

Review of Reservation Charges Across IRG Rail Members

November 2019

Executive summary:

This paper analyses the economic aspects of reservation charges and what purpose they could serve. We provide an overview of the current practices of reservation charges among the main IMs operation in the countries of the IRG-Rail members participating in this study. Certain special issues and cases are discussed before we present some conclusion.

- a. Poland charges differently for the individual timetable and the annual timetable. The cut offs for the individual timetable are 12, 36, 72, hours.
- b. For more information, please check the network statement p.57. Administrative costs are 115.71€ for timetable trains, 19.24€ for extraordinary trains, and 9.61 for ad hoc trains.

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1 Introduction

This paper provides an overview of the current practices and an economic analysis of reservation charges among the main IMs operating within the countries of the IRG-Rail members participating in this study. Article 36 of Directive 2012/34/EU (hereafter “the Directive”) allows infrastructure managers (IMs) to levy an appropriate charge for capacity that is allocated but not used by the railway undertaking (RU). That non-usage charge shall provide incentives for efficient use of capacity and aims to improve the operative quality of the network. We focus on cases where the RU does not use or cancels capacity¹ requests and exclude cases where the IM is responsible for the cancellation, because we would expect that this would usually be due to construction work or temporary capacity restrictions (TCR) or be covered by a performance scheme.

The levying of reservation charges needs to balance different incentives: on the one hand, the intention is to avoid that an RU is able to prevent another RU from obtaining capacity by booking and blocking large amounts of capacity. On the other hand, this needs to be balanced against the business needs of RUs: not to be penalised for trying to develop new services, allow for long term planning, and manage demand risks by final customers.² Besides avoiding opportunity costs of a non-efficient use, reservation charges could also include the costs of planning and constructing train paths that are thereafter cancelled or amended.

Reservation charges according to Article 36 of the Directive are usually referred to by IMs in Network Statements as reservation or cancellation charges. Some IMs also charge for amendments, which could be seen as a special case of Article 36 of the Directive, because an amendment constitutes a fictitious new request to replace the existing request that is consequently cancelled. Whenever allocated train capacity is withdrawn or amended ex ante by the ordering RU, IMs try to recover costs of allocating this capacity and further penalize unnecessary track orderings.

Section 2 of this paper discusses the purpose of reservation charges and the competing/conflicting interests or costs IMs and RUs face. Section 3 discusses reservation charges and how they can be designed. Section 3.3 provides an overview of the actual reservation charges among the main IMs.

After the presentation of the current practices, Section 4 comments on some current issues with reservation charges and focuses on two specific issues. The first is the problem of reservation and/or cancellation charges for international traffic when an RU fails to use its allocated path due to a problem on another network. Secondly, there are cases of where regulatory bodies (RB) have capped the level of the reservation charges, because they

¹ Our research shows that usually any non-usage is considered as a cancellation or it is expected that RUs rather cancel the capacity ex-ante.

² COM(98) 480 p 74

- a. Poland charges differently for the individual timetable and the annual timetable. The cut offs for the individual timetable are 12, 36, 72, hours.
- b. For more information, please check the network statement p.57. Administrative costs are 115.71€ for timetable trains, 19.24€ for extraordinary trains, and 9.61 for ad hoc trains.

fear that it might pose a too high burden on RUs. Section 5 concludes with some recommendations.

2 Purpose of Reservation Charges

As mentioned in the introduction, the main purpose of reservation charges is to incentivize an efficient use of capacity. Hence, reservation charges are designed to reduce the opportunity costs of an inefficient use for both IMs and RUs that occur when track capacity is cancelled or amended ex-ante or when a track request is not even issued because of lack of capacity or for fear to have to pay too high reservation charges. In microeconomic theory, the opportunity cost of making a particular choice is the value of the most valuable choice that could not be chosen compared to the actual choice. When an option is chosen from alternatives, the opportunity cost is the "cost" incurred by not enjoying the benefit associated with the best alternative choice. Concerning reservation charges, opportunity costs should reflect the value that would have materialized for the applicant that would have used the train path in absence of the cancelling applicant. More generally, there can be spill over effects on corresponding or neighbouring applications if there are too many applications.

This implies that reservation charges have to balance different interests of IMs and RUs. These interests and the corresponding costs could include all or some of the following points:

Path construction / scheduling costs

From the point of view of an IM, any construction of paths that are not used is an unnecessary cost. Having to accommodate many unused path requests also makes the construction of the timetable more complex.

Unmaterialized value of a train path

If the reservation and the non-usage of a train path prevents other RUs from using the train path, the value that could have been realized if another RU had been allocated the train path remains unmaterialized. As this entails that a train path wanted by other RUs is not utilized, this constitutes a cost since the infrastructure capacity is not utilized in an efficient manner.

Congestion costs

Having to accommodate many unused path requests also affects other RUs and may result in obtaining capacity at a lower quality (for instance at reduced speed). This is likely to be more of a problem in areas where capacity is already scarce. This generates costs for the operators and for the rail system as a whole, by reducing the quality of the system or making it more susceptible to delays. Therefore, congestion due to excessive capacity request may produce external costs. These costs, however, are not the focus of this paper.³

³ IRG Rail Paper: "Survey on congested Infrastructure"

Avoiding anti-competitive behaviour

Reservation charges may be used to hinder anti-competitive behaviour by RUs. By charging for unused capacity, IMs can reduce the risk of RUs requesting more capacity than they need with the aim of harming competitors. RUs could e.g. book more capacity than they intend to use in order to create flexibility for their own traffic at the expense of competing RUs, or simply to prevent a competing RU from using the network.

Uncertainty costs

In contrast, it is understandable that RUs (especially in freight) cannot perfectly anticipate their own traffic demand, because freight forwarders change or cancel their orders, technical problems arise, or other external factors beyond the RU's control prevent the usage of the requested capacity (force majeure). They also cannot always rely on ad-hoc requests, since it is uncertain that an ad hoc request will be satisfied by the IM. This might lead to RUs not even requesting capacity for fear that they would have to pay reservation charges or if reservation charges were too high, RUs would not even cancel the capacity to avoid the reservation charges. Hence, the network would not be used efficiently.

Induce more Traffic

Setting reservation charges at a proper level could also induce more traffic if RUs are incentivized to cancel their allocated paths early enough so that other RUs are able to use the capacity that had been occupied before.

The above given enumeration shows that there is wide range of purposes and associated costs that could be taken into account in the design of a reservation charge. In practice, it is very difficult to estimate the corresponding opportunity costs, so that some IMs may use approximations.

