Workshop “Innovations in PPP”
Thursday May 27th 2010

“PPPs on top of the road”
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OVERVIEW:

- The financial challenge
- SWARCO INNOVIA
- NEW: Urban PPPs
- Key concept

Case studies:

- Rare bird: Integrated Urban Road PPPs
- PPPs on top of the road: ITS & Public lighting
After the financial crisis, there is not only a need to invest in road infrastructure and maintenance to promote economic recovery. There is equally a vital need to improve and invest in efficient traffic management (TM) solutions.

As public deficits impede on traditional public procurement/finance, stronger private participation is needed as a way out. To deliver urgently needed infrastructure and new TM technology, a partnership between the Public and Private sectors (PPP) is needed with increased private involvement into:

- **Technological Innovation:** state of the art ITS (= Intelligent Transport Systems); System Engineering & Integration; traffic safety solutions

- **Public Private Partnerships (PPP):** public sector seeks private sector participation in finance & operation: for whole project life.
Projects are needed that use public funds more efficiently (thanks to performance orientation); and are, self-financing through users and private investors. Economic PPPs are the way out for public clients that stretched their budgets to the limits. But PPPs cannot only mobilize finance, they
- lower life-cycle cost and
- increase operational efficiency.
SWARCO INNOVIA:
Public Private Partnerships & Innoviations within SWARCO group
SWARCO is a growing international group with headquarters in Austria. The SWARCO companies provide the complete range of road marking, signalling and traffic management products, services and solutions.

Swarco Innovia SE was founded in 2008 by Manfred Swarovski and is a wholly owned subsidiary of Swarco AG. The company is registered in Wattens.

“SWARCO has developed into a strong corporate group that is among today’s leading international traffic technology suppliers. We want to continue this path of success together with you, our partners, and be your first choice in road safety and intelligent traffic management worldwide.”

Manfred Swarovski
Chairman and founder of SWARCO
Mission

SWARCO INNOVIA S.E. is a Europe founded, global provider of ITS solutions (= Intelligent Transport system) via PPP (Finance & Operation), Project Consulting & Engineering, System Integration, Turnkey delivery & Services.

Our systems offer covers: Advanced Traffic Management Solutions (urban & interurban), Tolling (advisory), Parking (systems and operations), Public Transport and Fleet Management, Infomobility, Public Lighting. We build on SWARCO’s over 40 years of experience in ITS & road safety and its comprehensive product, system & service portfolio (B2B & B2C).

SWARCO INNOVIA S.E. is your international partner in ITS projects.

• Private-Public Partnership Project Financing
• ITS Systems Design, Engineering & Integration
• International Project Operations
• ITS Concession Management
• Project Services & Maintenance

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Advanced Traffic Management Systems

- **Traffic Management: Urban and Interurban**
  With our well established and proven Urban Traffic Control (UTC) and Traffic Management (TM) systems we provide safe and improved mobility on urban and interurban networks. Our Interurban Advanced Traffic Management System (ATMS) integrates Message Signs and traffic safety monitoring and control equipment.

- **Tolling: Congestion Management and Toll Concessions**
  Using our depth of experience in urban traffic applications and our advisory roles in PPP concessions, we are able to develop turnkey tolling and congestion management systems. Tolling breaks down into 2 distinct applications: urban charging and motorway tolls. Both balance two distinct objectives: demand management ("cutting congestion") and revenue generation.

- **Parking: Systems and Operational Management**
  We offer the latest ‘state of the art’ on and off street parking systems along with the associated operation and management. This integrated approach enables efficient use of the infrastructure in order to maximise revenues.

- **Public and Fleet Transport: RTPI and Fleet Management**
  Our Public Transport and Fleet Management systems provide user and operator information in real time. These systems can be integrated into Traffic management and Fleet Logistic operational centres.
Advanced Traffic Management Systems

- **Infomobility** (Traffic and traveller information) for road and transport users

- **Lighting: Urban and Interurban**

  Using latest technology we increase the lighting quality and considerably reduce cost, in the form energy consumption and maintenance works. Thus, we create budgetary relief and increase the safe and durable availability of the system.

- **Cooperative mobility**

  We can design and roll out systems using vehicle to infrastructure communication for improving fluidity, environmental sustainability and safety of traffic.

