APPENDIX A

PART Infrastructure Manager

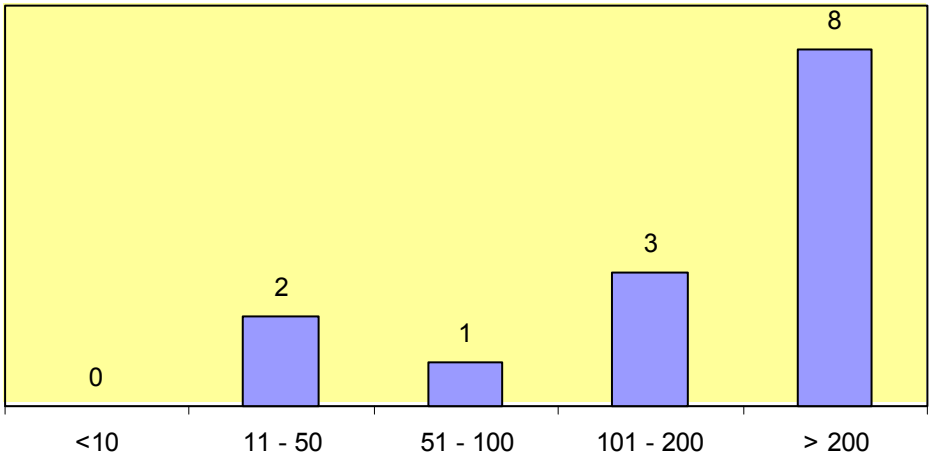
Results of the interviews with European Infrastructure Managers

1. General information

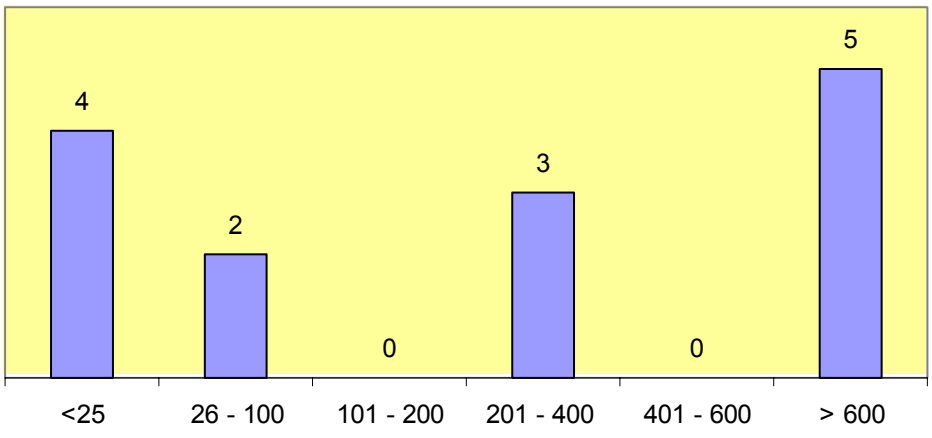
There was given the response of 14 European Infrastructure Managers to the questionnaire.

2. Current Situation about train paths

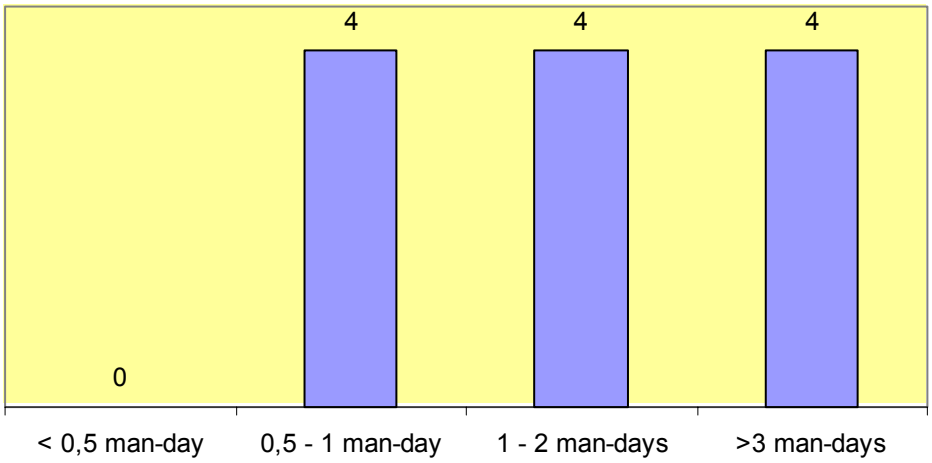
2.1 What is the current number of international trains (all trains: passenger and freight), on average, crossing daily your national borders?



2.2 What is the approximate number of international paths/train studies you have to produce per year to accommodate the real traffic, as above said?



2.3 Can you give an estimate of the current labour resources in man-days that are necessary to finalize one international train path design?



2.4 Do you believe these labour resources can be sensibly reduced, if better tools and methods are made available?

5	YES	6	NO	3	don't know

2.5 Due to open railway markets, the path allocation process will in any case require:

•	more labour force	7	YES	5	NO	2 don't know
•	improved Computer Aided Design tools	12	YES	1	NO	1 don't know
•	improved processes	14	YES	0	NO	0 don't know

3. Existing systems supporting process

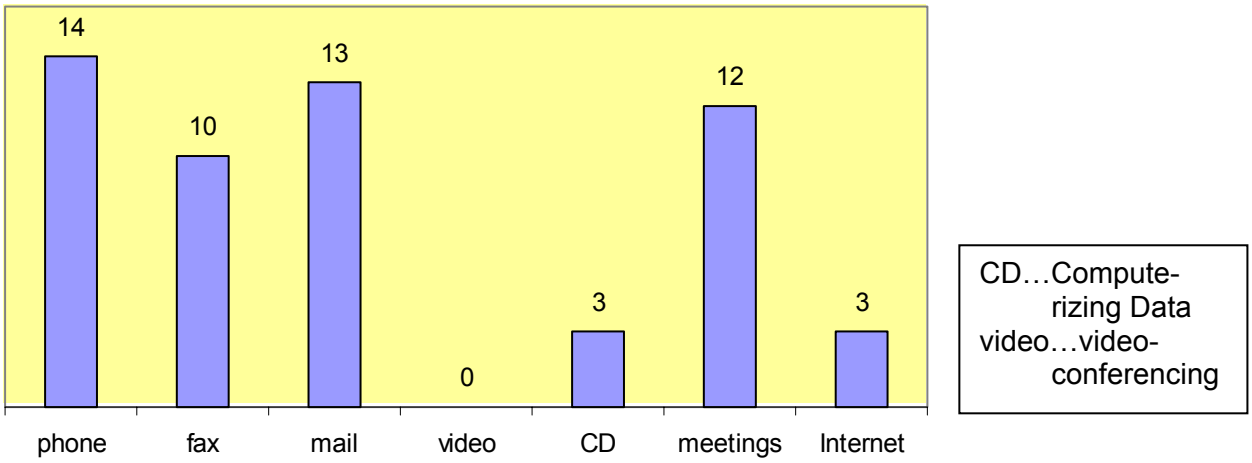
3.1 Do you use a computer based timetable design tool to design a timetable?

14	YES	0	NO

3.2 Do you use the same tool for designing international routes?

11	YES	3	NO

3.3 How do you contact other IMs or get contacted by other IMs with regard to cross-border timetable design? (several answers were possible)



Further specifications were given:

- International communication system PATHFINDER
- Sending electronically designed documents.

3.4 What kind of interfaces and/or data formats are you using to communicate with other IMs in timetable matters? Please attach the descriptions if you have one.

Answers
e-mail; minutes of the FTE meetings.
data format XML, please contact the Pathfinder project manager Uwe Kolk.
special programme.
Paper, XL files, no predefined format.
in part Pathfinder.
Pathfinder.
Freight Freeways as you probably know already and some unauthorized formats; newly: Pathfinder that we expect a lot from.
MS XL and Word.
OeBB-System Roman D (Timetable Construction program) FBS.
written demands from FTE conferences.
generally .doc but actually we are also able to design formatted ASCII files and XML files if wanted; in the future the latter will be the standard.

