SPUTNIC – Meeting new challenges for Public Transport

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INTRODUCTION

SPUTNIC (Strategies for PUblic TraNsport In Cities) has been a project (Co-ordination Action) funded by the European Commission under the 6th Framework Programme, FP 6. SPUTNIC was dedicated to the challenges facing local and regional public transport systems in transition, especially those in Central and Eastern Europe. These challenges include the emergence of a competitive environment, changing institutional frameworks and increasingly scarce financial resources. SPUTNIC worked 2006-2009 and was coordinated by UITP, International Union of Public Transport. There were 16 partners from 11 countries.

The author was engaged in SPUTNIC's Cluster Market Organisation[1]. This working group focused on effective cooperation of public transport actors, tariff optimisation and integration, innovative financing and funding, incentive contracts and monitoring systems which improve system quality and reduce costs.

Beside this Cluster there were three others who contributed to meeting the new challenges in other areas;

Customer Relations - This cluster focused on the interrelations between the providers and customers with attention to mobility data and travel patterns, the image of public transport, marketing strategies and customer-relations management, and integration of monitoring results in operations and services.

Corporate Management - This cluster analysed organisational and management issues, including human resource development and management, performance indicators and knowledge management, business re-organisation to improve efficiency of management, and cost management. The work of this Cluster is reported in UITPs journal Public Transport International Nov/Dec 2009.

Equipment and operational - The efforts of this cluster focused on operational and technical matters, including upgrading and modernisation of infrastructure, second-hand rolling stock, safety issues, transfer of innovative technologies and operational and fleet management.

All public Deliverables can be found on www.sputnicproject.eu

This paper intends to present SPUTNICs recommendations concerning the meeting of three challenge areas;

1) The implementation of a market organisation for Public Transport which is accepted by all actors. Only this can create an environment of trust as basis for entrepreneurial behaviour. In

[1] The author's project partners in this Cluster were Dieter Egger and Martin Ruesch from RappTrans, Switzerland and Lutz Auerbach from Verkehrsverbund Oberelbe, Germany.

EU Member States different models for market organisation exist depending on local conditions and needs. Regardless which model that is chosen, the definition of clear and transparent rules is fundamental so that each Public Transport (PT) actor is able to act and plan rationally. Public Service Contracts (PSC) are the backbone of efficient and effective market organisation regardless if contracts are awarded by competitive tendering or not. This is also defined by Regulation EC 1370/2007. PSC should clearly define responsibilities and risks of actors, not only for financial aspects but also for quality standards. PSC implement the principle of separated buyers and contractors (operators). It is essential that risks allocated in the contract should be aligned to the responsibilities of partners

2) Incentives and Monitoring. Presently a large number of European PT operators receive a gross-cost compensation for running PT services, which does not encourage them to focus fully on effectiveness, quality and innovation. But also net-cost contracts do not automatically encourage the operating companies to improve their efficiency, quality and innovation. The economic incentive of increasing number of passengers (and due to this increasing revenue) might be lower than the related extra costs. The introduction of performance contracts focused on quality including issues like ability of attracting new customers, efforts in relation to the image of PT, and capability to innovate in terms of new services. Quality standards within contracts become a more visible issue.

3) Strategies for PT funding and financing. Funding is here defined as how the costs of operations are covered in a short or medium term perspective, the fiscal year, one accounting period or (at the most) one PSC period. Financing primarily concerns repayable loans for investment in for instance infrastructure, new rolling stock and other equipment with a long economic life.

HOW SPUTNIC WORKED

SPUTNIC can be seen as a successor of the VOYAGER project (Vehicle for Mobility - Advancing Public Passenger Transport in Europe) VOYAGER aimed to consolidate current experience and 'to create a vision and make recommendations for the implementation of attractive, clean, safe, accessible, effective, efficient and financially viable European local and regional public transport systems for the year 2020'. The project, led by UITP, ran 2001-2004

As a Co-ordination Action SPUTNIC did not focus on research in the traditional sense but on networking and an exchange of ideas. SPUTNICs methodology was based on a comprehensive validation mechanism, originating from Working Group (WG) meetings and Plenary Sessions. Besides PT research and consulting experience, the consortium composition involved a wide range of expertise in PT service development and provision, which provided a sound working basis and ensured that a wide scope of sector needs and views were taken into account.