  **Electromobility** (Vehicle Charging Points) is part of this concept including recharging infrastructure.

- **Safety Cameras: Red Light and Speed Enforcement**

  We offer a complete solutions for Red Light and Speed enforcement system along with the associated operation and management. This integrated approach can help fund addition infrastructure improvements.
NEW:

Urban PPPs
So far, highway PPPs put the accent on interurban and single structures as complete package / integrated contract:

- Greenfield construction or rehabilitation with O&M for the life-cycle (according to contract)
- Motorways, bottleneck projects (tunnels & bridges)

-> > 90% of capital expenditure (= CAPEX) invested in infra, 5-8% in traffic equipments and road safety
Service model interurban / bottleneck PPP

Highway Authority (Government)

Private Consortium Concession company

Banks →

Shareholders

Construction JV

Operator (O&M)

* Often Operator negotiates & integrates FOE / ITS supplies

- Systems - Products / equipment
- Sub-contractors
- Designer

- Techn. Advisor
- Mainten. subcontractor
However, particularly in urban areas, Intelligent Transport Systems (ITS) and road safety equipment are growing out of their limited scope of around 5% of CAPEX and OPEX (= operating expenditure).

They become complex systems. Often, they are subject to separate contract, even as PPP, covering over 90% of CAPEX & requiring OPEX of over 10 years.
Obstacle to integrated urban PPPs

- **City administrations** generally **not able to plan ahead in coordination with public utilities** that frequently open the road surface, in order to carry out installation and repair works on their grids (electricity, gas, water and communications).

- Leading practitioner and academic in PPPs, Prof. H.W. Alfen, Weimar (D) concludes: **uncertainty for planning urban road maintenance** very high (80% !). This jeopardizes set up of economically efficient PPPs. While, he estimates the **“forecast certainty” for traffic systems on top of the road**, including ITS, sufficiently high and, recommends the transfer of their long term management to private providers.

- Difficulty to reconcile road management planning with utilities is controversial, but partly confirmed by IRF discussion paper **“PUBLIC/PRIVATE PARTNERSHIPS (2008)”**
Traditionally, **private sector participation** has been **limited** to separate planning, design or construction contracts on a fee for service basis – designed to the public agency’s specifications.
Urban PPP: new concession “on top”

New Concession
Traffic Systems

Road safety equipment | ITS, Traffic management | ETC equipment | Other services (parking, ...)

Road concession

Road Construction | O& M ---> life cycle approach
Key concept
Urban PPPs
1. Finance concept

**Create finance** for cash poor public administrations, by

- “liberating” existing **electricity & O&M budget** (Operation & Mainten.), to finance modernization and other measures:
  - through **energy saving technology**
  - more **cost-efficient O&M**, thanks to optimized investment over life-cycle, also due to maintenance friendly technology
  - **road user charges**, creating a complementary revenue stream, **unburdening the budget**

- Savings in energy / maintenance cost may not free enough budget. User charges may not be enough. Therefore, **public client provides additional funds**, paying less anyway, thanks to PPP

- **Private provider pre-finances** project (**CAPEX** and **OPEX**) via specially created project company (SPV = special purpose vehicle).

*CAPEX = Capital expenditure; OPEX = Operating expenditure*
2. Management & maintenance concept

- This **long term PPP** contract **optimizes** not only the **system integration** of this project modernization. But the private sector maximizes the savings throughout a 10 to 15 years contract duration, **improving management and maintenance**.

- A **2nd energy saving** measure that is not linked to the financing **via** electricity budget is the use of **traffic management solutions** that make vehicles more energy efficient, by reducing congestion and optimizing trips from A to B.
Sustainable & Energy Efficient Traffic Systems

- **Urban Traffic Control:** For Traffic lights electricity savings of up to 90% possible thanks to modernization (low voltage & LED)
- **Public lighting:** up to 60% of electricity savings possible thanks to modernization (efficient lighting, LED in development)
- **Vehicles:** strong decrease in fuel consumption possible, thanks to *traffic management* & more efficient use of individual motorized and public transport

  • **Strong cuts in Energy and CO2 emissions !!!**
  Reduce Carbon footprint by up to 60%

  • Due to *severe budget problems* of public sector, *only financeable solutions are implemented -PPP* (private finance & operation)
    - realistic environmentalism needed !!!
UTC service model: urban PPP