3.5 Within the FTE (Forum Train Europe) framework, the new system PATHFINDER has been developed and is being put on the field by various companies. Are you familiar with PATHFINDER?

12 YES	2 NO

If "YES", do you already use or plan to use PATHFINDER for international timetable definition?

8 YES	5 NO

What, in addition to PATHFINDER, should be implemented to support the international path allocation?

Answers
Of course we are partners in the project Pathfinder. I myself was the project leader within NL for this system. Additional use of connection to the national timetable systems. Currently developed in the new coming Dutch timetabling system.
retain customer and corridor meetings.
Nothing.
the harmonisation of national allocation processes and rules.
a new and dynamic process in the new RNE / FTE setup Participation by all possible users that update their data frequently (once per day); the new system for calculation of prices EICIS will also help.
equal rules and routines; coordinated process.
We will have it from 2nd half of 2004, now we are preparing it.
working interfaces between pathfinder and national systems.

3.6 Which of the following technologies or processes could help to advance the process of international route planning in your opinion?

a) Video conferencing	4	helpful	6	not helpful	4	don't know
b) Computer based workflow	12	helpful	0	not helpful	2	don't know
c) Sharing time-distance graphs	7	helpful	2	not helpful	5	don't know
d) Sharing other timetable information (e.g. textual data)	11	helpful	0	not helpful	3	don't know
e) Data exchange and alignment during the design process (e.g. before a PATHFINDER dossier is created)	9	helpful	0	not helpful	5	don't know

3.7 The time-distance diagram is not the only design endeavour and information that characterises an international train.
In your opinion, what are the essential data or constraints that should be additionally provided to have an international path ready for validation and selling to railway undertakings?

Answers
train weight - time of departure and arrival of train - category of line - category of train.
data in two sections: Physical: weight, length, axle load, break perc. etc Environmental: noise, vibration, dangerous goods.
accessing and charging for local infrastructure.
don't know.
technical train parameters.
See the Pathfinder project where we agreed on the needed data.
train-weight, length and speed; loading gauge, axel load, traction.
technical data of vehicles and safety installation – tables of load? – technical data of the lines (gradient profiles).
train parameters.
type of freight, tonnes, break percentage, length.
train handling characteristics during train stops, braking, traction, weight, length, speed, RID, UTI .... and so on.

3.8 Would you be willing to share information about sparing capacity with other IMs to advance the process of international route planning?

12	YES	2	NO

3.9 Do you always get all essential data from your neighbour IM in the process of international route planning?

11	YES	3	NO

If “NO”, which are the essential data which are not yet managed in the process of international timetable planning? Please describe

Answers
technical data of infrastructure.
The neighbour IM doesn’t have always the essential data for my country.
We are receiving essential data as ordered by foreign railway undertakings but very often these data are different in relation to the order of the national Railway Undertaking.

3.10 Beside formal timetable design and path allocation (e.g. within Forum Train Europe, FTE) do you currently make, or have made in the past, joint capacity analysis and studies with your neighbouring IMs?

8 YES	4 NO	2 don’t know

If “YES”, please give experience feed-back and recommendation for further practice:

Answers
Currently in use is our own method of designing of timetable.
unfortunately no good experiences, especially in the former platforms TERFN no good look and feel between market and production Hopefully RNE will make a better score in this way.
North-South corridor development Brenner corridor.
Within RNE certain marketing studies has been carried out. They are however often a result of a combination of national studies.
Freight freeways and planning over Øresund fixed link.
Making the train allocation we are always in subordination position with internal organisation of neighbouring railways on north (HZ).
result is in any way a better understanding of the common situation on the corridor both sides of the border; generally result is further on a better use of capacity (=international capacity management) and resources improved paths and improved use of hubs, nodes and terminals, improved costumer consultancy during the ongoing timetable period.

3.11 What is (are) the timetable design tool(s) currently in use at your company for timetable design and path allocation? If possible, please name acronym and manufacturer.

Answers
Currently in use is our own method of designing of timetable.
VPT (own development of the former integrated Railways NS) consisting of different subsystems for product design, time tabling and short term planning.
Special programme. FPL (University of Munich) and GDP (Russian programme).
Softime - systra Internal MIS Systems.
RUT-K, DB Systems.
ROMAN SYSTEM (SIEMENS).
TPS (named STRAX at Banedanmark) Delivered by HaCon.
Trainplan – Vosslov.
Timetable design: Roman D Path allocation: none.
SENA JVRT, construction timetable by IT tool. Software is created by University of Pardubice and University of Zilena (Slovakia) .
Roman D by Siemens PSA.
Equalized FTE model and for design – computer.
ROUTES software - Iasi Company Romania TrainPlan software - VST York Great Britain.
ROMAN-D SIEMENS LDZ ÖBB (Path allocation).

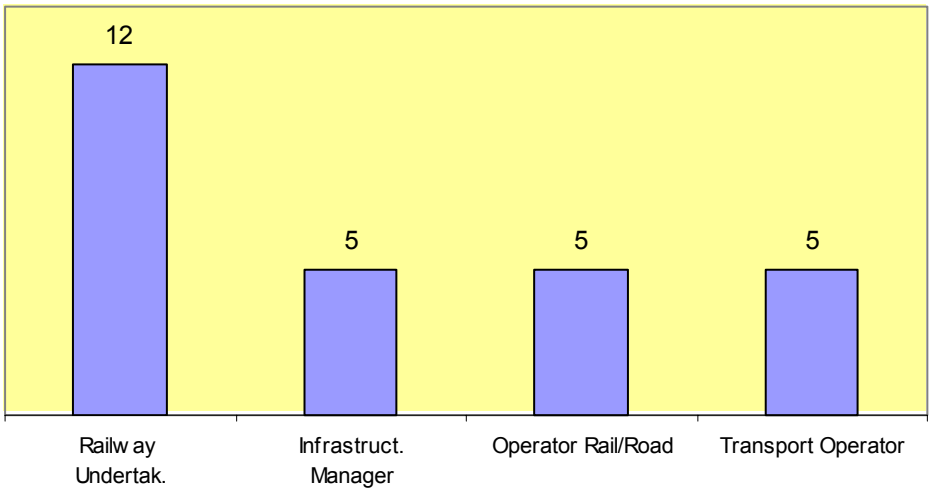
3.12 Do you expect and/or plan for any major technological or process developments for these tool(s) in the next 2 years with regards to international route planning? If so, please briefly comment.

Answers
ROMAN Siemens from timetable 2004/2005.
Yes: We are currently developing a complete new generation of timetable system also connecting to Pathfinder. Focus on e.g. pre constructed paths Again: own development between ProRail and the nowadays NS organisation.
No
We are redesigning our internal tools.
improvement of interfaces to deal with customers (Rail Undertakings).

We expect to implement an immediate transfer of free paths from STRAX to Pathfinder this year.
Pathfinder.
We are planning the connection between our national system SENA and Pathfinder and EICIS.
several additional ROMAN tools in the moment building up of an general tool covering all steps of path allocation and communication; using partly so far existing tools and data; it shall allow a fully electronically paperless procedure.

4. Business Process

4.1 Who are your customers? Please name the individuals or groups that ask you for rail capacity allocation on international routes and get back the result of your work (several answers were possible).



