Summary:

Market-oriented statistics for public transport
Proposal for scheduled public transport statistics, including buses, boats, trams, metros and trains

Background and objective

Reliable statistics are necessary to be able to describe areas of work, whether this is historic development, status situations or planning and development. Statistics about public transport are therefore important in a number of contexts, both to support decisions taken by companies and authorities and as a basis for research and development work. This type of statistics has long been insufficient and time-consuming to publish. This means in turn that the benefit of these statistics is greatly reduced. In recent years, these statistics have been entirely lacking.

The consequences of inadequate or non-existent statistics are that major resources are required for time-consuming quality assurance of other, existing statistics, obtaining supplementary data and carrying out alternative calculations in order to obtain the necessary database for carrying out satisfactory professional analyses.

The Ministry of Transport and Communications therefore wants to set up new, market-oriented statistics for public transport. To some extent this will meet the needs which the now-laid down operational scheduled bus service statistics were meant to fill, and also the Ministry's need for further knowledge about public transport. TØI has produced a proposal for a system for new public transport statistics, which is described in this report. The project is based on the Ministry's requirements that:

- the statistics should be simple, with the fewest possible variables/indicators, but should still indicate the extent and quality of public transport provision,
- the statistics should be open to all user groups.

One of the purposes of the new statistics is that they should provide on-going, updated strategic key figures that can be of use to both local and central authorities, as well as public transport planners at different levels. The statistics are therefore limited to a few central, strategic key figures so that the data can be obtained relatively easily and without a great deal of extra work. In addition, it is important to have good routines for data collection, quality assurance and dissemination, so that the objectives of the statistics can be achieved. The report looks at proposals for systems for this type of data collection.

Two central changes

In practice, the new public transport statistics involve two central changes:

- The focus moves from operating statistics (scheduled bus service statistics) to market statistics, with the emphasis on the service provided to public transport users. This means that the Ministry of Transport and Communications will no longer need so many internal statistics from companies, which are often difficult to collect. It is also necessary to talk about *public transport statistics* rather than scheduled bus service statistics

- The method will involve statistics based on a few, prioritised, strategic key figures. At the same time, it is desirable to work towards far more on-going statistics which give the most up-to-date information possible for the authorities and others. This sets demands for routines for data collection and quality assurance before the figures are made public.

In addition, the transport usage covered by the statistics is decisive for the detailed design in relation to the above changes.

Proposal for new public transport statistics

We propose that public transport statistics

- should cover *all forms of scheduled passenger transport (incl. school transport) by bus, boat* (excluding the Coastal Express boats service and ferry routes), *trams, metros, and trains.*
- be set up on a trial basis at the end of 2003.
- be supplemented with historic figures from 1990 as far as this is possible.

By directing the focus towards more market oriented public transport statistics, it will also be necessary to collect a certain amount of data which describes the framework conditions for public transport and the development of competitive forms of transport, particularly cars. We therefore propose a system whereby data is collected from a number of different sources and where SSB/TØI co-ordinates the collection of some of this data. Others can also be brought in. We propose that statistics are compiled which can be put in an international, comparative context i.e. that where comparative figures are found internationally, they should be documented in separate tables.

We propose that public transport statistics should be based on local data from the public transport market, customers' experience of the service and central sources of data for framework conditions for car traffic, which can be divided into two main areas:

1. Strategic key figures which describe characteristic of and framework conditions for public transport
   - the quality of public transport provision
   - the demand for public transport

- operating economics and productivity
- framework conditions for public transport

2. International comparisons of the strategic key figures and any customer satisfaction measurements

Figure S.1 illustrates how the data could be selected, and proposals for sharing responsibility for collection.

Statistics should be developed for three regional levels:

1. **Urban regional level:** On-going statistics (monthly) for the four most important key figures and for each of the 10 largest urban areas. Complete statistics to be issued annually.
2. **County council level:** Primarily annual statistics for the whole county and comparable with the former scheduled bus service statistics. Also issued on an on-going basis (monthly) for the four most important key figures.
3. **National level:** Data from interregional/ inter-county express routes and combined annual statistics at national level for the selected strategic key figures.
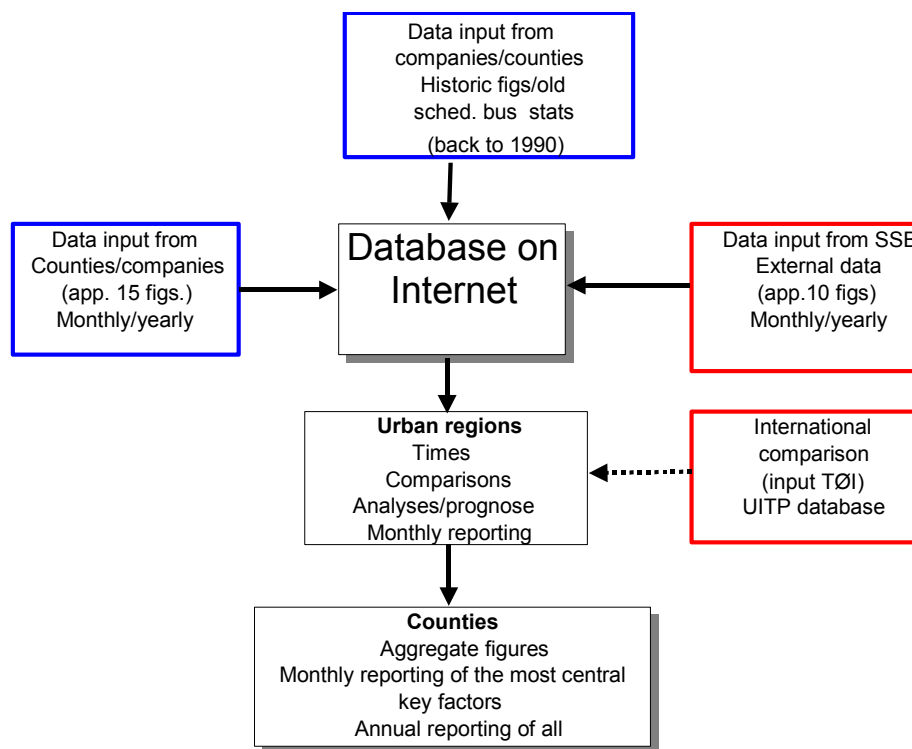
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Figure S.1: Schematic diagram of possible system for data capture and sharing responsibility for the new public transport statistics

The primary sources for the core of the public transport statistics, i.e. production, demand and economic data, are the operating companies. However, it is the legislative authority (The Ministry of Transport and Communications and the

county councils), which, according to the law, decides which information should be collected and how this should be done, for example, via the Internet (see the final page of this summary) and using to the same system across the whole country. Given the legislative body's central position in this situation, it is natural that it should also play an important role in collecting the data, for example as a co-ordinator at the county level and as a contact for those collecting the statistics.

Key factors

A limited set of 15-20 precisely defined key factors (operating indicators) are used to describe the operation of public transport (see table S.1).

We need to distinguish between the *operating indicators*, which need to be calculated, and the *data requirement* in order to carry out the calculations. It must be possible to obtain the database relatively easily.

The key factors refer to operating routes and specifications according to the kind of operation[1] and route design (route types). Possible divisions into route types are[2]:

1. City and suburban routes
2. Local routes, incl. school routes
3. Regional routes
4. Inter-regional routes (possibly specified as "journeys within the county" and "journeys which cross the county boundaries")

Route types 1-3 are subject to the local legislative authority while route type 4 is subject to the central legislative authority. NSB's train routes and express bus routes within NOR-WAY Bussekspress (NBE) are examples of route type 4. In practice, route types 4 will inter-connect with each other geographically.

Customer satisfaction measurements

The strategic key figures which are listed in table S.1 do not provide a complete picture of how the population experiences public transport provision. This is due to the fact that there are a number of key quality measurements which are not covered by these strategic key figures, not least punctuality and regularity, but also the quality of the vehicle fleet and the level of service provided by employees in the public transport industry. We would therefore propose that the strategic key figures are supplemented with customer satisfaction measurements which can provide a broader picture of how the quality of public transport service is developing.