On the one hand, the cost of the path construction seem to be more tangible and can be derived from the marginal costs of time tabling and scheduling. On the other hand, costs of congestion or uncertainty are much harder to estimate because we only observe one realisation of the timetable as a result of all capacity requests. The CERRE Report on Track Access Charges from 2018 highlights the special characteristic of railways networks compared to road networks *"in that the capacity problem is solved beforehand, i.e. queues never materialize when trains are running on time. The annually updated time-table is the explicit realization of how scarcity is handled, establishing the departure-arrival patterns that are permitted during the upcoming year."*⁴ This indicates that congestion can materialize in different forms, e.g. the extreme case of not running a service or just accepting a path request with lower quality than requested. This is one reason why it is hard to estimate these types of costs.

For the setting of the charge, economic intuition would indicate that the level of the reservation charges has to balance the different incentives. Concerning path construction and congestion charges, a high level would prevent excessive capacity requests. On the

⁴ <https://www.cerre.eu/content/new-report-track-access-charges-how-reconcile-conflicting-objectives>

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other hand, high charges would increase the uncertainty costs for RUs up to the point where they would not even demand the capacity anymore.

The next sections will focus on how IMs across IRG Rail members have implemented reservation charges in practice.

3 Reservation charges

As previously discussed, the economic purpose of reservation charges is to set proper incentives to avoid unnecessary track requests in order to avoid opportunity costs of an inefficient capacity use. The Directive indicates that reservation charges should be “appropriate” and that they should provide incentives for efficient use of capacity. As these requirements are open to interpretation, it is interesting to understand how different IRG Rail members have implemented reservation charges.

Our research shows that there are mainly two different implementations of reservation charges.

1. Cancellation charge
A charge if an RU cancels the capacity before the time of departure
2. Amendment charge:
A charge if an RU wants to alter the capacity that has been allocated before the time of departure

We have designed a questionnaire that covers different aspects of setting and designing these charges and we present the results in this paper, while discussing the general aspects of the implementation of the charges across countries.

Table 1 lists the 22 IRG-Rail members, their main IMs and the RBs that participated in our survey. With respect to a reference year, it also clarifies how countries implemented Article 36 of the Directive into their national legislation and what types of reservation charges the main IM of each IRG-Rail member state levies. Nine countries directly copied Article 36 of the Directive and twelve slightly adjusted the text. “Slightly adjusted” mostly indicates a slight rephrasing or a non-literal translation. More details on the slightly adjusted cases that are relevant follow.

The Czech Republic legislator additionally obliged the IM to provide information about available capacity. Lithuania is planning to implement Article 36 of Directive 2012/34 from 8 December 2019 onwards in a slightly adjusted form that adds certain regulatory aspects.

Article 36 says that IMs “may levy an appropriate charge...” and it is not clear if this obliges IMs to do so or if it is optional. Seven countries have decided to leave it to the discretion of the IM and fifteen countries oblige the IM to do so. Germany allows exceptions for small IMs. Of the 22 countries, ten only levy a cancellation charge and eleven levy amendment and cancellation charges. Finland does not charge for cancellations.

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IRG Rail Members	Main Infrastructure Manager	Regulatory Body	Reference Year	Implementation of Article 36	Legal Obligation	Amendment / Cancellation
Austria	OEBB	Schienen-Control Kommission	2019	Slightly adjusted	YES	Cancellation (passenger services only)
Belgium	Infrabel	Belgian RB for railway transport and Brussels airport operations	2018	Slightly adjusted	YES	Both
Czech Republic	SŽDC	Transport Infrastructure Access Authority	2017	Other	YES	Both
Denmark	Banedanmark	Danish Rail Regulatory Body	2018	Slightly adjusted	No	Cancellation
Finland	Finnish Transport Infrastructure Agency	Finnish Rail Regulatory Body	2019	Slightly adjusted	NO	None
France	SNCF Réseau	Arafer	2019	Slightly adjusted	YES	Both
Germany	DB Netz AG	Bundesnetzagentur	2019	Directly Copied	YES ⁵	Both
Great Britain	Network Rail	ORR	2018	Directly Copied	NO	Cancellation
Greece	OSE SA	Regulatory Authority for Railways (RAS)	2020	Directly Copied	Yes	Cancellation
Hungary	MÁV Zrt.	Rail RB Hungary	2018	Directly Copied	YES	Cancellation
Italy	RFI	ART	2018	Directly Copied	YES	Both
Lithuania	LG	RRT	2019	Slightly adjusted	YES	Both
Luxembourg	CFL	ILR	2018	Slightly adjusted	YES	Both
Netherlands	ProRail	ACM	2018	Slightly adjusted	YES	Cancellation
Norway	Bane NOR	Statens jernbanetilsyn	2019	Slightly adjusted	NO	Both
Poland	PKP PLK S.A.	Office of Rail Transport	2018	Directly Copied	YES	Both
Portugal	IP	AMT	2020	Directly Copied	NO	Cancellation
Romania	CFR SA	National Railway Supervision Council	2019	Directly Copied	YES	Cancellation
Slovakia	ŽSR	Transport Authority	2019	Slightly adjusted	NO	Both
Slovenia	SŽ-Infrastruktura	AKOS	2018	Directly Copied	YES	Cancellation
Spain	ADIF	CNMC	2018	Slightly adjusted	YES	Cancellation
Sweden	Trafikverket	Transportstyrelsen	2019	Slightly adjusted	NO	Both

Table 1: Overview of IRG Rail Members, Main IM, RB, Legal Implementation and Types of Reservation Charges

⁵ With exceptions for small IMs.

3.1 Definitions

3.1.1 Cancellation

Whilst everybody has some understanding of what may count as a cancellation, practices are not the same across all IRG Rail members. We asked RBs to provide a definition of a cancellation and based on their answers defined four categories that are shown in Table 2 with the respective countries and a short comment if needed. The categories are not mutually exclusive, meaning that countries may appear in more than one category.

Non usage due to fault of RU

Most countries have no formal definition and just classify unused capacity as a cancellation, if the reason of the non-usage lies with the RU. In Germany, this also applies for partial cancellations and in Sweden, it is measured as the difference of planned vs actual capacity utilization. In Great Britain, cancellation is defined as the failure of a train to fulfil any of its timetable including departure from origin and arrival at destination and intermediate calling points. There are broadly two types of cancellations in GB: i) full cancellation i.e. a train does not run at all, or runs less than 50% of its booked mileage, or calls at less than 50% of its booked station calls; and ii) partial cancellations when a train does not complete its whole journey, but does call at more than 50% of station calls and operates at least 50% of its booked mileage.

Cancellation when announced too late

In some countries, the classification depends on how far in advance the RUs inform the IM about the non-usage, so a cancellation is not considered as such if the RUs cancel early enough. For instance, Slovenia does not consider non-usage announced 6 hours prior to the time of departure as a cancellation. In Luxembourg, it is 30 days prior and Belgium 60 days. In Romania, it depends on when before the daily traffic schedule or time table is set, which is usually 3 hours before the point of departure. In Austria, the notification of unused capacity before the creation of the timetable is not considered as a cancellation, but thereafter all unused capacity is considered as cancellation if it exceeds a threshold. It is unclear if these countries count these early cancellation as cancellations at all, whether for charging purposes or only for general statistics or not at all.