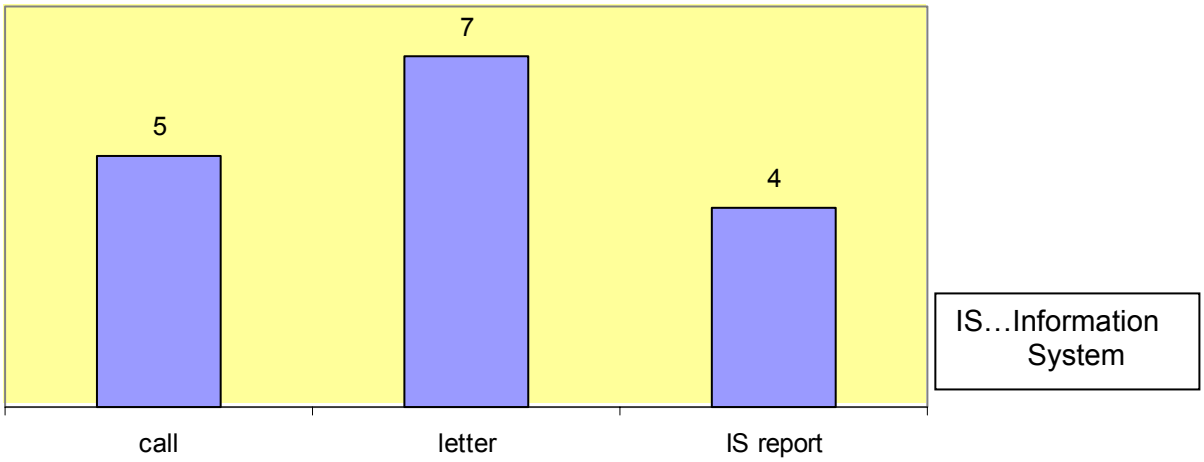
Further specifications were given:

- domestic RU
- local authorities (especially for passenger traffic)
- According to Lgs. 188/2003 the railway capacity can be required by every public or private subject having interest into transport activity. Train-paths can be ordered and allocated to Rail Undertakings only.
- Swedish National Road Administration
- nobody to 1.5.2004 (date of becoming member of EU)
- public organisations.

4.2 What are the end products of your work? (Please describe the output or attach a sample.)

Answers
timetable
timetable allocation different subproducts concerning special features on the Dutch network
EXCEL file transfer to customer
train-path offer
The final product is always a complete train-path including the tracks availability in all the involved installations and the access/exit times from/to terminals. The train-path offer includes the related charges. The final product (train-paths) is allocated by the Track Access Agreement (Contract for use of railway infrastructure) Normally invoices are granted on monthly basis.
We publish a yearly timetable book with allocated paths. On top we carry out daily modifications that are published in Train Announcements
timetable
train-paths coordinated with the origin and destination station
sale train-path
general timetable
Concrete timetable that will be realized.
• an annual general timetable covering all the network with allocated and available paths • path studies production of all needed papers • timetable diagrams and books for railway undertakings and staff of infrastructure

What kind of output do you produce? (several answers were possible)



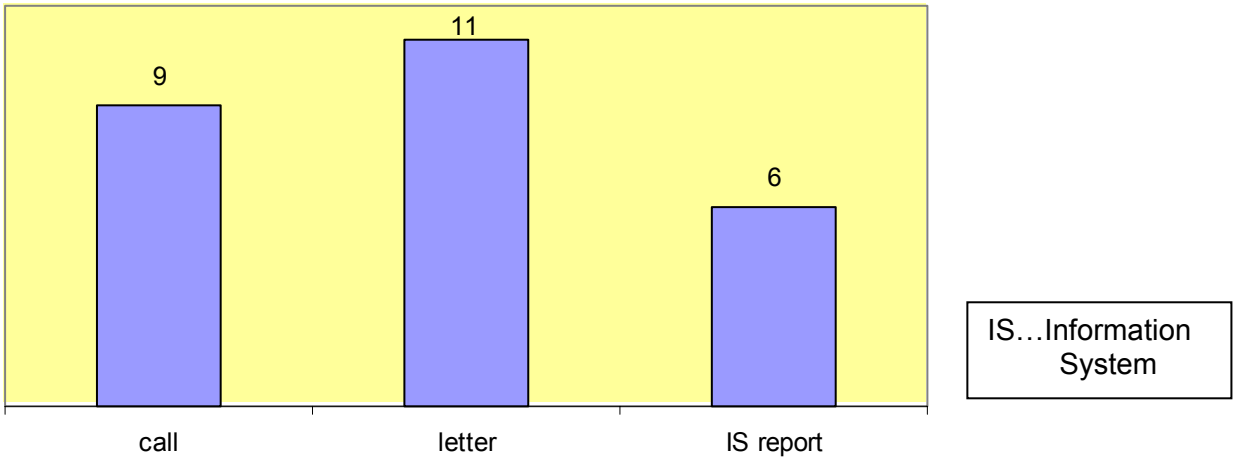
Other responses:

- timetable
- system data base releases of timetable to traffic control to RU´s
- direct e-mailing
- Time Table book yearly and daily (the daily adjustment)
- printed catalogue and CD for extra charges
- data of international trains are coordinated with the other IMs at international timetable conferences.

4.3 What are the resources (e.g. money, people, equipment, information, services) used by you in order to reply to a request for rail capacity allocation on international routes? How do you get the input? (several answers are possible)

Answers
people services
People VPt system Pathfinder information, information box phone / mail by the RU´s
People, equipment, information, services
Me!
Roman system and direct contacts - 20 people involved for international path drawing up
The resources are not allocated directly to international paths. The task is shared with national
mostly manload
telephone calls and data exchange with the involved IMs.
resources described in Network statement
2-3 men
train allocation
All above is needed depending on the request.

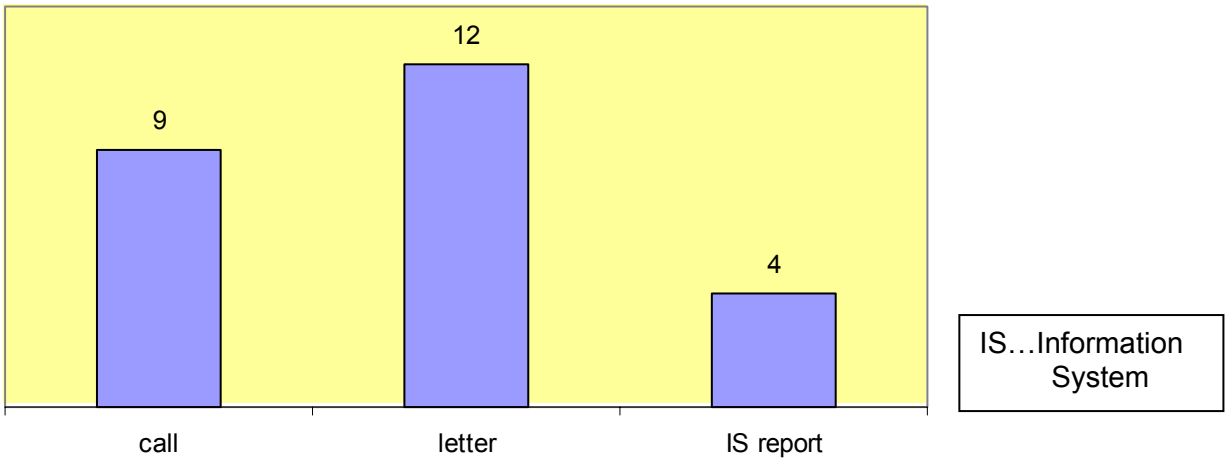
How do you get the input? (several answers were possible)



Other responses:

- Pathfinder Time table conference
- e-mails and other IT-solutions
- e-mail
- first of all meetings, e-mail.

4.4 What events prompt you to start to work on a request for rail capacity allocation on international routes?



Other responses:

- timetable conference
- e-mail orders
- e-mail, meetings
- meetings
- market development and analyses.

