTH Aachen, Germany

more than 20 years of professional experience in:
- consulting and construction industry (13 years)
- teaching at university-level and scientific research (12 years)
- in about 25 countries in Africa, Asia, Europe and Latin-America

- Professor Construction Management, University of Burundi, Bujumbura (5 years)
- Director Transportation Department, GITEC Consult, Düsseldorf (3 years)
- General Manager, Development Infrastructure, HOCHTIEF Development, Essen (7 years)

specific project work comprising:
- privately financed infrastructure projects (technical, economical, legal, financial structuring)
- public utilities mainly in the transport sector (strengthening, reorganisation, privatisation)
- publications/speeches/conferences
Structure of our Activities

Réseau Activités et Métiers de l’Architecture et de l’Urbanisme
Bauhaus-Universität Weimar

since 2000

Chair of Construction Economics
Teaching and Scientific Research
National Network

Knowledge Center @ Weimar
Teaching and Scientific Research
International Network

since 2004

Alfen Consult GmbH
Private Spin-Off
Advisory /Consulting Services
National and International Clients
Our PPP - Activities

Bauhaus-Universität Weimar

scientific interdisciplinary, practice oriented, Research and Teaching

useful solutions

Economical / Feasibility Studies
Risk Management
Financial Models
Life-Cycle-Costing
Structuring and Implementation of Procurement Processes
Tendering and Award
Business and Market Analyses
Business Consulting
Research Studies

Research Projects
Expert opinions
Dissertations
Scientific Teaching & Training
Standardising Processes
Guidelines
Government Advisory Services
International University Networks
Scientific Conferences and Workshops

Real Estate
Education, Health, Administration, Leisure, Culture, Defence etc.

Infrastructure
Transportation, Water, Waste, Energy etc.

Design, Construction
OM/FM, Financing

Information, Communication

International Activities / Projects

practice relevant, interdisciplinary science based Consulting
### Selected PPP-References

**Bauhaus-Universität Weimar**

#### Federal Government
- **Standard Documents** for tendering & award of F- & A- Models in *Roads&Highways* (2000-02)
- **Scientific Support** to the determination of the first Toll Ordinances in Germany

#### State Ministries
- **Guidelines** PSC in NRW and FMK (2003 / 06)
- **Evaluation** first PPP *schools* in NRW (2004)
- **Support** of Thuringian PPP Task Force (2005)
- Economical/Financial **Consultancy on the viability** of a *police administration* (2005)

#### Municipalities
- Economical / Financial **Consultancy for preparation, tendering & award** of
  - PPP *schools* in Meschede (2003/04)
  - PPP *bridges* in Frankfurt (2006)
  - PPP *sports facility* in Bestensee (2006)
  - PPP *hospital* in Viersen (2006)
  - PPP *roads* in Waldeck-Frankenberg (2006)
  - PPP *roads* in Lippe (2007)

#### Public Real Estate Manager
- **Study on** PREM of the federal government
- **Study on** international best practice in the *defence sector*, g.e.b.b. (2005)
- **Consulting on Risk Management** for the first federal PPP Pilot Project in *defence*, g.e.b.b. (2006)

#### Private Real Estate Developer
- market analysis on privately financed *Education Buildings* in Germany (2003)
- **Market analysis** on PPP *schools* in Germany (2003)

#### Facility Manager
- **Market analysis** on FM for *hospitals* (2003)

#### Federation of Contractors
- **Study on** PPP and SMEs (2004-2006)

#### Construction Companies
- **Study on** PPP Models for the German Autobahn, *Highways* (2003/04)
Partner Countries of EAP³N-Network

- Germany (BUW)
- India (IITM)
- Thailand (AIT)
- PR China (TU)
- United Kingdom (UoM)
- Singapore (NTU)

Project Programmes:

- PPP-Teaching
- PPP-Research
- PPP-Training
PPP is a very heterogeneous and unspecific term in practice and in scientific literature.

Big confusion in international discussions

Perceptions may span from:

- the integration of private ideas and experts in public structures to complete withdrawal of the public sector from the responsibility for public infrastructure
- or from a very specific contract model that clearly rules the partnership to a very unspecific, global, somehow organised cooperation between the public sector and the private sector

Comparisons of international best practice and/or benchmarking is difficult especially in a scientific context
The Solution: Another Definition of PPP?