Non usage below a certain threshold

In some countries, the capacity is considered as cancelled when the RU uses only a percentage of the capacity below a certain threshold. For instance, in Slovakia the capacity is considered as cancelled when it is used less than 50 % of the month and the IM shall withdraw the train path from RU, if, even after notice from IM, this path is used less than 50% per month. In Hungary, the IM only charges for the cancellation if 60 % of the allocated path per month is not used. As for the previous point, it seems that in some countries cancellation above the threshold are not counted as cancellations at all, neither for charging purposes nor for general statistics.

Category	Country	Comment Short
Non usage due to fault of RU	Hungary	
	Sweden	Only for difference between planned and realized
	GB	Failure of a train to fulfil any of its timetable
	Norway	Not used = cancellation
	Denmark	If not caused by IM, external matters or replacement trains
	Germany	Also if only a part of the capacity is not used.
	Lithuania	Failure of a train to leave the initial train station or to reach the final destination or the Lithuanian border train station (exception, when IM organizes the delivery of passengers to the final destination by another transport due to train line fault).
	Italy	In case when notification to IM is missing.
	Portugal	
Cancellation when announced too late by RU	Slovenia	Less than 6 hours
	Luxembourg	Less than 30 days
	Romania	After daily traffic program
	Belgium	Less than 60 days
	Italy	Less than 5 days before the programmed schedule
	Austria	Cancellation after creation of time table
Non usage below a certain threshold	Spain	Above 2% / 15 % of planned capacity for passenger and freight per month
	Slovakia	Usage below 50% of planned capacity per month
	Hungary	Usage below 60% of planned capacity per month for the calculation of the calculation charge
	Austria	Usage below 75% of planned capacity
Requires notification	Italy	Formal notice to IM
	Finland	Within the capacity management system
	Sweden	Needs to be registered on IM's website
	Poland	Within the online train path allocation system
	Greece	RU needs to withdraw a specific request
	Netherlands	RU needs to return train path in the planning system

Table 2: Definition of Cancellations across IRG-Rail members

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Requires notification

In Italy, the cancellation requires a notification by the RU, otherwise the RU must pay the full track path (or the section that is not used). Depending on the type of service or the affected line, a penalty is foreseen even in presence of notification. In Finland, in accordance with the network statement, the IM obliges RUs to cancel capacity in the capacity management system. There are only very few cases in Finland, where operator has requested capacity and does not run the service without cancelling it. These cases are monitored by the IM and discussed with the RU. In Poland, RUs have a right to cancel allocated train path or parts of it and need to notify the IM to confirm the cancellation in the online train path allocation system. If they confirm cancellation later than 30 days before departure, they need to pay the TAC even if they confirm the cancellation. Also in Sweden, a train path that is to be cancelled must be registered by the railway undertaking or traffic organizer via the IM's website.

Given that these definitions are rather different, it is doubtful that a comparison of any quantitative data on cancellations would be a sensible idea. Hence, we do not show any of the data that we actually collected and note that there were rather extreme differences across the IRG Rail members.

3.1.2 Difference between Amendment or Cancellation

Although the Directive does not differentiate between an amendment and a cancellation of a path request, they may be considered differently. By amendment, we mean changes to the requested train path, e.g. changing the time of departure or adjusting the route of the train path. One could argue that an amendment is not as detrimental as a cancellation. After all, the RU still wants to use the capacity. Strictly speaking, an amendment could be just seen as a cancellation directly followed by a new request. Based on the input from the IRG-Rail members we grouped countries into four categories, as shown in Table 3.

Cancellation followed by a new request

Thirteen countries do exactly that, but there are some particularities. For instance in the Netherlands, RUs are able to freely return capacity so implicitly amendments are free of charge. In some countries the network statements particularly mentions the case and foresee a new application after a cancellation. For instance in the network statement of the Slovenian IM it is stated that changes to existing train bring about cancellation of scheduled and already constructed train path, and as a result, the existing train path is cancelled and a new path is requested. In Sweden, a cancellation of a train path must be implemented for new or expanded traffic activity outside the scope of the running schedule that then requires a new application.

Operational changes

In five other countries, the main IMs have defined a set of operational changes in their network statements stating what separates amendments from cancellations, e.g. a change of the time of departure. Table 4 shows an overview.

No definition

There are some countries without any particular definition for amendments.

Category	Country	Comment Short
Cancellation followed by new request	Luxembourg	Amendment = cancellation + new reservation
	Czech Republic	Amendment requested by RU consists of cancellation and new ad-hoc capacity allocation.
	Netherlands	Free to return capacity so implicitly an amendment falls under this case
	Norway	No amendment foreseen, so implicitly this case
	Portugal	No amendment foreseen, so implicitly this case
	GB	RUs can obtain additional train paths or amend any of the train paths already allocated. IM's network statement describes this process.
	Belgium	Amendment = cancellation of the train path or the part of the train path + new reservation of the new train path or part of the train path + administrative fee (if later than 60 days before)
	Sweden	
	Slovenia	
	Hungary	Amendment = cancellation + new reservation
	Slovakia	In case of amendment request which have substantial impact on timetable, it is necessary to submit a new request
	Finland	
Operational Changes	Italy	Formal process that describes operational changes to requested capacity
	Germany	Formal list described in Network Statement what accounts as amendment
	Romania	Formal process that describes operational changes to requested capacity
	Poland	Formal process with IM to update the track request based on the operational changes
	Lithuania	If time change does not exceed 30 /60 mins passenger /freight
No definition	Denmark	
	Spain	
	Greece	

Table 3: Definition amendments across IRG-Rail members

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To learn more about amendments, we asked countries what kinds of changes are considered as amendments. The header column of Table 4 list the changes and a Yes indicates that countries considers these changes as a cause of an amendment.

Country	Start point	End point	Segment	Start time	End time	Speed	Rolling stock	Track path	Extra Stop
Italy	Yes	Yes		Yes			Yes	Yes	Yes
Great Britain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Belgium	Yes	Yes	Yes	Yes	Yes			Yes	
Sweden ⁶	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Poland	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Lithuania				Yes	Yes				
Germany				Yes	Yes	Yes		Yes	
France	Yes	Yes ⁷	Yes	Yes	Yes	Yes	No		Yes

Table 4: Operational changes considered as amendments

We have tried to collect quantitative data about amendments, but received less data than for cancellations. Given the similar problems of different definitions and the fact that many countries do not really consider amendments, we do not show any statistics.