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[1] Note that the text in table S.1 is adapted to the operating type *buses*

[2] Primarily applies to buses

Table S.1: Key factors derived from collected data

Quality of service
- **Surface coverage** (line km per km^2)
- **Frequency** ((vehicle km + train km) per line km)
- **Capacity** (seat km per vehicle km, passenger km per seat km, vehicle km per inhabitant and total vehicle fleet in operation in dimensioning hour)
- **Speed** (vehicle km per vehicle hour)
- **Price** (ticket income per journey and per passenger km, ideally specified for adults and children/pensioners respectively)

Demand
- **Journeys** per inhabitant and per employed person/worker in the area
- **Passenger km** per inhabitant
- **Number of school journeys** (pupil journeys)

Operating costs and productivity
- **Cost coverage** (ticket income per total costs, percentage)
- **Income base** (ticket income per vehicle km)
- **Cost effectiveness**
  (total costs per vehicle km and per vehicle hour)
  (operating costs per vehicle km, per vehicle hour and per passenger km)
- **Public transfers**
  (public service purchases/reimbursement per vehicle km, per passenger and per inhabitant)
  (public purchases of school transport)
  (indirect subsidies per vehicle km, per passenger and per inhabitant)
- **Productivity** (vehicle km per vehicle)
- **Public transport prioritisation in cities** (length of routes reserved for public transport traffic (inc public transport lanes) and number of junctions with priority to public transport[3])

External framework conditions
- **Price relationship** (car/public transport, real price development of petrol)
- **Car-ownership** (vehicle density, proportion with driving licence)
- **Market share** (travel habits data and relative development in relation to car usage, sale of petrol /diesel, toll road usage etc.)
- **Level of income**

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Framework for data collection

The proposed frequency for collecting basic data and publishing statistics for the three regional levels, which we have proposed, is summarised in table S.2. This involves annual statistics for all the key figures and also monthly statistics for the most central figures i.e. vehicle kilometres, number of journeys, ticket income, petrol prices and petrol/diesel sales.

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[3] This is only relevant for the largest cities.

Table S.2: Frequency for obtaining basic data and publishing statistics

Data type/variable	Frequency of obtaining baseline data					Frequency of publishing statistics					Comments
	Urban region		County		Country	Urban region		County		Country	
	Month	Year	Month	Year	Year	Month	Year	Month	Year	Year	
Production data											
Vehicle km (in route and running empty)	x	x	x	x	x	x	x	x	x	x	
Vehicle hours (in route and running empty)		x		x	x		x		x	x	
Number of vehicles (in operation)		x		x	x		x		x	x	
Seat km		x		x	x		x		x	x	
Places km		x		x	x		x		x	x	
Line km		x		x	x		x		x	x	
Public transport lane/ route km reserved for public transport traffic and number of junctions with priority to public transport		x		x	x		x		x	x	
Demand data											
Number of journeys in total (specified by adult and child/ pensioner)	x	x	x	x	x	x	x	x	x	x	
Number of pupil journeys		x		x	x		x		x	x	
Passenger km in total		x		x	x		x		x	x	
Economic data											
Ticket income (specified by adult and child /pensioner)	x	x	x	x	x	x	x	x	x	x	
Public purchases (of this school trips) and indirect subsidies		x		x	x		x		x	x	
Total costs		x		x	x		x		x	x	
Operating costs		x		x	x		x		x	x	
Any additions re external framework conditions											
Consumer price index		x		x	x		x		x	x	
Population figures		x		x	x		x		x	x	
Employment figures		x		x	x		x		x	x	
Area		x		x	x		x		x	x	
Car fleet, number of registered vehicles		x		x	x		x		x	x	
Toll road usage and other census points on roads		x		x	x		x		x	x	
Petrol prices/ sales of petrol/diesel	x	x	x	x	x	x	x	x	x	x	
Parking fees, availability of parking etc		x		x	x		x		x	x	
Income levels		x		x	x		x		x	x	
International comparisons											
UITP-data base		x		x	x		x		x	x	
Cit-Net-data base		x		x	x		x		x	x	

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Database on the Internet

We propose that the new statistics should be net-based with regard to both reporting data from the counties and disseminating on-going updated statistics which the authorities and other players within the market can access This means that we must have password -protected access for putting in the data for the separate counties, and routines must be developed for on-going quality assurance of the data. This password-protected access can be shared with sub-contractors (the public transport companies) where appropriate. However, much of the information is not available at the company level. Furthermore, the companies will consider some of this information to be confidential and will not allow it to be issued in a way which can be traced back to the individual operator, particularly in connection with tender-based traffic. However, this is not really a problem since public transport statistics will primarily be presented at regional levels, with the urban region as the lowest level. Thus the problem will occur if only one or two operators are responsible for all public transport (within a type of transport) in the urban region, or in the county.