## Forum Train Europe FTE The European coordination platform of railway undertakings



FORUM TRAIN EUROPE PLANNING TRAINS TO CONNECT EUROPE

# Introduction to the topic:

Allocation Rules (AR) and socio-economic modelling

supporting document for stakehoders 29.11.2024



More information (FTE website)





Capacity is getting scarce







Need for more capacity...



But also, better use of existing one... Define better **Allocation Rules...** 

### **Allocation Rules**



#### **Classical approach**



#### Situation description:

- > Two requests in conflict are compared
- > Priority given based on traffic type / paid TAC\*
- $\rightarrow\,$  Compromise solution could have been found in coordination dialogue
- → But the expected winner is not motivated for compromises why should?
- $\rightarrow\,$  So, "winner" and "loser"

#### Can we change it to win-win situation?

### **Allocation Rules**



#### Scenario approach



#### **Potential valuation approach**



#### **Step sequence**

#### 1. Market dialogue

→ RUs / IMs may find solutions (experience show we solve most issues)

#### 2. RU-IM identification of possible scenarios

 $\rightarrow$  Always more than 1

#### 3. Socio-economic valuation

- $\rightarrow$  comparison of scenarios
- $\rightarrow$  No compromise  $\rightarrow$  scenario with "best value"

	Scenario 1 (classical)	Scenario 2	Scenario 3
enarios			
Path excluded	1	0	0
Value («RU cost»)	- 3.500 EUR	0 EUR	0 EUR
Paths displaced	0	2	3
Value («RU cost»)	0	- 1.350 EUR	- 780 EUR
Total loss	- 3.500 EUR	- 1.350 EUR	- 780 EUR



#### **Potential valuation approach**



#### Items of Socio-economic valuation

- > Standardised costs/values per train category
- > Negative "virtual" cost counted per:
  - $\rightarrow$  Excluded path
  - $\rightarrow$  Displaced path (per min)
  - $\rightarrow$  Prolonged travel time (per min)
  - $\rightarrow$  Extra train-km (re-routing per km)
  - $\rightarrow$  Broken association: relations between trains)

(turnarounds, wagon/passenger/train staff transfers)













#### **TCR Timing Evaluation (paths only)**

> Socio-economic modelling as instrument for TCR timing evaluation?

 > Alternative: comparison of standardised compensation to be paid by IMs (see <u>Commercial Conditions vision</u>)





#### TCR Timing Evaluation (IM and RU costs)

- > Socio-economic modelling as instrument for TCR timing evaluation?
- > Can TCRs be also considered?
- > It is NOT the total TCR costs valuated
- > ONLY the "TCR cost difference" if executed in less "market-harming" times.
- > The IMs' extra costs for "TCR repositioning" can be valued against the impact on RUs
- > For instance, as in the Dutch model see ProRail's calculation model



FAQ



Shall RUs provide individual costs and (sensitive) data?

Shall each case have specific calculation method?

Would it not be too time consuming?

No!

No!

Formula remains the same. The standardised values are identified via expert studies (one-off task).

They represent the market, not 100% each specific situation.

Standardised costs/values are used.

**No!** IT solutions for calculation facilitate easy application by IMs / RUs.





# Was this somewhere already applied in practice?

Yes!

Priority	Cost pa effe	rameters cts calcul	for the for the for the form	ollowing train	Parameters for excluding of train path				
category	Transport time	Transport distance	Displaced path time	Excluded train path	Benefit limit for train path	Corr. factor basic time	Timing Load		
Code	SEK/min	SEK/km	SEK/min	SEK/min	%	%	Code		
Α	В	С	D	I	J	к	L		
GS	269	61	166	-	15 %	2 %	GB201211		
GT	233	60	140	-	25 %	2 %	GR401410		
GN	153	65	80	-	35 %	2 %	GR401409		
GR	204	59	118	-	35 %	2 %	GB200710		
GF	81	58	26	-	45 %	2 %	GR401410		
GO	61	43	20	-	50 %	2 %	60 km/tim		
SP	1 238	104	841	-	15 %	20 %	PX600616		
RP	795	104	509	-	15 %	15 %	PX600616		
RX	546	86	228	-	15 %	15 %	PX410020		
RS	261	30	141	-	20 %	12 %	PX610016		
RL	184	32	103	-	30 %	12 %	PX510018		
RI	51	24	11	-	40 %	12 %	PY310014		