In summary, we are bit surprised that the definitions for cancellations and amendments are rather different across countries and that that there is no clear-cut differentiation between cancellations and amendments. A broader database would be helpful for a better comparison across IRG–Rail members and it seems that either main IMs are not always able to provide this kind of aggregated data or do not want to share this information with their RB. More data would also allow RBs and IMs to be able to better evaluate the impact of the parameters of the reservation charges (e.g. what cut offs should be used or what percentage should be charged). Further work would be needed to clarify this issue.

3.2 Design and Implementation of Cancellation Charges

The next step is to look at main calculation and implementation aspects of cancellation charges. An overview of selected questions is provided in Table 5. We asked how the cancellation charge is implemented, how it is calculated, how the level and parameters of the calculation are set, if there is a time differentiation, a cap or a differentiation across main services.

⁶ Changes count as amendments if the activity is outside the running schedule.

⁷ Not penalized if seen as a train path extension

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Member State	Cancellation Charges	Calculation Cancellation	Level Cancellation	Time Differentiation	Maximum Cap	Differentiation Main Services
Austria	YES, with additional differentiations	Percentage of the original TAC		YES	NO	YES
Belgium	YES, with additional differentiations	Percentage of the original TAC	Proportion of total TAC of main IM	YES	YES, maximum in %	NO
Czech Republic	YES, with additional differentiations	Fixed amount per train km	Other	YES	NO	NO
Denmark	YES, with additional differentiations	Percentage of the original TAC	Proportion of total TAC of main IM	Yes	YES, maximum in %	NO
Finland	NO					
France	YES, with additional differentiations	Two fixed amounts per trkm (one for amendment and for cancellation)	Based on direct costs; Proportion of total TAC of main IM	NO	YES	YES
Germany	YES, with additional differentiations	Percentage of the original TAC	Iteratively by evaluating the effect on the market	YES	YES, maximum in %	YES
Great Britain	YES, as part of performance scheme	Other	Iteratively by evaluating the impact on other operators	Yes	YES, based on the total Marginal Revenue Effect for each Service Group	YES
Greece	YES, with additional differentiations	Percentage of the original TAC (DC)	Based on direct costs	YES	NO	NO
Hungary (<24h prior departure)	YES, but based on a different legislation	Percentage of the original TAC	Based on direct costs	YES	NO	NO
Hungary (<24h after departure)	YES, but as part of a performance scheme	Fixed amount per capacity request	Iteratively by evaluating the effect on the market	NO	YES, maximum fixed amount	NO
Italy	YES, with additional differentiations	Percentage of the original TAC	Proportion of total TAC of main IM	YES	YES, maximum in %	NO
Lithuania	YES, but as part of a performance scheme	Fixed amount per capacity request and trkm		NO	NO	YES

Member State	Cancellation Charges	Calculation Cancellation	Level Cancellation	Time Differentiation	Maximum Cap	Differentiation Main Services
Luxembourg	YES, with additional differentiations	Percentage of the original TAC	Based on direct costs	YES	YES, maximum in %	NO
Netherlands	YES, with additional differentiations	Fixed amount per capacity request	Based on direct costs	YES	NO	NO
Norway	YES, with additional differentiations	Percentage of the original TAC (DC)	Based on direct costs	YES	YES, maximum in %	NO
Poland	YES, with additional differentiations	Percentage of the original TAC (DC)	Based on direct costs	YES	YES, maximum in %	NO
Portugal	YES, with additional differentiations	Percentage of the original TAC	Iteratively by evaluating the effect on the market	YES	YES, maximum in %	NO
Romania	YES, but as part of a performance scheme	Percentage of the original TAC	Other	YES	YES, maximum in %	NO
Slovakia	YES, without any differentiation	Fixed amount per train km	Based on direct costs; proportion of total TAC of IM			
Slovenia	YES, without any differentiation	Percentage of the original TAC	Proportion of total TAC of main IM	YES	NO	NO
Spain	YES, without any differentiation	Fixed amount per train km	Proportion of total TAC of main IM	YES	NO	YES
Sweden	YES, with additional differentiations	Percentage of the original TAC (DC)	Proportion of total TAC of main IM	YES	YES, maximum in %	YES

Table 5: Overview of Implementation of Cancellation Charge across Countries

The survey shows that fourteen countries have cancellations charges with additional differentiations, e.g. amendments, early cancellations, or generally time dependent cancellation charges. We can see Hungary twice in the table, because for cancellations within 24 hours prior the scheduled departure time the cancellation charge is 4 % of the basic service charge, without mark-ups and for cancellations within 24 hours after the scheduled departure time the cancellation charge is 10 % of the basic service charge, without mark-ups. Without cancellation, the cancellation charge is 100 % of the basic service charge, without mark-ups.

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Three countries only charge for cancellations without any differentiation for amendments. Three countries have cancellations charges as part of their performance schemes. Finland does not charge for cancellation.

Great Britain is one of the countries where cancellation is charged as part of the performance regime (called schedule 8). This regime has some level of differentiation: the cancellation statistics are measured against the plan of the day. The train operator and Network Rail (the IM) confirm this plan at 10:00 PM on the previous evening. Any changes made to the timetable before this point are not included in the statistics and do not incur any charge under the performance scheme.

Implementation of cancellation charges

To design the cancellation charge, an IM needs to come up with a methodology that describes how the charge is calculated in practice (e.g. a percentage of the original TAC) and needs to derive the parameters used for the calculation. That is why we included two questions to categorize these two distinct steps.

The third column of Table 5 shows how the cancellation charges are levied in practice. The most common case (14 countries) is that RUs have to pay a percentage of the original TAC for the cancellation. In Italy, the IM deducts the costs of the energy provision from the TAC, before computing the penalty. Four countries (Norway, Sweden, Poland and Greece) wanted to highlight that the RUs just pays part of the direct costs of the TAC.

Lithuania is a particular case: the main IM generally charges a fixed fee for the capacity request, an advanced payment of 10 percent of the TAC that he keeps when a request is cancelled. Local passenger trains and freight trains pay additionally 1.7€ per trkm and international passenger trains an added fix charge of 2520€ for each cancelled service. The Netherlands formally have cancellation charges with additional differentiations, but most of these differentiated charges are set at 0 €.

According to Performance Scheme of the Romanian IM, the party responsible (RU or IM) for the cause of a request for non-use of a scheduled route or a cancellation of a train path made after the completion of the daily traffic program shall pay a penalty equal to 0.1% of the TAC value of a train with the minimum total that would have circulated on that route. The maximum monthly penalty amount owed by one party may not exceed 0.5% of the TAC for that month.

Spain, Czech Republic, Slovakia charge a fixed amount per trkm and France has a two part fixed amount per trkm system that is designed differently for cancellations and amendments.