In order to further broaden the basis of PT stakeholders involved in the project, experts have been consulted within each of the priority topics during six WG meetings. At these meetings the findings of the project partners were validated and the transferability of recommendations was drafted. The major outcomes of all WG meetings (working papers, guidelines, good practice catalogues, policy recommendations, etc.) were discussed and validated at plenary sessions, which involved a broader audience of PT stakeholders and experts from other relevant sectors. Three conferences, open to everybody were also staged.

Besides SPUTNICs 16 partners a total of about 60 Experts were involved in the six WG meetings. At least 75% of the experts were invited to more than one meeting; this created a mix of continuity and renewal and also a form of trust between the project partners and the experts and between the experts.

SPUTNIC engaged many experts with various backgrounds who were really committed to meeting the challenges for PT and improving PT in many respects. If the commitment and ambitions of these women and men spreads all over the European PT sector we can look forward to substantial PT improvements!

IDENTIFICATION OF CHALLENGES

Based on the findings of the Voyager project and other recent related research project results, the consortium reviewed and updated the challenges which the PT sector is currently facing. The results of the consortium's desk research were validated by the experts in the first plenary session, they are found in SPUTNIC's Challenges Report (D2)[2]. The State-of-the-Art Report (D3)[3] is also relevant in this context.

The perception of PT can be stated as the following challenge;

Public transport is perceived by its customers as uncomfortable, unreliable and unfriendly. The sector lacks money. It is overstaffed and inefficient. It suffers from old management methods and unclear relations with the competent authorities. Outdated rolling stock and infrastructure in poor condition are the rule.

At least one of these challenges is a reality for PT in various parts of Europe. The PT sector must be aware of the increasing mobility, environmental and energy supply concerns, improved individual transport and increasing quality demands in general. PT must take its place as a natural solution for our cities, effectively tackling the challenges it currently faces.

The main Challenges can be summarised as

- setting-up of sound and stable legal framework conditions
- convincing the political decision-makers of the importance of PT for the citizens' quality of life and a sustainable development in general
- implementing Public Service Contracts that clearly define the actors' responsibilities
- implementing incentive contracts which support entrepreneurial behaviour to increase the quality and the efficiency of PT
- allocating the responsibilities and risks for operators and authorities in a fair way

Furthermore these questions were asked; is PT able to preserve its place and expand in a fast changing environment? Are the competent authorities ready to create conditions which are favourable for the renewal and development of public transport? Organisation of the PT market vary broadly across Europe, involving different legal framework conditions, different relationships between operators, authorities and other actors, different level of competition and cooperation. PT actors must concentrate on developing their capacity to respond adequately to external circumstances, to be prepared to function differently, more efficiently and flexibly, to be proactive and innovative.

[2] http://www.sputnicproject.eu/docs/SPUTNIC_D2_Challenges_Report.pdf
[3] http://www.sputnicproject.eu/sputnic-state-of-the-art-report.php

CURRENT DEVELOPMENTS

The competent authorities (Ministries, regional governments, transport authorities, local authorities etc.) have an important role to play in supporting PT development, a role that is not only confined to financing. A strong political will is required to ensure an environment of fair and clear rules where political instability will not jeopardise the efforts of the sector to stabilise, develop and consolidate.

After many years of discussion and disagreements the EU Regulation 1370/2007 was adopted (and entered into force 2009). The implementation of this Regulation will be a key challenge for the market organisation of PT in Europe. The establishment of this new regulation underlines the fact that the PT sector is undergoing necessary and essential changes. This applies to all European countries, but the organisational changes are expected to be more fundamental in cities and regions undergoing rapid economic development in new EU member states. Here new market models have to reconsider not only PT operators' internal structures but also their relations to other actors in the PT market, whether it is authorities or other operators.