Costs for prolonger travel time/ displacement per minute, cost per extra train-km (all in Swedish crowns - SEK) In Sweden, the socio-economic model for scenarios is used for Annual Timetable conflicts since 2011. Both the RUs and the IM are satisfied with the project / system.

### 1.22 Priority categories for train paths – passenger transports

Priority categories must comply with all identification conditions in one (and only one) of the rows (with an unique key) belonging to the Priority Category of interest

		lden-	Ident	tificatior	n con	ditions	Type of traffic, description	Example	
Priorit catego	Priority tifi- category ca- tion time ber share share share time time time time time time time tim		re aimed to give an						
Name	Code	key	of	passenge	ers	transport	estimation of the signification	or each category	
Stor- pendel <sup>1</sup>	SP	SP1	≥ 700	≥ 75 %	≥ 75%	-	High share of time sensitive regional passengers, maximum load factor	Stockholm commuter train, peak periods	
Regio- Pendel	BD	RP1	≥ 300	≥ 75 %	≥ 75 %	-	High share of time-sensitive regional passengers, very high load factor	Big cities commuter train, peak periods	
Regional commuter	RP	RP2	≥ 300	≥ 75 %	≥ 75 %	-	High share of time-sensitive regional passengers, very high load factor	Very heavy regional relations, peak periods	
Regio-		RX1	≥ 200	≥ 75 %	≥ 75 %	-	High share of time-sensitive regional passengers, high load factor	Heavy regional relations	
Regional max	RX RX2		≥ 75	≥ 75 %	-	Must	High share of time-sensitive passengers, medium high load facto + Rapid transport	Regional express traffic, rpeak and mid-peak periods	
Regio-		RS1	≥ 75	≥ 75 %	≥ 75 %	-	High share of time-sensitive regional passengers, medium high load facto	Medium-principal regi- ronal trains, peak periods	
Regional standard	RS	RS2	≥ 25	≥ 25 %	-	Must	Frequent regional traffic, medium- high share of time-sensitive regional pass low load factor. Rapid transpor	Regional express traffic, off-peak periods	
1									
in categ	gory	/				Tra Identific	nsparent cation criteria	Explanation of ca	

Train category



#### Was this somewhere already applied in practice?

1.31 Cost parameters for associations

Yes!

In Sweden, the socio-economic model for scenarios is used for Annual Timetable conflicts since 2011. Both the RUs and the IM are satisfied with the project / system.

#### Marginal costs for the following effect Priority category Duration Interrupted Code SEK/min SEK/association Κ L м АРХ 693 59 300 APH 326 27 900 APS 204 17 400 APL 114 9 7 7 0 API 33 2 790 114 AGX 87 400 AGH 68 52 400 43 32 800 AGS



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Timetabling construction system, where the socio-economic value is visible right away as a support for the planner.

FAQ



#### It is a significant change! Change management will be important!



Change management recommendations were collected from IMs with socio-economic allocation rules experience

European Framework for Allocation Principles for Capacity Shortage Change Management Recommendation, v1.0

#### Change Management Recommendation

Introduction

The purpose of this document is to provide recommendations for change management that should lead to the successful implementation of socia-comomic evaluation in the capacity participhilabication in case of capacity shortages and the relacitance of affected stakeholders to track a compromise within the same not part of the document. The recommendations are based on the interview and observations of the socio-economic model projects in Sweden, Nerway and Finland, conduced by FTE with INERVIS support is important to react and here that these notational approaches have not applied these principles to international capacity cases and thus should not be followed or copied as is. Nevertheless, in all three cases, the change present the socio-economic approaches in the od 'train catagory if c' as model inflecting present the socio-economic approaches to internationalizational rail stateholders. The change management and caceptance of this approach will approve date involvement of these stakeholders.