In Great Britain, there is no cancellation charge per se. However, Great Britain has a performance regime under which, whoever causes a delay or cancellation on the network (infrastructure manager i.e. Network Rail or train operator) must make a payment to the affected train operators. This is referred to as Schedule 8 (S8) in the track access contract. This is a benchmarked regime i.e. payments are only made when operators or Network Rail's level of performance diverges from a pre-determined benchmark. It is also a liquidated sum regime i.e. the payments made under Schedule 8 are determined formulaically:

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Amount paid=(Actual performance –Benchmark)×Payment rate

The benchmark reflects Network Rail or operators' expected performance in the next 5-year control period (CP). The payment rates represent the amount paid by the party responsible for a delay for each minute away from their benchmark. It is set at a level that reflects the average impact of a minute of delay caused to other operators. Generally speaking, performance is measured by the number of delay minutes. Cancellations are treated as a specific number of "deemed minutes late". The number of minutes a cancellation is deemed to be worth is specific to each service group and reflects the frequency of services, i.e. how long passengers will have to wait for the next train, and the fact that subsequent trains become more crowded and less pleasant to travel on when cancellations occur.

Further details about the different systems are provided in Section 3.3, e.g. what kind of percentage of the TAC and so on. In some cases the system is a bit more complicated than the categories that have been identified, because there are prepayments or other components included in the TAC system.

While the calculation of the cancellation charge is usually clear and defined in the network statements of the main IMs, it is not always clear how the main IMs have established and derived the parameters used for the calculation (e.g. why 50 % of the TAC).

The most common case seems to be that the main IMs collect a proportion of total TAC as the reservation charge. Six countries charge based on direct costs and hence the level is implicitly set by this choice. In some countries (Portugal, Hungary, Germany), the main IM sets the parameters of the cancellation charge by iteratively evaluating the effect on the market.

In France the level is based both on the level of direct costs and the proportion of total TAC. The penalties for France reflects two objectives: first, to send a clear price signal to the market and second, to allow for the incentive system to remain balanced among actors. A more detailed explanation of the French system is given in Section 4.4.1.

Timeframe

An IM may encourage early amendment or cancellation compared to short-term cancellation. This allows the IM to free capacity for ad-hoc traffic and new services. It also improves the quality of the timetable as the IM can use the freed capacity to establish bigger buffers between path requests. Almost all IMs differentiate their charges depending on the time of the cancellation. Further details are shown and discussed in the next section.

Ceiling for charges

The survey considered several more questions:

- Should there be a ceiling because in practice the costs of cancelling a track request that only covers one day are not much different to cancelling a year long track request?
- Should that ceiling be different for amendments?

In addition, one could see the original charge as a natural ceiling of the reservation charges, because why should the RU pay more than the original price even if it chooses

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not to use it. It also might set perverse incentives for RUs to try to hide a cancellation or simply let capacity go unused.

Eight countries do not have a limit on the amount of cancellation charges, while ten say they have a maximum percentage, which general coincides with the calculation of the charges that is based on a percentage of the TAC and the one case in Hungary where it is a fixed amount.

There is the particular case for Germany for very early cancellations and amendments that limits the amount to be paid while there is €/trkm charge below the limit. The case is presented in Section 4.3.1.

In Great Britain, there are provisions in the performance regime under which freight and charter operators and the IM have reciprocal caps on the net annual liability they face under Schedule 8. Furthermore, freight and charter operators can pay an Access Charge Supplement (ACS) to the IM to cap the amount they pay for a single incident.

Differentiation across segments/ main segments

It could be argued that differentiation of cancellation charges between different types of trains or between different market segments should be based on the opportunity cost of the relevant train type or segment. On a line with a very high number of passenger trains, a freight train would need more capacity to run than a passenger train. Therefore, on such a line the opportunity costs of freight trains would be higher than for passenger trains. On the other hand, a cancelled train path for a passenger train is less likely to be used than a cancelled path for a freight train. After all, there are less ad-hoc paths for passenger trains than there are for freight trains. Furthermore, a passenger train path is likely to be unsuited for the use by a freight train.

It turns out that the cancellations charges in many countries are not differentiated for the different main categories of services. In some countries, there are different charges, but only because the original TAC is different, but the methodology to calculate the charge is the same (e.g. the percentage on the TAC). The Austrian main IM chooses to only charge passenger services for cancellations.

In Italy, cancellation penalties depend on the type of lines or market segment. For example in the case of the failed utilization of the paths under the access contract concluded in connection with a previous Framework Agreement for public transport services, the penalty is 30%, regardless of when the surrender of the paths is formalized; HS services are charged from 50 to 60% depending on the moment of notification.

Other Questions

Our questionnaire also asked if the main IM or any other public institutions stated a specific purpose for the introduction of the cancellation charges. It shows that no institution spends a lot of effort to explain the purpose of the cancellation charge. However, in Great Britain the performance regime is a very important part of any periodic review. The RB undertakes extensive consultations to explain the rationale for schedule 8 payments and seek proposals to improve it.

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Similarly, there is little information concerning the reasons for cancellations. Only Denmark and Portugal have provided quantitative data regarding reasons for cancellations. Based on our observations, the most likely cause for a cancellation may be.

- Change in business need (e.g. underlying transport contract expired)
- Maintenance or breakdown of rolling stock
- Lack of personnel
- Force Majeure
- Failure at other network / service facility

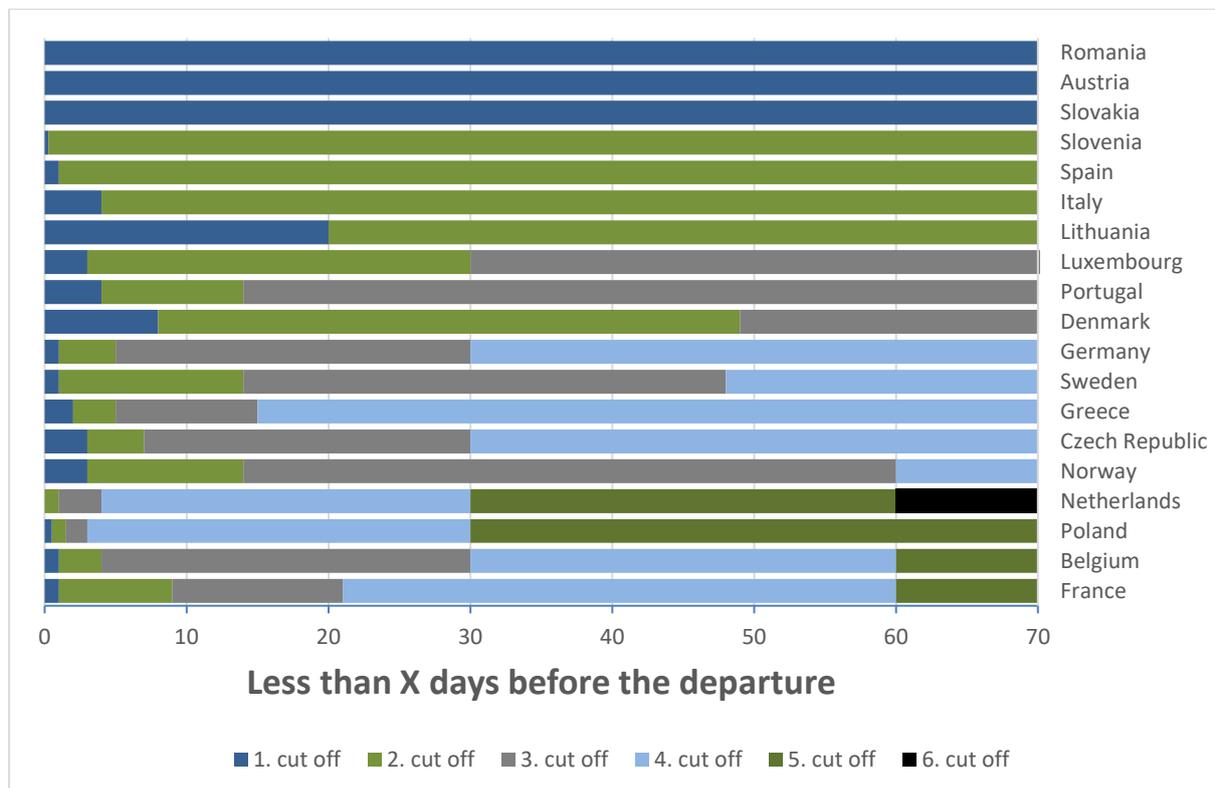
It would be interesting to learn more about the reasons of cancellation to evaluate their impact.