In many countries this process of change is complicated by diminishing public resources, lack of funds for investment and operation and the low integration of PT in an overall mobility and transport planning. The efforts of the sector to stabilise and consolidate are often offset by changing regulatory conditions and frequent political interference. Although local politicians often use PT as a vote-winning tool, decision-makers in many cases give low priority to public transport as a natural solution to increasing mobility problems. An often unsatisfactory quality level of PT is a result of low implementation of quality and performance monitoring and few incentives for PT actors to cut costs, increase revenues and the level of quality.

Public transport is subject to local/regional policies and responsibility of political decision-makers. Until the beginning of the 1990s, public transport in new EU member states was part of centrally planned economies and was directly managed (and financed) by the central government. These countries then saw a process of decentralisation and priority was given to restoring the municipal self-government. The state withdrew from its tasks and left PT to the local authorities but without an adequate shift of budget. The withdrawal of the state thus left a vacuum, not only a financial one, but also an organisational one. Regional entities, crucial for the integration and good functioning of public transport services, were nonexistent and had to be built up.

MEETING THE CHALLENGES

This Section highlights only some of the recommendations. For the complete report please see SPUTNIC D5 Policy and Research Recommendations Report
http://www.sputnicproject.eu/final_docs/D5%20Recommendations%20Report_FINAL_final.doc

The implementation of a market organisation

Establish long term urban mobility planning

Basis for an efficient and customer related PT is a long term urban mobility planning which should be extended, where applicable, to a regional mobility planning.

The management of mobility has never been as difficult as today because the catchment areas of cities have expanded dramatically. The functioning of such enlarged areas and the subsequent mobility demand has become more complex and cannot be satisfied anymore by the traditional administrative and institutional organisation and framework for only PT. Transport authorities must have a geographical competence consistent with the reality of mobility of citizens. Otherwise PT will only be fragmented, sub-optimal and marginalised and will reinforce the success of individual mobility modes.[4]

An essential component of mobility planning should be a General PT Plan dealing with all PT modes as a basis for network integration. This General PT Plan should ensure[5]

- an integrated organisation and definition of PT also when numerous operators and local authorities are involved,
- maintaining and preferably also improving PT service levels,
- the setting of general quality standards for the whole PT.

The General PT Plan is only the first step towards sustainable and user friendly mobility. In a second step, all administrative units dealing with mobility planning (road policy, parking policy, traffic safety, traffic management etc.) or land use planning (urban planning and development) have to cooperate, for instance when planning bus priority lanes (coordination of PT and individual road transport) or for urban planning that favours PT more generally.

SPUTNIC believes that the implementation of the measures listed above requires both carrots and sticks. For instance to obtain financial support from institutions like the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD) PT stakeholders have to implement reforms and show proofs of progress.[6]

In this context some important but perhaps not so pleasant comparisons between PT and the rest of society should be made. The private sector in the CEEC has made huge progress (cars, shopping, media). The public sector with PT, rail, urban planning etc. develops very slowly, however. This corresponds to the insight from the SPUTNIC Challenges Report which states that many of the key problems and challenges identified by the previous VOYAGER project remain largely valid. It is not clear whether this is a sector inherent problem or due to the number of stakeholders involved or due to bureaucracy, overheads and overstaffing that seems to remain in the pre-1990 era. Most probably, it is due to a combination of all. In any case, urgent action is needed, if the PT sector shall survive and improve.