- City Admin
- Consulting & Advisory
- Shareholders
  - public –private
  - or fully private
- Management Company
- Operator (O&M)
- Banks
- System integrator + Turn Key
- Services, Maintenance
- Products / Technology
Major Phases and Contracts: Development and Delivery

From 100% Public to PPP / from short term contracts to long term concessions

- Pre-Planning & Acquisition
- Finance
- Design / System Integration
- Build / Turnkey
- Operation & Maintain.
- Modernize

Specialized Consulting

Design-Build Construction Manager at Risk

Preservation Asset Management

Design-Build-Operate-Maintain

Design-Build-Finance-Operate Build-Operate-Transfer Build-Own-Operate/Build-Own-Operate-Transfer

Case studies:

Rare bird: Integrated Urban Road PPPs
**Portsmouth City Streets** Colas subsidiary Ensign Highways was awarded in 2006 a 25-year, GBP 689 million contract to manage and maintain the roads of Portsmouth, UK. This Private Financing Initiative (PFI) contract includes associated assets and services such as lighting, inspection and maintenance of traffic lights and traffic management technology, drainage and response maintenance.

**Sheffield:** A £663.8 million PFI concession, for a period of 25 years, entailing the rehabilitation and ongoing maintenance of carriageways, footways, streetlights, signs, traffic signals, bridges and street furniture, in addition to the related environmental maintenance of the highway, design and build of improvement schemes.
PPPs on top of the road:
ITS solutions and lighting
a. Modernization of Traffic lights to energy saving LED technology, with additional measures for optimization. Thus, up to 90% of electricity savings can be achieved (depending on the state of the currently used technology that is changed, best for old high voltage installations);
b. Increasing energy efficiency of vehicles through Traffic Management,
   • starts with the programming of Traffic lights (adaptive traffic control) and
   • may also include additional traffic management solutions (traffic guidance or access control / pricing), which remove congestion and fluidity traffic.
   • an additional measure is fleet management for public transport.
   • even measures to encourage the shift from individual motorized traffic to public transport, provided the solution is environmentally efficient, linked to “Infomobility”.

This presentation focuses on urban networks, but also include ITS (Intelligent Transport Systems), in the interurban area.
a. Modernization to energy saving LED technology, following the “Ecolight Regulation” of the Europ.Kommission. Up to 60% savings in electricity can be achieved (depending on the state of the currently used technology that is changed). There is even a link to the illumination of public buildings and „industrial illumination“, when rendering it more energy efficient.

b. Programming public lighting with e.g. Cooperative Mobility Systems. This means, street lighting is dimmed, in case there are no users (pedestrians, vehicles) on the road / sidewalk. Or in the opposite case, when users turn up on the road, lighting is switched on or increased by vehicle actuated power supply.
Financial profile of Management contract (PPP)

Characteristics of long term management contracts (as contracting models)

## References & Pilot projects

<table>
<thead>
<tr>
<th>City</th>
<th>Country</th>
<th>Year</th>
<th>Details</th>
<th>Cost</th>
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<tbody>
<tr>
<td><strong>Budapest</strong></td>
<td>Hungary</td>
<td>2006</td>
<td>Replaced: 33,000 LED signal heads and 220 controllers. Financing through energy saving and optimized service and maintenance. - <em>Project financed itself over 8 year period !!!</em> - <em>Electricity savings of 85% guaranteed, 90% achieved!</em></td>
<td>€ 20,800,000</td>
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<td><strong>Prague</strong></td>
<td>Czech Republic</td>
<td>2009</td>
<td>Financing, installation, rehabilitation, service and maintenance of the whole city traffic management system.</td>
<td>€ 165,000,000</td>
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**Public lighting:**
See good results of projects in NL & De (subsidiaries of Alliander), A (E-Werke Wels)
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SWARCO INNOVIA Mobility Systems

Consulting, Engineering & Design
- UTC: TM, Parking
- IUTC: motorways, tunnels
- Tolling
- Public Transport
- Public Lighting

ITS Systems Integration
- Devices
- Systems
- Applications
- Mobility Services

Services, Maintenance & Project Management
- Government
- Private (B2C)
- Concessionnaire

Finance / Legal & Operator
- Private
- Public

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