3.3 Price and Time for Cancellation Charges

The previous section covered cancellation charges from an abstract point of view. This section provides a more in depth analysis and comparison of the price charged for cancellations at some point in time.

Definitions of cancellations are diverse and there are many different time cut-offs across IRG Rail members. Figure 1 gives a visual overview of the different cut-off points based on the number of days before the departure. The latest cut-off points are 60 days in Belgium, Norway and the Netherlands. This is why the limit of the scale of the horizontal time axis has been set to 70 days. There are no other cut-off points thereafter.

Figure 1: Overview of time cut offs in days before the departure to differentiate charging for cancellations



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As practices are rather diverse, the graph below is organised first in groups based on the number of cut-offs and second according to length of the cut-off. The first group with Austria, Romania, and Slovakia only has one or no cut off. Austria just differentiates between cancellations before the timetable starts and after. In Slovakia, there is basically no cut-off and all cancellations are charged a percentage of the original TAC (on average roughly 4.5%) that depends on various categories and other factors as cancellation charge. There is however, a differentiation for the price based on whether or not the capacity is part of the timetable or ad-hoc traffic. In Romania, the party that is responsible for the cause of a non-use of a scheduled route or a cancellation of a train path has to pay a penalty if it is cancelled after the completion of the daily traffic program (usually 3 hours before the departure).

The next group of countries has two cut-off points. Slovenia, Spain, and Italy, have a rather early cut off (half a day, a day and four days), while Lithuania sets it at 20 days. Luxembourg, Portugal, and Denmark have three cut-offs that are rather similar. The next five countries (Germany, Sweden, Greece, Czech Republic, and Norway) use four cut-offs for which the first two are rather early and the latter two cover a longer period of time. Poland, Belgium and France use five cut-offs. The Netherlands have the highest number of cut-offs using six.

In Great Britain, there are many ways train operators can request that train services be removed from the timetable and financial consequences vary accordingly:

- Pre-timetable: A train operator can surrender a train path in advance of the timetable publication without financial impact.
- During the year, there are other time windows (e.g. in Autumn) where trains are removed or revised from the timetable to allow for amended running – e.g. operators can request to remove trains or station calls with no financial consequences.
- Imminent event: if, say, snow is forecast the following day, services can be reduced accordingly. If a request is made by 10:00 pm the previous day, performance is measured against the revised timetable. If this is completed after 10:00 pm, any trains removed or revised by train operator would be treated as cancellations under Schedule 8
- On the day: amendments on the day are treated as delays or cancellations and are payable under Schedule 8 as explained above.

Whilst Figure 1 allows a quick comparison of the time dimension, it does not include any information on the actual cancellation charge. That is why Figure 2 also includes the information on the price for the different cut-offs as a label within the bars (percentages are always in reference to the original TAC). Countries are grouped according to how the cancellation charges are set and then according to price, the length and number of cut-offs. We start with all the countries that have a percentage charge of the original TAC and the countries that charge 100% and then continue.

The largest group of countries from Austria to Poland calculates the cancellation charge in reference to the original TAC. Several countries charge up to a 100% of the original TAC, if the capacity is not used without any notification or not cancelled early enough. Some countries have reservation charges of 100% of the original TAC but usually with some

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exceptions or only if capacity is cancelled very shortly. In Austria the 100% charge only applies to passenger services and there is some leeway for RUs as cancellations are only charged below a certain threshold (see Table 2). Denmark, Greece, and Sweden lower the charge considerably if the cancellation is done early enough. Belgium, Slovenia, and Spain lower the charges rather quickly; the latter two go to 0% already if the capacity is cancelled less than two days before the time of departure.

Several hybrid cases follow: Germany has a higher charge of 80% of the original TAC for the first 24 hours that goes down to 30% up to 5 days and then 15% up to 30 days. Thereafter there is an entirely different methodology to calculate the charge on a €/trkm base, that has been adjusted by the RB (see discussion in Section 4.3.1).

Italy also charges a percentage of the original TAC, but there is a higher cancellation charge for high speed and lines with limited capacity usage. Portugal just starts at a lower percentage that goes down quickly.

Poland differentiates between capacity for the annual timetable and individual (ad-hoc) timetables. The cut-offs for the individual timetable do not exactly match our scale of "less than X days...", because the cut-offs are 12, 36, 72 hours and 30 days. Cancellation for the annual timetable that are notified 70 days before the time of departure are charged only 5% of the original TAC otherwise 25%.

Luxembourg has a two-part tariff for the cancellation charge. First there is always a fixed part for the scheduling and administrative costs (e.g. for timetable capacity 115.71€). A no show pays these costs and the TAC plus 50% (not visible in Figure 2), if capacity is cancelled less than 3 days before the departure the RU has to pay 25% of the TAC and up to 30 days 12.5% of the TAC.

In Lithuania the main IM generally charges a fixed fee for the capacity request, an advanced payment of 10 percent of the TAC that he keeps when a request is cancelled. Local passenger trains and freight trains pay additionally 1.7€ per train km and international passenger trains an added fixed charge of 2520€ for each cancelled service. There is no charge if the capacity is cancelled more than a month in advance.

We could not include France in the graph because the charge is steadily increasing until 5PM before the departure. A more detailed explanation can be found in Section 4.4.1. The Czech Republic has decreasing fixed amount per trkm that is halved with every cut-off point.