5. Train path charging on international corridors

5.1 Do you think that a fair charging system on international corridors…

a) should vary the charging fee according to the type of trains?	10	YES	2	NO	2	Don't know
b) should vary the charging fee according to the time of the day?	9	YES	3	NO	1	don't know
c) should vary the charging fee according to the weight of the train?	11	YES	1	NO	2	don't know
d) should vary the charging fee according to the expected congestion on the route?	11	YES	1	NO	2	don't know
e) should follow different national charging rules?	8	YES	2	NO	4	don't know
f) should distinguish between international and national trains on the same line section?	2	YES	10	NO	2	don't know
g) should give discounts to faster trains which are given lower speeds?	2	YES	11	NO	1	don't know
h) should give discounts to trains which are subject to lower quality of service (e.g. trains with more expected delays)?	4	YES	6	NO	4	don't know
i) should impose penalties on slower trains which impose lower speeds on faster trains on the same line section?	7	YES	4	NO	3	don't know

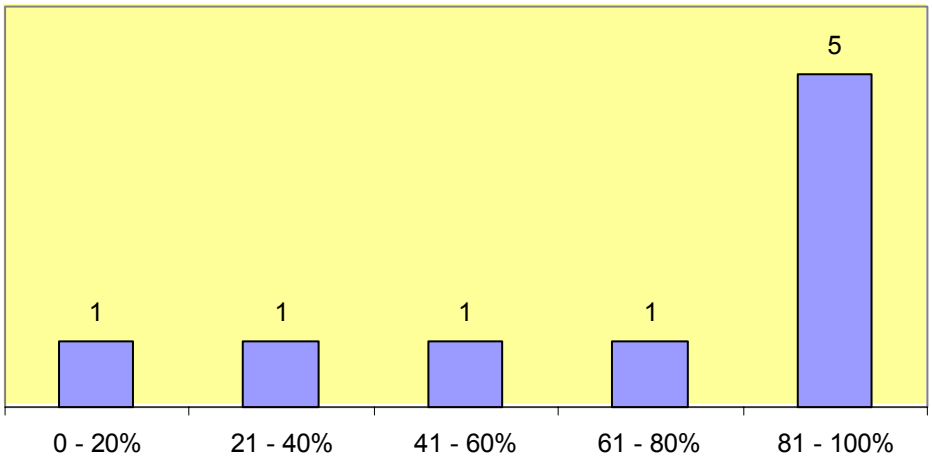
5.2 Does your current charging system …

a) vary the charging fee according to the type of trains?	12	YES	0	NO, depends on law	1	NO, depends on other reasons
b) vary the charging fee according to the time of the day?	4	YES	3	NO, depends on law	6	NO, depends on other reasons
c) vary the charging fee according to the weight of the train?	9	YES	2	NO, depends on law	2	NO, depends on other reasons
d) vary the charging fee according to the expected congestion on the route?	5	YES	3	NO, depends on law	4	NO, depends on other reasons
e) follow different national charging rules?	3	YES	6	NO, depends on law	4	NO, depends on other reasons
f) distinguish between international and national trains on the same line section?	2	YES	8	NO, depends on law	3	NO, depends on other reasons
g) give discounts to faster trains which are given lower speeds?	0	YES	8	NO, depends on law	5	NO, depends on other reasons
h) give discounts to trains which are subject to lower quality of service (e.g. trains with more expected delays)?	0	YES	8	NO, depends on law	5	NO, depends on other reasons
i) impose penalties on slower trains which impose lower speeds on faster trains on the same line section?	2	YES	7	NO, depends on law	4	NO, depends on other reasons

Descriptions of these other reasons were given:

- We have not experience about that because we use classic tariff systems.
- comment to 5.1 a: international definition of train types is missing
- comment to 5.2 f - i: solved during path planning and coordination with neighbouring IMs

5.3 In your opinion, what percentage of the infrastructure costs should be covered by the fees?



Four times the response “don’t know” was been given.

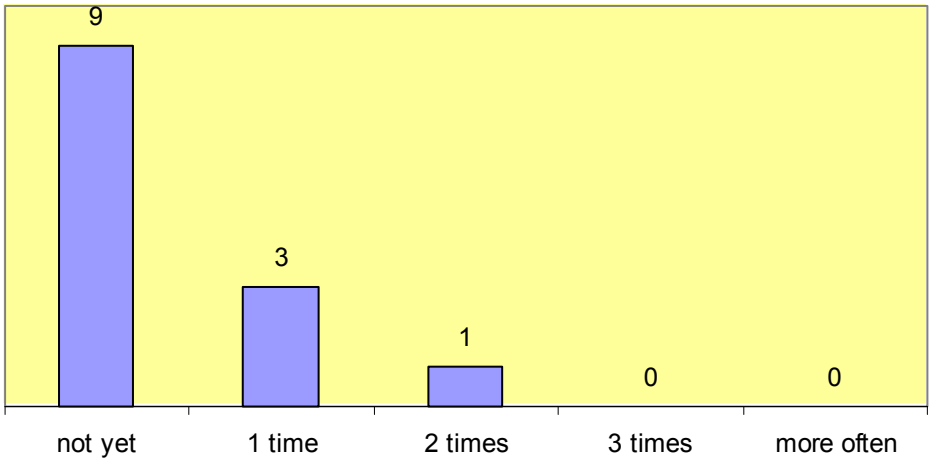
5.4 Is there something written about the capacity and the congested lines in your network statement or in any other document?

5	YES	6	NO	0	don’t know

If „YES“, please write down in which document:

- We don't have verified network statement yet!
- Net Stat allocation process
- Network Statement
- Document de Reference du Reseau (DDR) on www.railinfra.lu
- Network statement

5.5 Considering the last two years, how many times has your charging method been changed?

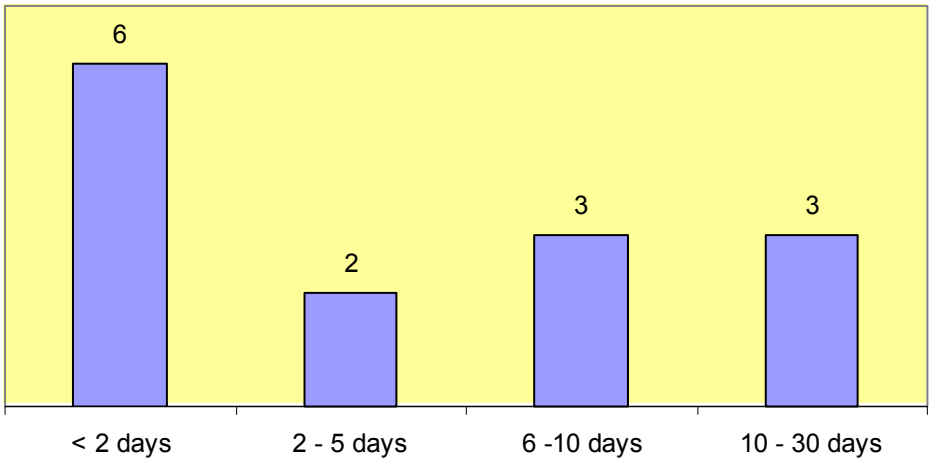


5.6 Please add any additional comments or observations about the previous points, if you consider them appropriate for a better analysis or understanding.

Answers
Network Statement of Latvian Railways is under preparation.
Actually the Italian charging system is being re-engineered by the Transport Ministry.

6. Capacity methods

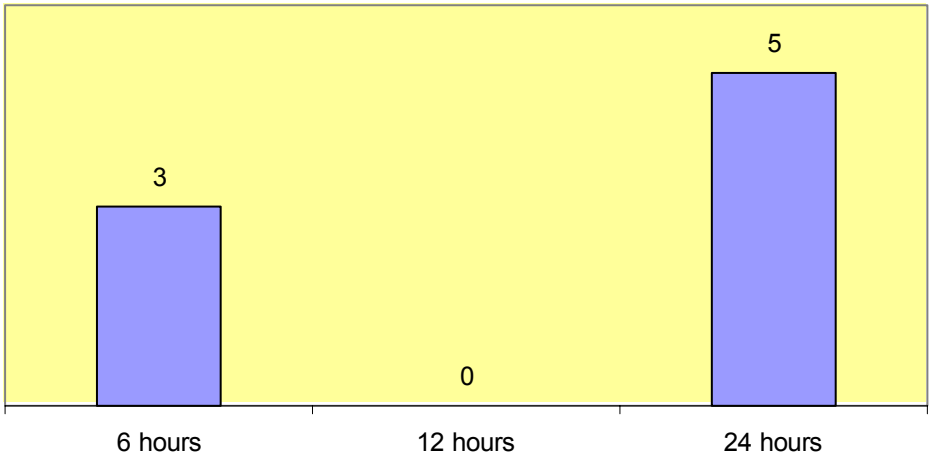
6.1 How long does it take you to respond to a request received on short notice for a new international train path (average time)?