Trying to define PPP ... 
... is a bit like ... nailing a pudding to the wall
… may not be to add another to the multitude of existing definitions and thus to contribute to a never ending scientific discussion.

but

to develop a **structured scheme** of aspects and criteria allowing

- to describe, determine and or range:
  - the different approaches/options of providing
    - public,
    - private and
    - public-private
    services,
  - the development that led to the approach/option (ex ante)
  - possible future options for developments (ex post)

in the area of public real estate (PREM) and infrastructure management (IM) in a uniform and for everybody traceable manner.
Determinants of the overall scheme

General Determinants:

Rules of the Sub-Sector:
- Public Real Estate
- Infrastructure

Determinants of the Organisational Model:
<table>
<thead>
<tr>
<th>Sub-Sectors of PREM and IM</th>
<th>Public Real Estates</th>
<th>Administration</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td></td>
<td>Administration</td>
<td>Education</td>
</tr>
<tr>
<td>Air: Airports</td>
<td></td>
<td>City halls</td>
<td>Kindergartens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ministry buildings</td>
<td>Schools</td>
</tr>
<tr>
<td></td>
<td></td>
<td>other plc. buildings</td>
<td>Universities, ...</td>
</tr>
<tr>
<td>Roads: Roads (net), Bridges, Tunnels, Service stations</td>
<td></td>
<td>Health</td>
<td>Security</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hospitals</td>
<td>Police buildings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Old peoples homes</td>
<td>Prisons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sanatoriums, ...</td>
<td>Defence ...</td>
</tr>
<tr>
<td>Tracks: Tracks (net), Stations</td>
<td></td>
<td>Culture</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Museums</td>
<td>Barracks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Theatres etc.</td>
<td>Educational Centres</td>
</tr>
<tr>
<td>Water: Water (net), Harbours</td>
<td></td>
<td>Sports / Leisure</td>
<td>Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sports arenas</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public pools</td>
<td>Faire Areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sub-Sectors:**
- Administration
- Education
- Health
- Security
- Culture
- Defence
- Others

**Transportation Sub-Sectors:**
- Airports
- Roads (net), Bridges, Tunnels, Service stations
- Tracks (net), Stations
- Water (net), Harbours

**Supply/Disposal Sub-Sectors:**
- Energy: Power, Gas, Central heat
- Water: Drinking water, Wastewater, Treatment, Sewers
- Waste: Removal, Disposal, Treatment
- Tele-Com.: Fixed nets, Mobile nets

**Public Real Estates:**
- Airports
- Roads (net), Bridges, Tunnels, Service stations
- Tracks (net), Stations
- Water (net), Harbours
Determinants of the overall scheme

General Determinants:

Rules of the Sub-Sector:
- Public Real Estate
- Infrastructure

Financing of the Sector:
- Budget Financing
- User Financing (e.g. toll, ticketing fees etc.)
**Financing of the Sector (e.g. Roads & Highways)**

<table>
<thead>
<tr>
<th>General Revenues</th>
<th>Sector (Transport) specific Revenues</th>
<th>Sub-Sector (Roads &amp; Highways) specific Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Taxes</td>
<td>• sector specific taxes</td>
<td>• sub-sector specific taxes</td>
</tr>
<tr>
<td>• direct (on income, cooperation, capital, wealth)</td>
<td>• on consumer goods (e.g. energy consumption, vehicle,)</td>
<td>• fuel, vehicle,</td>
</tr>
<tr>
<td>• indirect (on spending), e.g. VAT</td>
<td>• transport and transport related services (e.g. airport tax),</td>
<td>• road transport related services (e.g. airport tax),</td>
</tr>
<tr>
<td>• customs / excise duties</td>
<td>• VAT on transport related consumer goods and services</td>
<td>• VAT on road transport related consumer goods and services</td>
</tr>
<tr>
<td>• contributions (e.g. social security contribution etc.)</td>
<td>• user charges (e.g. public transport fees)</td>
<td>• user charges (e.g. toll, vignette, congestion pricing)</td>
</tr>
<tr>
<td>• fees (e.g. user charges, public entrance etc.)</td>
<td>• other revenues (e.g. from privatisations, concessions, land development, franchising, telematics, public relations etc.)</td>
<td>• other revenues (e.g. privatisations, concessions from service stations, land development and advertisement along the roadways, telematic / traffic management services) etc.</td>
</tr>
</tbody>
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<table>
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<tr>
<th>Type of Asset:</th>
<th>Type of Works:</th>
<th>Project Type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- single building</td>
<td>- new Construction</td>
<td>- green field</td>
</tr>
<tr>
<td>- bundle or network</td>
<td>- extension/widening</td>
<td>- brown field</td>
</tr>
<tr>
<td>- etc.</td>
<td>- rehabilitation/modernisation</td>
<td></td>
</tr>
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</table>