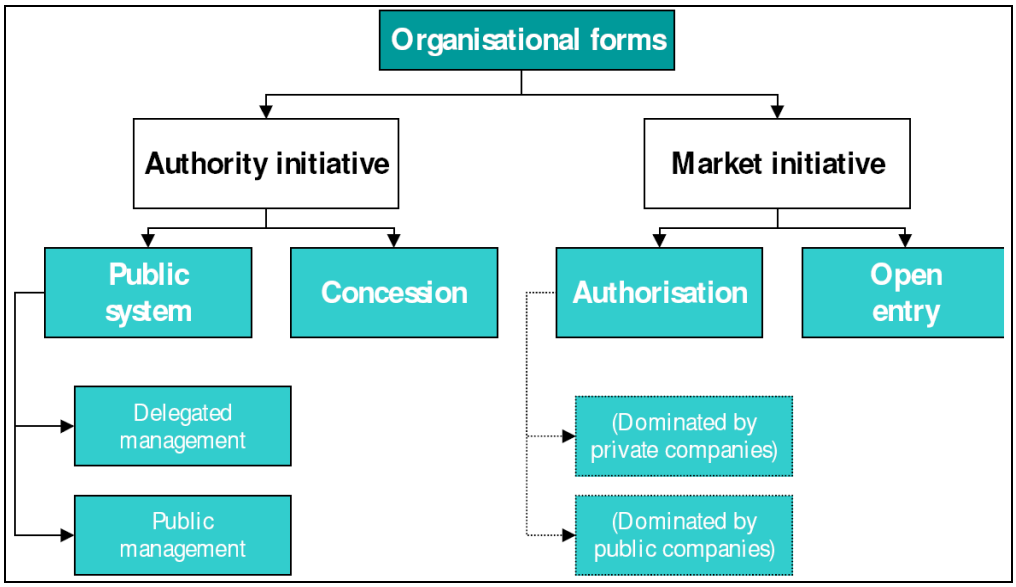
Implement an accepted Market Organisation

The implementation of a market organisation which is accepted by all actors is essential, only this could create an environment of trust as basis for entrepreneurial behaviour.[7]

In EU Member States different models for market organisation more or less exist depending on local conditions and needs. (This is permitted also according to EU Reg. 1370/2007.) Regardless of which model that will be chosen, the definition of clear and transparent rules is essential so that each PT actor is able to act and plan rationally.

[4] Voyager Policy and Research Recommendations Report, p. 14
[5] SPUTNIC Best Practices and Recommendations Report: good practice case on PT integration in the Verkehrsverbund Oberelbe, p. 16 and Annex I
[6] Presentations of representatives of both banks at the 3rd SPUTNIC WG Meeting Leipzig, April 2008
[7] SPUTNIC Best Practices and Recommendations Report: good practice case on integration in the southern Moravian region, p. 15f.

There are many possible organisational forms for urban PT. The figure below presents a global classification of organisational forms as can be encountered in Europe according to MARETOPE[8]. The first distinction presented in the diagram is the dichotomy between "authority initiative" and "market initiative" which relates closely to the legal framework.



[from MARETOPE Handbook, page 23]

In authority initiated regimes, those authorities which have received the responsibility for PT have the legal monopoly of initiative by law. This means that autonomous market entry is legally impossible and that all PT production is the result of a conscious one-sided authority initiative to produce PT themselves or contract out the production of services.

Most PT markets in Europe function according to this principle. In market initiated regimes, the supply of transport services is based upon the principle of autonomous market entry resulting from a market process with more or less regulatory checks at the entrance.

Incentives and monitoring

General background

At present a large number of European PT operators receive a gross-cost compensation for running PT services, which does not encourage them to focus fully on effectiveness, quality and innovation. But also net-cost contracts do not automatically encourage the operating companies to improve their efficiency, quality and innovation.[9] The economic incentive of increasing number of passengers (and due to these increasing revenues) might be lower than the related extra costs.

Contracts should therefore focus more on quality and include more tactical issues like ability of attracting new customers, efforts in relation to the image of PT, and capability to innovate

[8] MARETOPE - Managing and Assessing Regulatory Evolution in local publicn Transport Operations in Europe, Project funded by EC under FP5 (1998 – 2002)
[9] For more information related to contract models: SPUTNIC State-of-the-Art Report, page 32f

in terms of new services.[10] Quality standards within contracts become a more visible issue. For two important reasons quality standards are introduced in contracts:

1) To guarantee a certain level of service quality, when costs become a more important issue;
2) To provide financial incentives to maintain present PT passenger numbers and attract new customers with an increased quality.[11]

Incentives support entrepreneurial behaviour to increase quality and efficiency and bring in line authority's and operator's objectives. Incentives must be designed properly to be effective, because operators very thoroughly balance economic effort and economic benefit. It means the economic incentive for the operator that is tantamount to the willingness to pay of the PTA must be appropriate.[12]

From a psychological viewpoint incentives should not only include maluses or penalties for bad performance but also bonuses for good performance (quality improvements, increased number of passengers). Apart from financial incentives (bonus/malus) benchmarking and the threat of competition can also be possible incentives.