6.2 Do you require fast planning or re-planning (adaptation) of timetables (i.e. within 1 day)?

8 YES	5 NO

If "YES", would you require that current performance be improved such that re-planning is carried out within:



6.3 For spare or additional path allocation, does your company use:

a) dummy or pre-constructed paths, e.g. available in a public catalogue	9 YES	5 NO
b) dummy or pre-constructed paths, not available as public catalogue	8 YES	4 NO
c) paths which are constructed ad hoc on demand	13 YES	1 NO

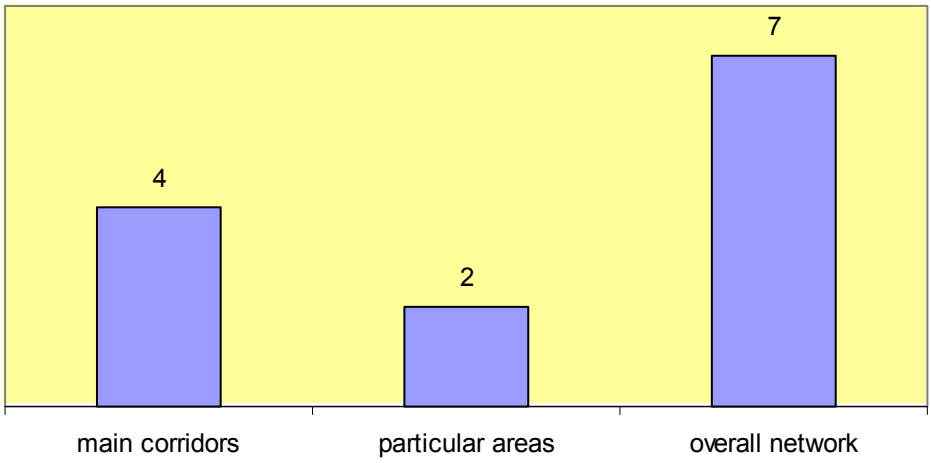
6.4 In designing timetables (train-paths) on international corridors do you think passenger and freight trains should have basically the same priority rules in capacity allocation?

12 YES	2 NO

If "NO" please specify or comment:

- national law defines priority rules
- public rail service

6.5 In designing timetables, do you consider the main corridors first or do you consider the overall network?



6.6 Do you use decision support systems (optimization algorithms) for timetable design and path allocations?

3 YES	11 NO

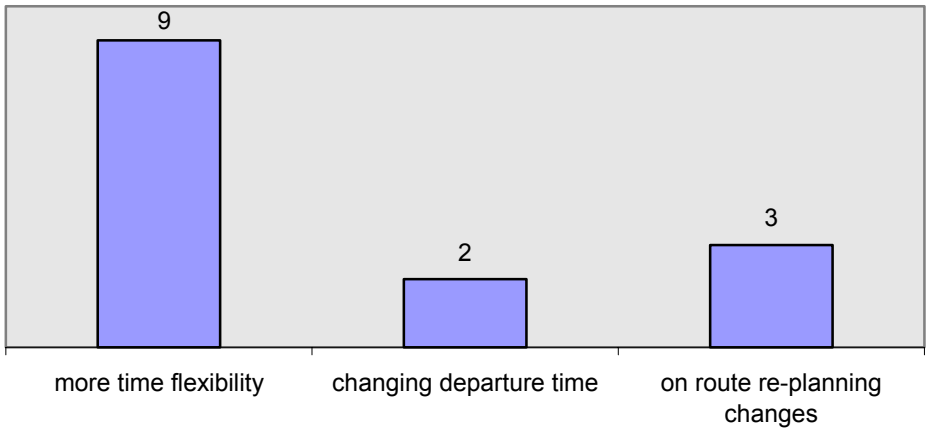
Please specify in both cases:

- not available. Only slightly prototyping a new developed system
- small network easily controlled
- to many special reasons
- Roman system
- that the input of needed characteristics and rules to such a decision support system will require more time than the man power procedure;
  further on within a system all real situations of daily traffic business never can be foreseen.

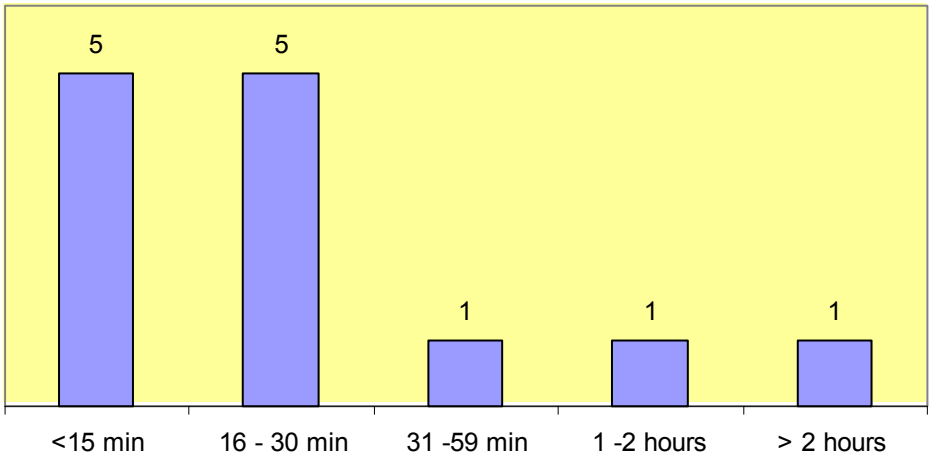
6.7 In designing the national or international working timetables, are you satisfied with current tools for capacity allocation?

9 YES	4 NO

6.8 In designing and providing path allocation on international corridors, what do you think are the more important and critical business factors that should be improved and asked for by your clients in freight transport?



6.9 Which regularity tolerance would you accept for the arrival of international freight trains?



6.10 Considering that the UIC (Fiche 451-1) gives recommendations for regularity margins, do you think the definition of more <u>international standards</u> are required or may be useful, such as:

a) rules for running time calculation	9	YES	3	NO
b) locomotive traction power margins	8	YES	3	NO
c) haulage availability	7	YES	4	NO
d) standard catalogue paths	9	YES	2	NO

6.11 UIC has recently made available a new method for capacity evaluation (Fiche 405-1) based on the "compression method". Are you aware of it?

4 YES	9 NO

If "YES"

Would you think it is useful to implement capacity algorithms based on the new UIC Fiche 405-1 (2003)?	2 YES	1 NO
Have you already tested the method on practical cases?	2 YES	1 NO
Do you consider it useful to implement the method as a software tool?	2 YES	1 NO

7. Additional Questions

7.1 Is the EU Directive 2001/14/CE of the first railway package transferred to national laws in your country?

9 YES	4 NO

7.2 Would you be able, in principle, to provide PARTNER with data or other information to realize realistic case studies of international path-allocation? (e.g. data on past years/timetables so that confidentiality is preserved and any other constraints are satisfied)

8 YES	5 NO

7.3 Can you please provide a copy in English or any other information (e.g. website) on how to get a copy of your Network Statement (if available, as required by EC Directive 14/2001)?

Answers
http://www.prorail.nl/ProRail/Documentatie/netverklaring/
http//:snb.bahn.de/cda_inter_cda/0,2702,32527-0-1-1,00.html
http://www.rfi.it
http://www.banedanmark.dk/1024/visArtikel.asp?artikelID=129 (draft in danish)
http://www.banverket.se/templates/StandardTtH____6038.asp
www.raaberbahn.at
Only Czech Version! (1.5.2004)
www.railinfra.lu (in French, no English version)
193.81.167.162??