We express thanks to TRV (IM SE), Bane NOR (IM NO) and FTIA (IM FI) for sharing their experience.

Before implementation

- Implementation by the M desires that there are economic experts either within the MI and/or outsurvoid; in the case of the latter, the actor time for the lendering process has to be considered.
   The realistic timeline for implementation from the very first discussion to the final socioeconomic model sublication in the network statement is a minimum 13 svers.
  - The initial project took 3 years in SE, 2 years in NO and 1 year in FI (in FI, the external consultant was already pre-contracted). None of the initial projects covered TCRs.
     The updaterivelsion projects red to have shorter imielines, it took 1 year in NO, 2 years in SE (including the TCR inclusion). The study that FTE-RNE aims to tender should also decrease the workload of thure projects.
- It is recommended to set up a project plan and project timeline (target timetable period).
   Within the project, the demand for an IT solution shall be defined since the decision-making and optimisation has to be automated as much as reasonably possible. The experience from NO, SE shows that the usage can start even with an excel solution.

Acceptance and sector involvement

- The key is active, transparent and (public) communication from the project beginning, not only
  once the results are available. A noticed good practice in SE was that the IM presented the project
  at customer events and event transportinitivity after to increase availances and motivate for
  involvement.
   Actively involve the applicants already in the model development, all projects established a
- A dtveyl privotve the applicants already in the model development, al projects established all group/overshops with applicants. In F1, the RUs are not only part of the draft model discussion but also part of the decision-making on the overall model framework, even before the draft model was built. In tooh NO and SE, the MIs consulted the draft model with eRUs and tried to incorporate their findings and evaluate their doubts. Although it is usually not possible to consider all remarks (due to the conficting) views) the fact that the optorunity is given in a transparent and open discussion increases the acceptance. The consultation should also be collective (joint workshop/avventi), not only bitateal M-applicant.
- Ensure that all market segments are included. The experience from SE and NO shows that it is not necessary to motivate all applicants to the table, but the participation of part of them is enough. Nevertheless, the sample has to represent all market segments and include applicants of different sizes.

#### Change management recommendations: "How to successfully implement socio-economic capacity allocation principles"



Download the document: https://www.forumtraineurope.eu/fileadmin/Allocation\_Principles\_Change\_Management\_Recommedantion\_v1.0.pdf

### **Feasibility Study for European Allocation Rules**



#### **Study information**

- > In 2023, FTE/RNE commissioned feasibility study (CEF co-funding) with focus on:
- $\rightarrow$  Using socio-economic modelling in capacity planning,
- $\rightarrow$  Using minimum input from RUs (standardised values and categories)
- $\rightarrow$  Handling of trains crossing borders
- $\rightarrow\,$  Meta-analysis of available national and EU average values



Final report – Feasibility study on using Socio-Economic Cost Criteria in Case of Capacity Shortages

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Figure 19. Waiting time for planned arrival at station.





IMFT

11.22

28.05

56.10

112.20

196.35

336.60

IMFT

11.22

28.05

56.10

112.20

196.35

336.60

3.48

8.70

17.40

60.90

OWN BT

15.32

38.30

76.60

153.20

268.10

459.60

#### **Study information**

EXPLANATION OF EXAMPLES

- RISE/VTI study and Excel model examples published 2024/11 >
- The Expert Observation Summary is available <u>here</u>. >

#### **Cargo associations**

	Normalized average cargo types, €/ton & hour									
	WLFT	WLFT	BTFT	BTFT	IMFT	IMFT	OWN BT			
VOT, €/h	0.16	0.16	0.09	0.09	0.28	0.28	0.38			



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