Implement monitoring systems

Monitoring refers to the regular and "systematic collection of data on specified indicators to provide stakeholders of an ongoing activity with indications of the extent of progress and achievement of objectives".[13]

Independent of the contract model the authorities need to check whether the obligations stated in the contract are fulfilled. Where this check is not done via more or less self-fulfilling contractual features (incentives) this has to be done by monitoring where certain performance indicators are constantly collected in order to control the fulfilment of the contract. Monitoring systems are therefore a practically unavoidable part of contract management. They can be seen as alternative or complement to the incentive instruments incorporated in the contract. In the case of a monitoring system the performances are controlled by the authority whereas by using incentives the performance is "controlled" by the operator. Usually, a combination of both instruments is necessary.[14]

It is important to secure the credibility of the authority and the effectiveness of the provisions of the contract that the authority is able and willing to identify insufficient performance in case it occurs. Where performance indicators are not met, the authority must be able to impose fines, withhold part of the funds, arrange for compensation or deny extension/renewal options.[15]

Although the monitoring itself is carried out after the conclusion of the contract the ability to take measurements and the possible measures which can be taken has to be already set out in the PSC. The measurements must be transparent and verifiable for both parties. Each performance target needs to be clear and measurable.

[10] See this report chapter 7 and 8.
[11] VOYAGER, D5, p.14
[12] More information on the use and design of incentives is given in the SPUTNIC Guidelines on Public Service Contracts, Incentives and Monitoring available at www.sputnicproject.eu
[13] based on OECD: Glossary of Key Terms in Evaluation and Results Based Management
[14] More ample information on the use and design of Monitoring systems is given in the SPUTNIC Guideline on Public Service Contracts, Incentives and Monitoring available at www.sputnicproject.eu
[15] inno-V et al, 2008

Strategies for PT Funding and Financing

Breakdown of strategies:

⇨ for increasing cost coverage
- Check all options for tariff measures in order to increase revenues
- Evaluate the possibilities of creating additional revenues by enlarging the operator's service portfolio
- Make use of market forces

⇨ for strengthening and enlarging the funding basis of the PT sector
- Identify alternative sources to fund PT infrastructure and operations
- Make use of EU funding and other special purpose funds
- Make use of loans by International Finance Institutions

Improve PT funding and financing balances

Funding is here defined as how the costs of operations are covered in a short or medium term perspective, the fiscal year, one accounting period or (at the most) one PSC period. Financing primarily concerns repayable loans for investment in for instance infrastructure, new rolling stock and other equipment with a long economic life.

The low cost recovery ratio of PT in many countries must be dealt with. This is a problem not just in CEEC but in other Member States as well. Cost recovery in French urban PT is just 22%;[16] this is remarkably lower than in Germany and Scandinavia where 50-60% is common.[17] There is a danger that PT gets into a negative spiral where decision makers try to reduce deficits by reducing services; this may lead to less customers which leads to bigger deficits and so on. Politicians may then get tired of compensating PT when they see neither improved cost recovery nor improved ridership. Improving cost recovery for instance through competitive tendering may have social consequences for instance through different demands on PT staff and reduced job security. This must be dealt with to avoid social unrest and opposition to change.

The PT Sector (broadly defined) in every city, province or region should have a defined long term funding and financing plan, to some extent this is now also required by the new EU Regulation 1370/2007.