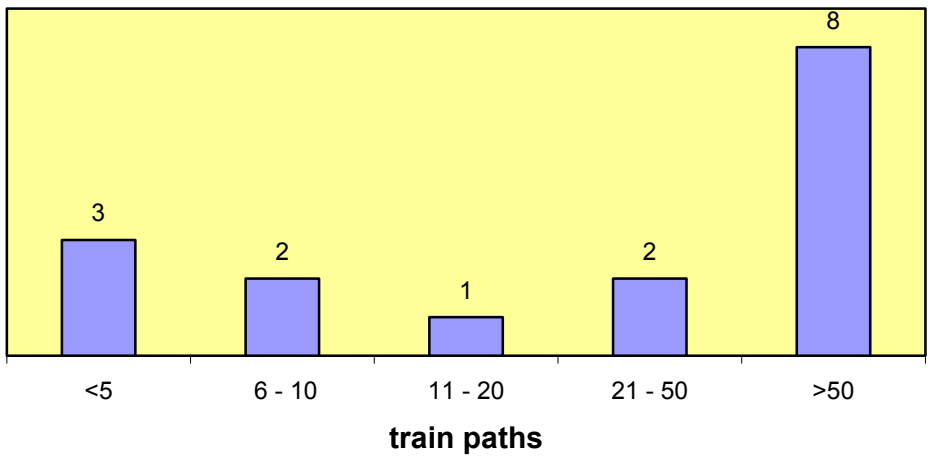
PART Railway Undertaking

Results of the interviews with European Railway Undertakings

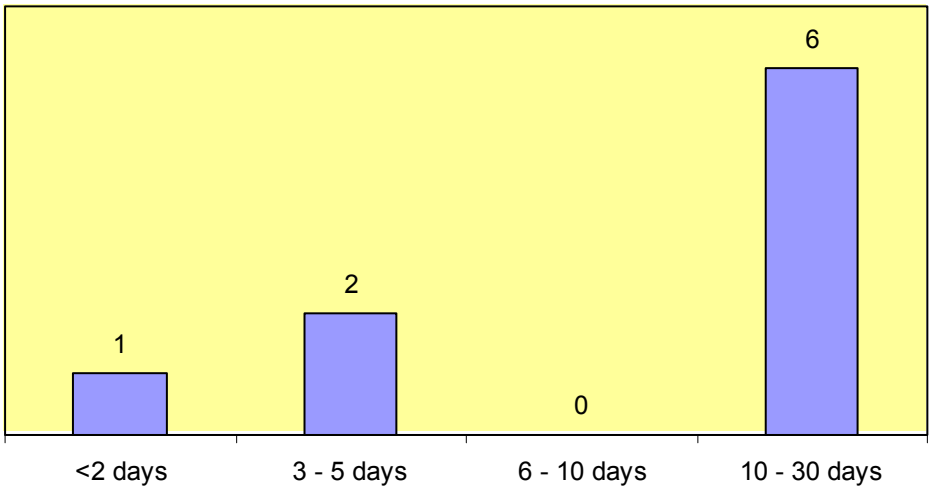
There was given the response of 16 European Railway Undertakings to the questionnaire.

1. Allocation of international train paths for regular timetable

1.1 How many train paths for international trains do you request from Infrastructure Managers (IM) in addition to the yearly planned timetable?



1.2 How long is taken by the IM to make an offer for an international train path (average time)?



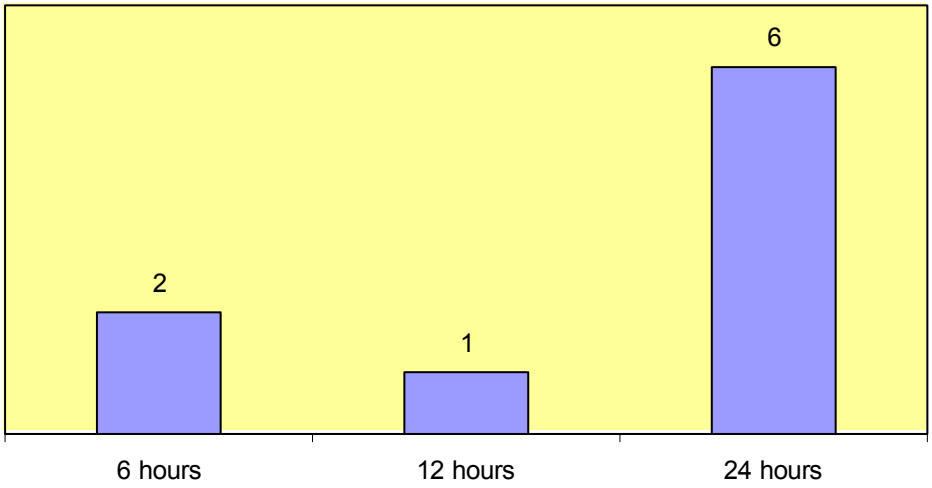
Further specifications were given:

- 2 months
- between 1 till 2 months
- 8 month
- more than 1 month
- 2-4 months
- more than 1 month.

1.3 Do you require fast planning or re-planning (adaptation) of timetables (i.e. within 1 day)?

10	YES	6	NO

If “YES”, would you require that current performance be improved such that re-planning is carried out within:



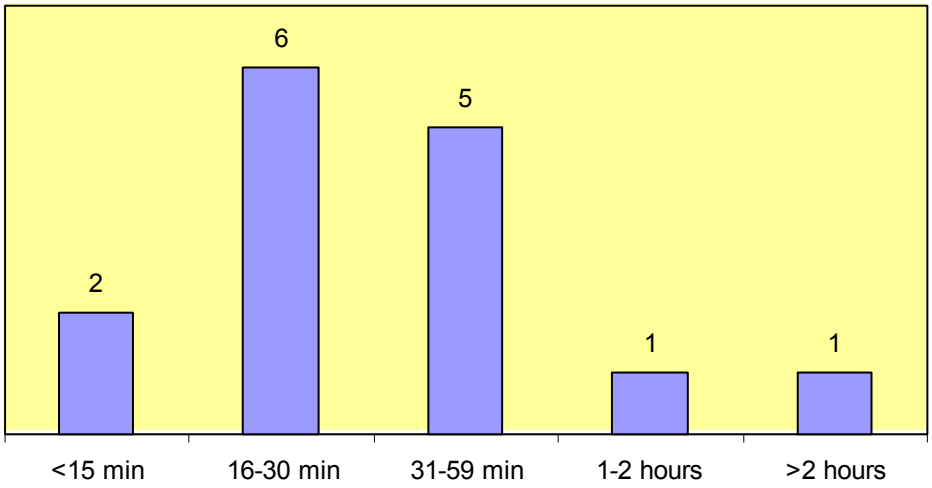
Further specification was given:

- 15 days.

1.4 Would you require to adapt or have a tailor-made (ad-hoc) path?

4	Adapt	10	tailor-made	2	don’t know

1.5 Which regularity tolerance would you accept for the arrival of international freight trains?



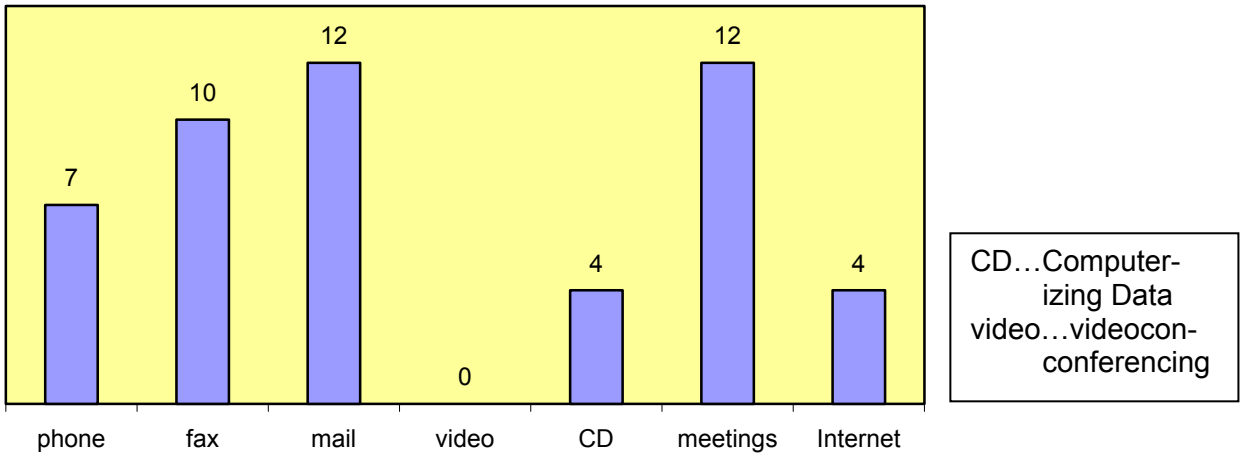
1.6 These are the common input data that have to be transmitted to the Infrastructure Managers:

- train gross weight
- train type
- departure station
- intermediate stop-off points
- border stations
- running-train days
- running period
- design series of locomotive(s)
- departure time
- intermediate stop-off time
- border times
- arrival time
- arrival station
- path type, maximum speed

Are there additional data necessary? Please describe or transmit the form with the demanded additional data.