The Netherlands formally have different cut-off points, but as we can see above, the price is set the same (0€) for the first 4 cut-off points, up to 30 days. When a train path is cancelled more than 30 days in advance the charge is fixed at 10€ per cancellation, but this charge is remitted when the RU cancels less than 20% of its allocated paths in the timetabling process

The differences across IRG Rail members show that there is not a single way to implement a cancellation charge. The survey also tried to establish whether IRG Rail members have conducted evaluations of the charges. In Hungary, the capacity allocation body has concluded that both the time cut-offs and the threshold value of 60% are suitable. Austria reported that they have not seen any significant impact of the cancellation charge. In Great

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Britain, the performance regime (Schedule 8) is reviewed every five years during a periodic review and decisions on benchmarks and payment rates are made for the next control period (but they can also be reviewed during the control period under some agreed circumstances). The French case study (Section 4.4.1) mentions that amount of cancellations charges has been decreasing showing that the implemented mechanism starts to show some effects.

In conclusion, we can say little about which structure is more effective in practice for setting proper incentives to avoid unnecessary track requests and avoiding opportunity costs of an inefficient capacity use. It seems clear that lower cut-off points or cut-off points closer to departure time provide RUs with a bigger margin for manoeuvring and less incentives to cancel earlier. The same should apply for the level of the charge. The higher the charge the stronger the incentive is to cancel an unwanted capacity.

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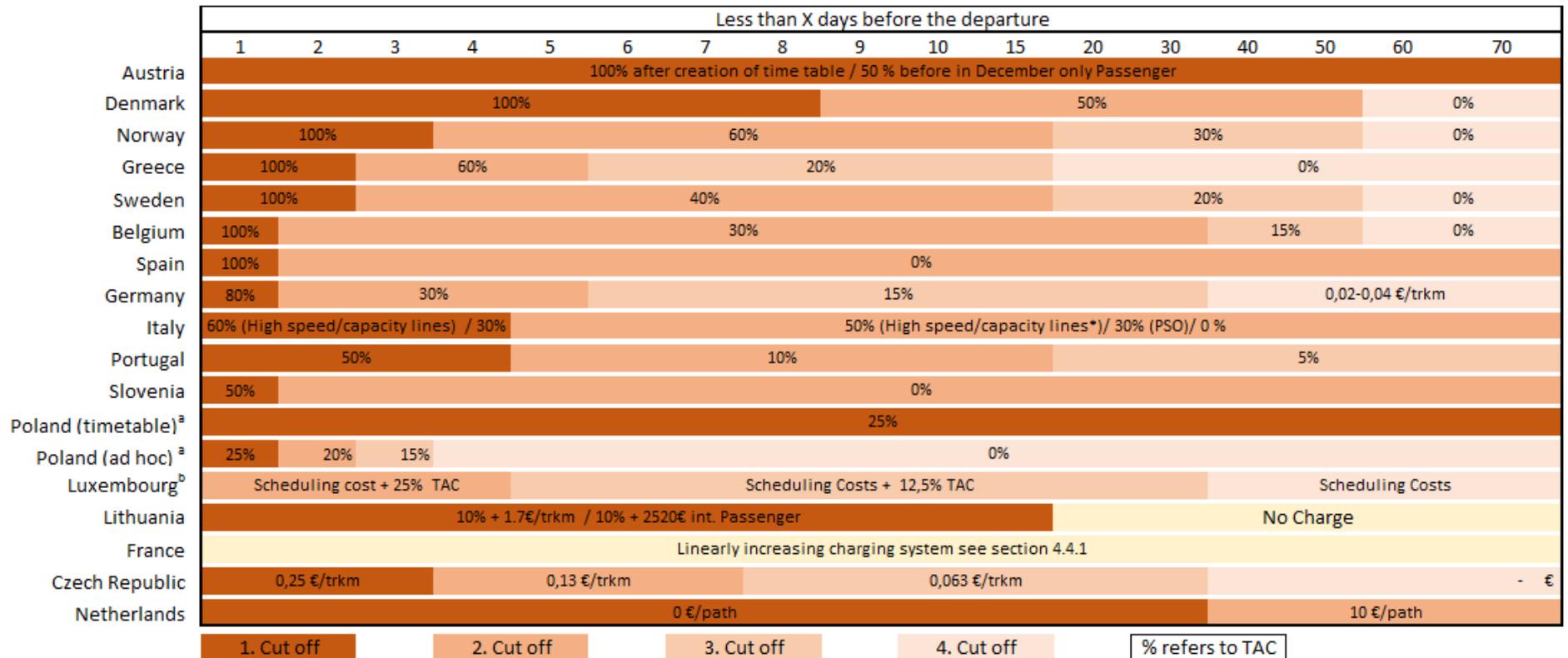


Figure 2: Overview of prices for cancellations depending on the time before the departure

- a. Poland charges differently for the individual timetable and the annual timetable. The cut offs for the individual timetable are 12, 36, 72, hours.
- b. For more information, please check the network statement p.57. Administrative costs are 115.71€ for timetable trains, 19.24€ for extraordinary trains, and 9.61 for ad hoc trains.

4 **Special Issues /Cases**

This section presents some special issues that are salient to RUs and IMs.

4.1 **Force Majeure**

One reason for cancellation could be force majeure. Trans Lex⁸ defines force majeure as the non-performance of a party i) due to an impediment which is beyond the reasonable control of that party; ii) as not reasonably foreseeable, and iii) unavoidable. Understandably, RUs are unhappy to pay a cancellation charge if the reason of the cancellation is due to force majeure. A charge for such cancellations would seem to violate the spirit of Article 36 to incentivize efficient use of the network, since the RUs cannot really adapt their behaviour to force majeure. One case of force majeure can arise for cross network traffic when problems arise on other networks beyond the control of the RU. The questionnaire explores how main IMs deal with cancellation due to force majeure and cancellations for cross network traffic. Table 6 shows the categories, the respective countries, together with additional comment where necessary.

Reclassified and/or not charged

In the majority of the IRG Rail members, any cancellation due to force majeure is reclassified as a disturbance and/or external causes are not charged to the RU. In Lithuania, the main IM has to inform RUs about the changes to the timetable due to force majeure, so that the responsibility to handle the cancellation due to force majeure lies with the IM. In Austria, the IM also explicitly does not charge RUs for force majeure. In Luxembourg, any cancellation of trains are assigned to causes according to the UIC 450-2 standard. Any unassigned cancellation is considered to have been caused by the IM and hence not charged.

Not relevant or same as other cancellations / amendments

In some countries, there is no reference to Force Majeure stated in the network statement. The reason for this could be that there are no financially meaningful cancellation charges in place (e.g. The Netherlands, Finland, Spain), so that a cancellation due to Force Majeure would not hurt the RU.