#### Determinants of the Organisational Model:

<table>
<thead>
<tr>
<th>Aim of Partnership:</th>
<th>Partnership Model</th>
<th>Contract Model:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Urban Development</td>
<td>- vertikal</td>
<td>- BROT~</td>
</tr>
<tr>
<td>- Public Real Estate and Infrastructure Management</td>
<td>- horizontal</td>
<td>- DBFO~</td>
</tr>
<tr>
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<td></td>
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<td></td>
<td></td>
<td>- etc.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Privatisation Model:</th>
<th>Business Model:</th>
<th>Financing Model:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- formal</td>
<td>- Availability Payments</td>
<td>- forfeiting Model</td>
</tr>
<tr>
<td>- functional</td>
<td>- Shadow Tolls</td>
<td>- project finance</td>
</tr>
<tr>
<td>- material</td>
<td>- Active Management~</td>
<td>- etc.</td>
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<tr>
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<td>- direct User Fees (real tolls)</td>
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## Determinants of the overall scheme

### General Determinants:

**Rules of the Sub-Sector:**
- Public Real Estate
- Infrastructure

**Financing of the Sector:**
- Budget Financing
- User Financing (e.g. toll, ticketing fees etc.)

**Type of Asset:**
- single building
- bundle or network
- etc.

**Type of Works:**
- new Construction
- extension/widening
- rehabilitation/modernisation

**Project Type:**
- green field
- brown field

### Determinants of the Organisational Model:

**Aim of Partnership:**
- Urban Development
- Public Real Estate and Infrastructure Management

**Partnership Model**
- vertikal
- horizontal

**Business Model:**
- Availability Payments
- Shadow Tolls
- Active Management
- direct User Fees (real tolls)
- etc.

**Privatisation Model:**
- formal
- functional
- materiel

**Contract Model:**
- BROT~
- DBFO~
- BOT~
- etc.

**Financing Model:**
- forfeiting Model
- project finance
- etc.
Determinants of the overall organisational Model

Aim of the Partnership

• Urban Development
• Public Real Estate and Infrastructure Management
Urban development versus public services provision

PPPs are used in:

- **Urban Development**
  - Efficient use of public land/buildings and private capital/ideas for:
    - the social, economical, architectural etc.
    - development of urban areas (public interest)
    - business development (private interest)
    - typical developer (no service) approach
    - investment (no life cycle) approach
  - Value added: new assets for urban development

- **Public Real Estate and Infrastructure Management**
  - Efficient provision of public services through delegation/outsourcing of appropriate parts of it to the private sector
  - Value added: efficiency gains in the provision of public services
  - focus of our research

BMW Plant Leipzig
User versus Budget Financed PPPs

Public Partner:
develops idea, structures project, defines procurement method, tenders project, supervises and controls service performance according to his or the users needs

Private partner:
designs, builds, finances, maintains/operates and eventually uses the facility according to contract regulations

and gets payments in form of:

- availability payments (from public budget)

  administration buildings, schools, prisons, hospitals, roads etc.