Accordingly, the strategies for improving PT funding and financing balances can be grouped into two main approaches which have to be pursued simultaneously:

- Increasing cost coverage of the PT sector
- Strengthening and enlarging the funding basis of the PT sector

Check all options for tariff measures in order to increase revenues

In air transport, long distance rail and bus transport it has become quite common to analyse different user segments' willingness to pay and to apply different fare regimes. However, this

[16] UTP/GART (France) statistics
[17] SPUTNIC State-of-the-Art Report, p. 35

has so far been little used in urban or regional PT. All users have been considered as a homogenous group with the same or similar requirements; the reason may simply be that the PT decision makers simply have ignored the idea of different user segments. Nevertheless it is necessary to analyse the needs of different users even if they are only split into a few groups such as students, shoppers, work commuters and pensioners.[18]

The tariff setting is connected to the division of responsibilities Authority – operator. Tariffs are usually set by the Authority but in cases of net cost contracts some freedom is often given to the operator.[19] The most radical solution should also be mentioned: In the UK most PT is run on fully commercial terms and the operators have full freedom to set fares. A similar system has been proposed in Sweden – operators should indicate which services can be run commercially and the authorities should then "cover the gaps". [20]

Identify alternative sources to fund PT infrastructure and operations

PT costs that cannot be covered by the direct commercial revenues (fare revenues and any other additional business) have to be funded by other sources which usually – in one way or the other – involve the public authorities, who either provide the necessary funds from their regular budget or the necessary legislation to extract funding from other subjects. There is a broad variety of funding models to cover these uncovered costs of urban PT.[21]

Financial support can be implicit, for example in the form of government guarantees for borrowing or in the form of tax exemptions for PT operators. The UK and Ireland have fuel tax rebates for PT operators. In Switzerland, PT operators are exempted from corporate taxes and vehicles with particle filters benefit from an 80% rebate on fuel taxes. However, fuel tax rebates may be seen as a distortion of the principles of fair and efficient pricing in transport ("polluter pays"), if they are prohibited other means of funding must be sought.

The variety of possible taxes is broad and in theory only limited by imagination. Even if they are economically justified such taxes are often extremely politically sensitive especially if they mean taxing certain groups of society that "only" profit indirectly from PT services.

Employers can fund PT through employees' taxes, as an efficient PT system allows better access to the employment catchment area. Under the name of "versement transport" French authorities like cities and regions can levy a tax from companies with more than 9 employees for financing local PT. In the Paris metropolitan region 35% of overall PT costs are funded by the "versement transport" (compared to only 25% by passenger fares).[22]

It is also possible to differentiate fares according to different services instead of different user groups (e.g. higher fares for a "core" network of high quality bus and rail services). The introduction of new technology may not be as smooth as expected; Denmark, Sweden and the Netherlands are examples of delays and problems. Having said this, one should remember that revenue optimisation is just one goal among others for designing a tariff scheme. Above all, tariff schemes should be simple, clear and transparent to the customers. Caution is recommended, customers (and staff) may not readily accept everything.

[18] See chapter 5.6 for the detailed distinction of customers' needs
[19] see SPUTNIC Best Practices and Recommendations Report: good practice case study of Blekinge
[20] SOU 2009:39 En ny kollektivtrafiklag (A new PT law for Sweden)
[21] [21] for an overview on different funding models see SPUTNIC Guideline on Funding and Financing available at www.sputnicproject.eu
[22] see SPUTNIC State-of-the-Art Report, p. 38

BEST/GOOD PRACTICE EXAMPLES

This Section only presents a list of best/good practice examples. They are all available in SPUTNICs D4 on www.sputnicproject.eu/sputnic-products.php

Market Organisation Best Practice

Customer Satisfaction Survey within ZVV for quality improvement and as basics for bonus payments; CANTON OF ZURICH, SWITZERLAND

Integrated Public Transport of the Southern Moravia Region and the City of Brno

Funding a Metro through land development; ØRESTAD, COPENHAGEN IN DENMARK

Organisational Model of Verkehrsverbund Oberelbe; DRESDEN, GERMANY

Market Organisation Good Practice

Institutional Framework and Cooperation – Net Cost Contract Trial; BLEKINGE, SWEDEN