Answers
• coding combined transport load units and combined transport lines • train composition under consideration of RID • inspection of wagons • alternative route • further restrictions (not to be hump-shunted)
• maximum weight
• fouling of the gauge and gauge
• train length • minimum stop-off times • minimum running times between stations and/or other intermediate stops • technical stops times • additional times between stations and/or other intermediate stops
• braked weight • overall length • axle-load
• type break • train maximum length • stop stations on the path train • member licence
• gauge
• train length • wagon's number, no. axes per wagon, type of wagon • max. carrying capacity (wagon) • type of loading unit (container, swapbody, trailer) • seals and loading unit number • dangerous goods
• train length and gauge
• length of the train
• characteristics of lines • codification • braking of the tara • minimum braked weight percentage

1.7 What kind of communication do you use for your path request? (several answers were possible)



Further specifications were given:

- FTE to be market place

1.8 Are there any other factors you would like to be improved in the response of the IM? Please describe:

Answers	Classification
general support of the process chain from the order till the invoice of the services of IM (the invoice has to be traced back until the order) by a computerized procedure.	data exchange
contingency plans to solve dysfunctions.	faster response
an own estimation of journey times with the help of simulation and parameters are meaningful to create own preliminary route.	data exchange
technical reasons when the IM change anything we have proposed.	faster response
that IMs are aware of EEC regulation 2001/14 art 23,01.	faster response
time of realisations of new paths Collaboration between the different IMs in Europe.	faster response
• it should be offered alternative solutions (e.g. another time or date) by IM if an inquiry is been rejected, • it would be desirable to have only one contact person (not for every country another one) to organize an international transport.	faster response data exchange
response time of IM faster (1 week).	faster response

1.9 Do you think that a fair charging system on international corridors…

a) should vary the charging fee according to the type of trains?	13	YES	2	NO	1	don't know
b) should vary the charging fee according to the time of the day?	8	YES	6	NO	2	don't know
c) should vary the charging fee according to the weight of the train?	12	YES	2	NO	2	don't know
d) should vary the charging fee according to the expected congestion on the route?	9	YES	6	NO	1	don't know
e) should follow different national charging rules?	3	YES	11	NO	2	don't know
f) should distinguish between international and national trains on the same line section?	5	YES	9	NO	2	don't know
g) should give discounts to faster trains which are given lower speeds?	9	YES	4	NO	3	don't know
h) should give discounts to trains which are subject to lower quality of service (e.g. trains with more expected delays)?	8	YES	7	NO	1	don't know
i) should impose penalties on slower trains which impose lower speeds on faster trains on the same line section?	7	YES	8	NO	1	don't know

2. Additional points for path allocation

2.1 What do you think is missing or should be improved for your business?

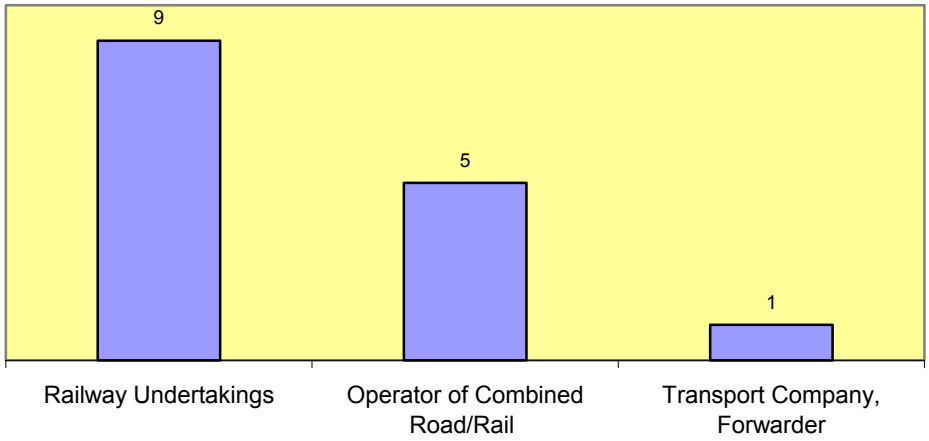
Answers	Classification
One Stop Shop service for allocation of national and international train paths should be able to answer within 24 hours.	service
reliability time lines and quality.	quality
free access and consideration of the last miles, e.g. conditions of branch-line service and connecting stations or available service capacity of terminals.	service
• more time to adapt some path allocation changes • to trust at least 70% the information received by IM about the infrastructure in the next 2 coming years.	quality
market segments to be considered as per EEC 2001/14 Art 8.01.	fees
I think that it is very important to determine the statute rule for path allocation in EU and to statute the rule for communication between national railways and meetings.	quality
• the focus on the market • Individual consideration in relation to the geographical location.	service
• Train's speed quality of services has to be improved performance of the train (weight/length). • Profiles of the lines should be increased works have to be scheduled in agreement with the others IMs (not all IMs schedule works in the same weeks) assign reserve paths to the trains (in case of previous delays).	quality improved infrastructure
Catalogues for international paths (non-stop transports).	service
• acceleration of path allocation • increased flexibility in finding alternative solutions.	service
Ranking list of trains; which trains have priority? Passenger / Freight trains or Freight / Freight trains.	quality

2.2 Please add any comments or observations above the previous points, if you consider them appropriate for better analysis or understanding.

Answers	Classification
more comprehension of IM for the requests of RU (special of big RU).	service
Quality is essential to keep customers.	quality
1.9 a) … type of trains? Passenger trains, Freight Trains or are the Freight trains further differentiate?	fees

3. General information

Classification of the company

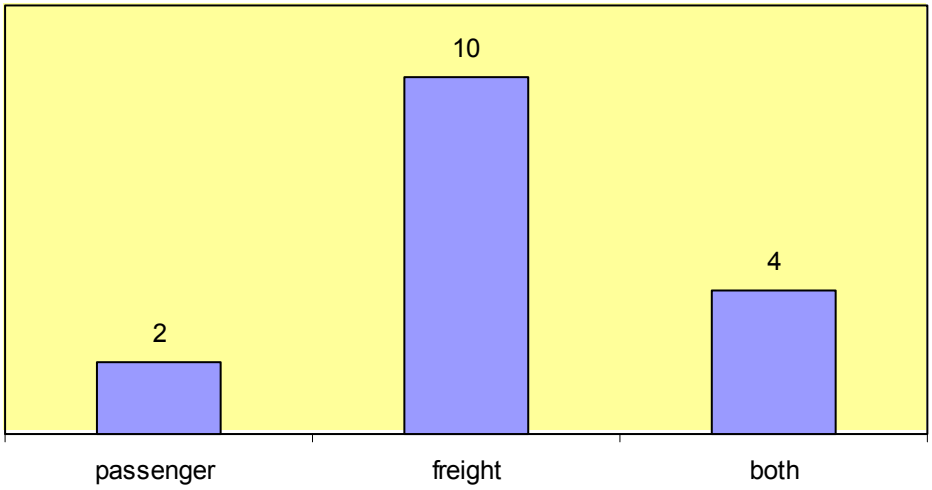


Other train Operator:

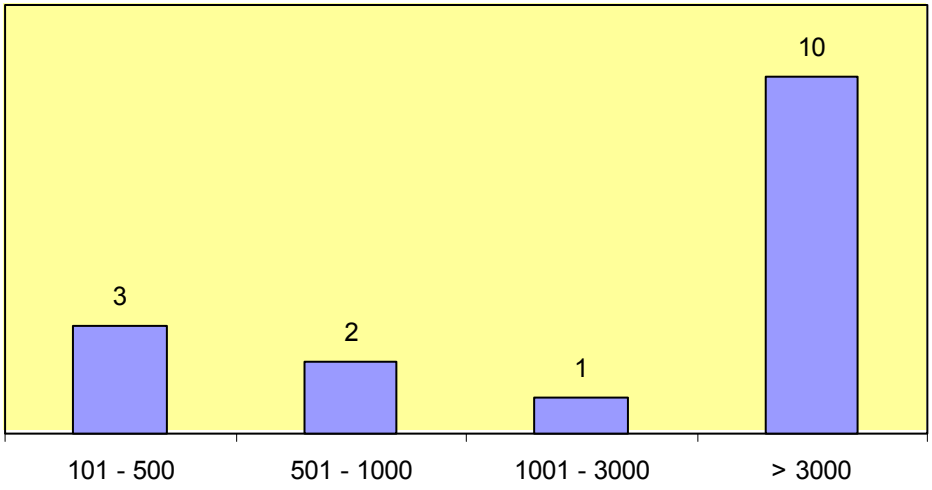
- Company working with four RUs (German Railway DB AG, chemin de fer Belge, chemin de fer France, railway of The Netherlands) to run international high-speed trains
- Railway Undertaking - chemical company with external Railway Undertaking.

4. Statistical information

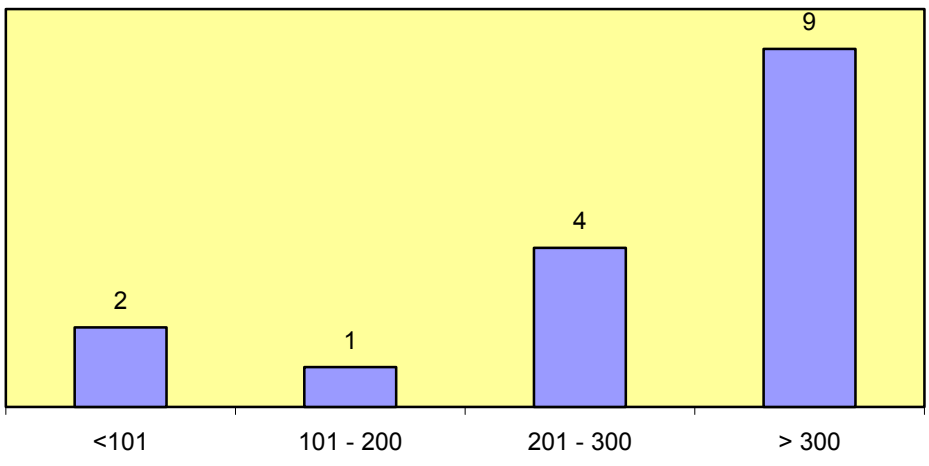
4.1 Which kind of trains do you operate?



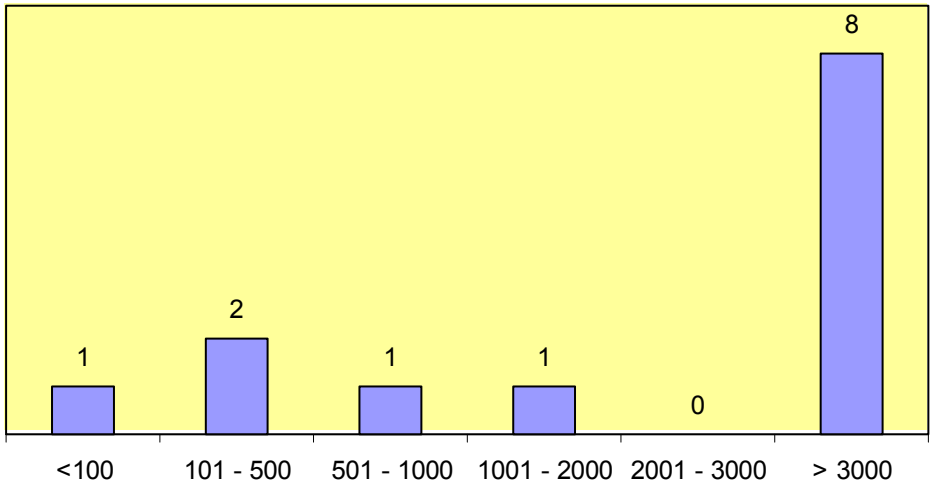
4.2 Number of trains per annum:



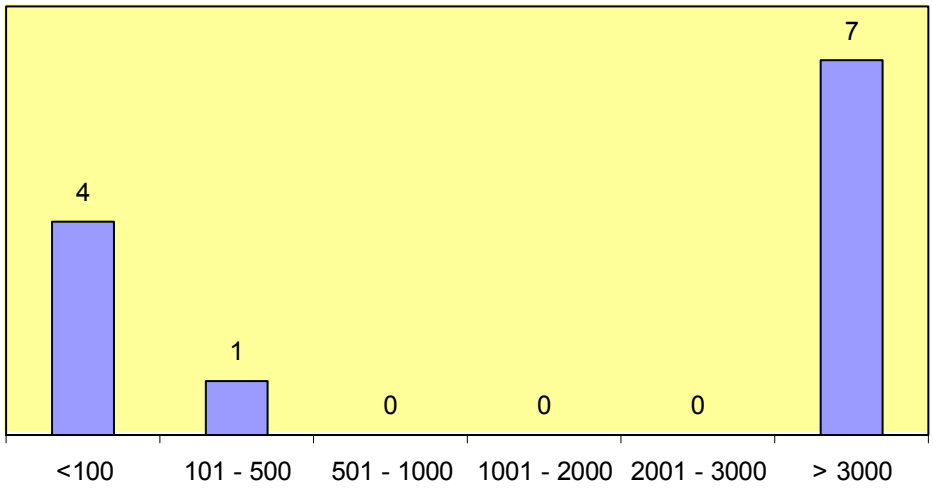
4.3 Number of running international trains that pass one or more European borders per annum:



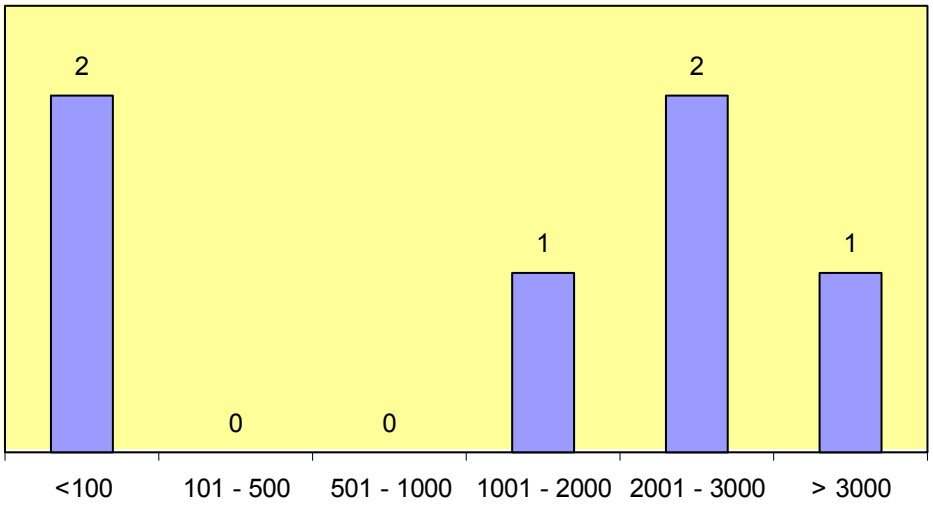
4.4 Figures per annum:



Freight trains in 1000 t



Freight trains in 100 TEU



Passenger trains in 1000 passengers