- fees (from user with demand risks) for revenues generating facilities only

  - transport and supply systems, etc..
  - sport/event arenas, museums, housing etc.
Determinants of the overall organisational Model

Privatisation Model
- implicit
- explicit
- formal
- functional
- materiel

Aim of the Partnership
- Urban Development
- Public Real Estate and Infrastructure Management
Privatisation, PSP and PPP

New Public Management: restructuring and efficiency improvement measures

---

**Privatisation**

- **implicite** ~ deregulation, i.e. opening of market for private competitors
- **formal** ~ public entities “in private closes”
- **functional** ~ Design, Construction, Financing/Investment, Maintenance, Operation
- **material** ~ transfer of ownership / responsibility for needs assessment
- **explizite** ~
  - legal privatisation
  - outsourcing of single delegable tasks / services
  - outsourcing of fully integrated services
  - full material privatisation
  - partial material privatisation
  - public department executing all real estate / infrastructure services in force account

---

PSP

PPP
### Explicit Privatisation

<table>
<thead>
<tr>
<th>Réseau Activités et Métiers de l’Architecture et de l’Urbanisme</th>
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<tbody>
<tr>
<td>Bauhaus-Universität Weimar</td>
</tr>
</tbody>
</table>

#### Formal Privatisation „public entities in private closes“
- **permanent or temporary outsourcing** of public tasks and services
- **either including or excluding transfer of ownership of assets** necessary to implement the tasks or services
- **from a public department to a legally privatised enterprise** that remains in 100% public ownership

#### Functional Privatisation „privates as assistants of the administration“
- **temporary outsourcing** of public tasks and services
- **either including or excluding transfer of ownership of assets** necessary to implement the tasks or services
- **from a public department to a private or mixed enterprise**

#### Material Privatisation „transfer of public goods to markets“
- **permanent outsourcing** of public tasks and services
- **including transfer of ownership of assets** necessary to implement the tasks or services
- **from a public department to a private (full material privatisation) or mixed enterprise (partial material privatisation)**
Privatisation/Contract Models with increasing PSP

Step 1
100% Public Enterprise

Step 2
100% Public Enterprise under private law

Step 3
Mixed Enterprise with permanent transfer of ownership

Step 4
PPP-Models
Design + Build + Maintain + Operate + Finance
without / with temporary transfer of ownership

Public Partner as
Client (+ Regulator)

Partial privatisation

Public Partner as Shareholder

Full privatisation

... to formal
... and to material privatisation

Transformation Processes

from traditional administration
i.e. departments probably optimised by „New Public Management“ ...

... to functional privatisation outsourcing of tasks / services

private SPC
mixed SPC

Design + Build
Design + Build + Finance
Design + Build + Maintain
Design + Build + Maintain + Operate + Finance

Force Account of the administration

Public Partner as
Regulator

... as Shareholder
Determinants of the overall organisational Model

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Privatisation Model
- implicit
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Partnership Model
- Urban Development
- Public Real Estate and Infrastructure Management

Aim of the Partnership
- Urban Development
- Public Real Estate and Infrastructure Management

Form of Cooperation between Public and Private Partner
- Pure private SPC (= contractual / vertical Partnership)
  - PPP (= fully integrated service package)
- Joint Venture SPC (institutional / horizontal) Partnership
  - PPP (in addition contractual Partnership)
  - partial material privatisation
### Contractual-PPP

**Public Partner**

- PPP- (or other service) contract
- Pure private
- Special Purpose Company (SPC) as “assistant” of the administration
- Purchase of services

- „vertical Partnership“
- PPP-Project contract e.g. as service contract
- Functional Privatisation
- Without or only with temporal transfer of ownership

### Institutional PPP

**Public Partner**

- PPP (or other service) contract
- Mixed / Joint Venture
- Special Purpose Company as “assistant” of the administration
- Purchase of services

- Like contractual PPP

- But in addition:
  - „horizontal Partnership“ at a second level

### Partial Privatisation

**Public Partner I**

- PPP (or other service) contract
- Mixed / Joint Venture
- Special Purpose Company in competition at the open market
- Purchase of services

- „horizontal Partnership“
- Shareholder agreement
- Partial materiel privatisation
- Permanent transfer of ownership
Determinants of the overall organisational Model

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Business Model

• Performance Based Payments
  • corresponding to description/ programme of works
  • Availability of the facility etc.
• Usage based payments (intensity / frequency)
  • e.g. shadow tolls
• user payments
  • obligatory
  • (quasi) obligatory
  • no or only unattractive alternative
  • competition of alternatives

Type of Revenues for cost recovering (capital and operational)

Determinants of the overall organisational Model

Aim of the Partnership

• Urban Development
• Public Real Estate and Infrastructure Management

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Type of Revenues for cost recovering (capital and operational)
Main Characteristics of the business model are the type of revenues and the payment mechanisms:

- **Payments from the public client / the “grantor”:**
  - performance based payments according to the description of works
  - availability payments according to the availability of rooms, surfaces, assets, equipment, etc.
  - quantity based payments according to the real consumption of e.g. water, electricity, gas etc.
  - success oriented payments according to specific optimisation targets
  - payments depending on use or utilisation of the asset:
    - **frequency** of use (e.g. shadow toll for roads, shadow payments for the number of users of public pools, sports halls etc. etc., )
    - **intensity** of use (e.g. shadow toll differentiated regarding axle load)
(real) user payments

- **obligation of use** (e.g. house connection water supply and evacuation)
- **(quasi) obligation of use** i.e. no (attractive) alternative of use is existing
- **free choice of use** (i.e. sufficient competitive alternatives of use are available)
Determinants of the overall organisational Model

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Type of Revenues for cost recovering (capital and operational)

Contract Model
... differs regarding their Individual risk profile
PPP Contract Models (the German example)

Main differences:

- transfer and / or status of ownership or ownership equivalent rights, at any time of the contract period
- exploitation / marketing risks (at the end of the contract period)
- budget~ / user financing
- mixed legal status of SPC

Model VI and VII can be combined with the other models
### Privatisation Model
- Implicit
- Explicit
- Formal
- Functional
- Materiel

### Partnership Model
- Pure private SPC (= contractual / vertical Partnership)
- PPP (= fully integrated service package)
- Joint Venture SPC (institutional / horizontal) Partnership
- PPP (in addition contractual Partnership)
- Partial material privatisation

### Form of Cooperation between Public and Private Partner

### Aim of the Partnership
- Urban Development
- Public Real Estate and Infrastructure Management

### Type of Revenues for cost recovering (capital and operational)
- Performance Based Payments
  - Corresponding to description/ programme of works
  - Availability of the facility etc.
- Usage based payments (intensity / frequency)
  - E.g. shadow tolls
  - User payments
    - Obligatory (e.g. Anschlusszwang)
    - (Quasi) obligatory
    - No or only unattractive alternative
    - Competition of alternatives

### Business Model

### Contract Model

... differs regarding their Individual risk profile
Project Finance and Revenue Streams

Main Characteristics:
• cash flow based
• non / limited recourse
• off balance
• risk sharing
• only big projects

Sponsors / Equity Suppliers

Project Company (SPC)
(shareholders usually = members of bidding consortium)

Public Principle
Concessions
subsidies
- up front
- current
Availability Models
current availability payments

Development Banks
• national
• regional
• bilateral
• multilateral
- grants
- (soft) loans
- guarantees
- etc.

Commercial Banks

Equity
Loans

Bonds

Financing of Investments

Revenue Streams for
- dept service
- coverage of current cost
- ROI

Concessions
Revenues
(toll, fee, etc.)

Users

Commercial
Banks

Equity

Public Principle
Concessions
subsidies
- up front
- current
Availability Models
current availability payments

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Commercial Banks

Equity
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Financing of Investments

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Concessions
Revenues
(toll, fee, etc.)

Users
Forfaiting Models

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Forfaiting Models

Commercial
Banks

Sponsors / Equity Suppliers

Project Company (SPC)
(shareholders usually = members of bidding consortium)

Public Principle

Availability Models
current availability payments

Dept service independent of the performance of the SPC

Agreement with the Banks

Development Banks

- national
- regional
- bilateral
- multilateral

- grants
- (soft) loans
- guarantees
- etc.

Commercial Banks

Bonds

Financing of Investments

Revenue Streams for
- dept service
- coverage of current cost
- ROI

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Conclusions

- PPP is not only a financing model but a complex life cycle oriented public procurement scheme

- PPP has to be clearly delimited from other PSP and privatisation models

- Internationally, various PPP schemes exist that may differ significantly

- A simple definition is not possible

- A scheme or grid of determinants is needed for the neutral, comprehensive and clear description of complex PPP and other comparable private sector or privatisation schemes is needed

- As a basis for any effective and efficient evaluation and or best practice comparison for
Univ. Prof.-Dr. Ing., Dipl.-Wirtsch.-Ing. 
Hans Wilhelm Alfen

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