Public service contracts in transport; GDYNIA, POLAND

Combining train ticket sales with other retail; GILLINGHAM, UNITED KINGDOM
The implementation of a season pass tariff union and the transition to an integral tariff union; OSTWIND, SWITZERLAND

Revenue Distribution in Swiss Tariff Unions; SWITZERLAND

Rolling stock renewal with a loan from the European Bank for Reconstruction and Development (EBRD); SOFIA, BULGARIA

Legislation on Public Transport; SWITZERLAND

Innovative public transport funding scheme; UPPER ENGADINE DISTRICT, SWITZERLAND

Incentive contracts of the public transport authority Västtrafik; WEST SWEDEN

Network, Timetable and Tariff Integration in Verkehrsverbund Oberelbe; DRESDEN, GERMANY

However, the author and his project colleagues shall not pretend that SPUTNIC solved all problems in the PT sector. Many more Good Practice examples can be found on ELTIS European Local Transport Information Service www.eltis.org and on TRKC Transport Research Knowledge Centre http://www.transport-research.info

RECOMMENDATIONS FOR FURTHER WORK

In SPUTNICs Deliverable D5 about 50 suggestions for further investigation (research, studies, analyses, and legislation) were presented. Some of these concerned Market Organisation;

Cost benefit analysis of incentive schemes
For the authorities it is often difficult to set the right level of incentives as the incentive should be economically relevant to the operator but not too costly for the authority. Therefore the costs and benefits of different incentive schemes should be compared in order to identify the most suitable schemes and to support the authorities in calculating the appropriate level of incentives.

Handbook for PT Monitoring systems
Throughout Europe various types of monitoring systems are successfully established. Therefore further investigations should less focus on the development of new methods and techniques but should focus on the dissemination and implementation of the existing knowledge and experience. A Handbook for PTA should be established that deals with the issue of monitoring systems for PT and makes it easier for the PTA to choose and implement an appropriate solution adapted to the local circumstances.

Analyse the consequences of EU Regulation for national and local legislation
The new EU Regulation 1370/2007 should and could be a kick-off for improving PT market organisations in many MS. However, its final benefits and the time-frame for realising them strongly depend on the way the regulation will be implemented on MS level. Therefore, further guidance for all MS is needed on how to adapt national, regional and even local PT legislation in the context of the new EU Regulation 1370/2007 in order to ensure that the Regulation will develop its full potential for improvements.

Impact analysis of the new EU Regulation 1370/2007 with respect to integration
Although the new EU-Regulation does not say much about PT integration it nevertheless might influence the chances for integration projects as the new Regulation will certainly lead to substantial changes in the legal framework for PT in a number of MS. As legal frameworks are not changed every year this chance should be taken to adapt the legal framework in a way that supports integration. A research project should analyse the impact of the new EU regulation on the different legal frameworks in different MS and assess the possibilities to steer this impact into a direction favourable for PT integration.

Cost-benefit-analysis of PT integration
The benefits of integrated PT systems are widely acknowledged among PT experts. However, first-mover experience shows that apart from benefits (in the form of increased attractiveness, higher patronage, higher revenues, cost reductions due to the cutting of parallel services etc.) system integration also creates costs (in the form of administrational costs, check-through losses, harmonisation costs). In a research project benefits and costs of different real-life implementations (case studies) should be compared.

Possibilities and risks of using Public Private Partnership (PPP) schemes for local PT infrastructure
Experience in the PT sector with PPP so far is mixed. Further studies on PPP schemes, their pros and cons and especially their suitability for PT improvement schemes are dearly needed.

Establish a Handbook on PT funding including an impact assessment of different funding schemes

Further work on a Handbook on PT Funding is needed. PT stakeholders have many funding alternatives but finding the suitable alternatives with their associated conditions is very difficult. Furthermore, an impact assessment of different funding schemes is needed to show the effectiveness and potential negative side effects of the different approaches.