⁸ https://www.trans-lex.org/944000/_/force-majeure/

- a. Poland charges differently for the individual timetable and the annual timetable. The cut offs for the individual timetable are 12, 36, 72, hours.
- b. For more information, please check the network statement p.57. Administrative costs are 115.71€ for timetable trains, 19.24€ for extraordinary trains, and 9.61 for ad hoc trains.

Category	Country	Comment Short
Reclassified and/or not charged	Germany	
	Italy	No penalties, charges or provisions concerning force majeure events
	Hungary	
	Sweden	
	Luxembourg	If not coded according to UIC 450-2, IM responsible
	Austria	Force majeure is not charged
	Belgium	
	Lithuania	No penalties charged and IM is obliged to inform RU's about changes to timetable due to force majeure
	Romania	No penalty charged
	Poland	
	Portugal	No penalties, charges or provisions concerning force majeure events
	CZ	Only cancellations if not caused by the extraordinary event or force majeure
	Denmark	
Not relevant or same as other cancellations / amendments	Spain	There are no legal provisions concerning this issue, so cancellations due to Force Majeure are charged.
	Netherlands	There is no clause in the Network Statement regarding Force Majeure in relation with cancellation
	Slovakia	There are no provisions in NS concerning this issue.
	Slovenia	
	France	
	Finland	Since no cancellation charges in place
Other	GB	See text

Table 6: Overview how main IMs handle cancellations due to force majeure

Other

In Great Britain, when an operator arrives late at Network Rail's network from a different network, the operator bears the responsibility under Schedule 8. In addition, as explained above, if for instance the weather is projected to be bad, train operators have the possibility of cancelling their trains with no penalty if this is done before 10:00 pm on the evening before. Passed 10:00pm, the operator will pay irrespective of the cause.

4.2 Cross Network Traffic

As mentioned before, a particular reason for a cancellation beyond the RU's control can be cross network traffic, either domestic for instance from another service facility or international. One could say that RUs cannot be responsible if the cancellation is not due to their own fault. The questionnaire asked, therefore, how the main IMs deal with cancellations for cross network traffic and responses are summarized in Table 7 using categories and naming the respective countries and adding a comment if needed.

On one hand, it shows that there is a group of countries where these cancellations are not charged for different reasons (First three categories).

Not charged if fault is with the other network / cases of force majeure

In Romania cancelled or delayed trains from other networks are generally exempted from penalties or cancellation charges. Lithuania and Poland regard these cases as force majeure and do not charge them, if the fault is with a third party.

Reclassified and/or not charged

In Sweden and Austria, these cases are reclassified and not charged.

Same as for other cancellations

On the other hand, there is a number of countries where they are treated as any other cancellation and charged for.

For Spain, the main IM considers force majeure in cross network traffic as other cancellations, because there is no clear definition of force majeure applying to these cases, and given the lack of coordination mechanism with other IMs.

Not relevant / Unknown / Other

In Portugal, cross network traffic cancellations do not apply because the network statement does not address this issue; no penalties for cancellation are charged. To some regulators it is unclear how the main IM in their country deals with cancellations for cross network traffic. This could for example be because the RB does not approve of cancellation charges ex ante or because the IM has not described their practice in the Network Statement.

Category	Country	Comment Short
Not charged if fault is with the other network	Denmark	
	France	No Penalty Charged
	Romania	Classified under external causes, independent of the IM or RU. As a result, no penalties are applied.
Not charged in cases of force majeure	Poland	
	Lithuania	No charge if the fault is with a third party as in force majeure
	Italy	No penalty charged
Reclassified and/or not charged	Sweden	
	Austria	
Same as for other cancellations	GB	The train operator is financially liable under S8
	CZ	
	Germany	
	Luxembourg	
	Spain	
	Belgium	
Not relevant/ Unknown / Other	Netherlands	Not relevant for cross network traffic, since cancellation charge tends to be 0€
	Finland	Because no cancellation charges
	Hungary	
	Slovakia	There are no provisions in NS concerning this issue.
	Slovenia	We do not know.
	Portugal	Not applicable. There are no provisions concerning this issue so no penalties are charged
	Italy	
	Norway	We are unaware of how the IM deals with cancellations / amendments for cross network traffic.

Table 7: Overview how main IMs handle cancellations for cross network traffic

4.3 Excessive Reservation Charges

As shown in Section 3.2, many countries have set an implicit limit on the maximum of the cancellation charge by setting a maximum percentage on the original TAC or a fixed amount per train km or request. Two interesting cases are worth highlighting in this respect.

4.3.1 German Case

In Germany, the RB has adjusted the original application for the track pricing system of the incumbent IM's calculation for the level of reservation charges for 2019 and 2020 and set a cap for some types of reservation charges. There are two types of reservation charges and RUs may amend or cancel a track request up to the planned departure time:

- **Minimum amendment or cancellation charge**
If an RU adjusts or cancels the allocated track more than thirty days prior the departure time, it is charged a reservation charge by multiplying scheduling costs per train km with the train km of the allocated track capacity. The RB capped this charge using the average length and frequency of a path request to calculate the cap.
- **Increased amendment or cancellation charge**
If the RU adjusts or cancels the allocated path 30 to 5 days / 4 days to 24 hours / less than 24 hours prior the departure time it is charged 15% / 30% / 80% of the TAC reduced by the amount of costs that would only have occurred if the train had actually run⁹. The RB did not object to this calculation.

While the RB did not object to the approach of the IM to use the direct cost of scheduling to calculate the different charges, it objected that the approach did not take account of the economies of scale that arise in the scheduling process. In its decision, the RB argued that it would be reasonable to assume that scheduling costs would not proportionally increase with the frequency and the amount of train km requested. The RB ruled that this would imply an unjust burden on an RU and would not represent the true costs of the amendment/cancellation.

Furthermore, the lack of cap would endanger the competitiveness of the railway market by posing an excessive burden on RUs for the cancellation or adjustment of track capacity. The use of the average track length and frequency of services represents a practical approach to align the interest of the IM to avoid needless cancellations but also protects RUs and the competitiveness of the rail market.

4.3.2 Spanish Case

The Spanish Rail Act introduces this charge as an addition or mark-up to the TAC. It applies to cases of inefficient use of capacity and it pursues two main objectives, namely, to optimise rail network capacity and to incentivise improvements in RUs' train scheduling procedures. The national law, therefore, approaches reservation charge as part of, or directly related to, the TAC. In Spain, TAC equals the sum of three components¹⁰, a charge for capacity allocation being one on them (Component A). This component, which represents around 20% to 30% of total TAC¹¹, is charged by RUs when the IM allocates

⁹ The TAC are reduced by the direct costs of maintenance and depreciation attributed to running of trains.

¹⁰ TAC in Spain equals the sum of Component A, Charge for capacity allocation; Component B, charge for rail track utilisation; and Component C, Charge for the use of electrical supply equipment for traction current (when applicable), each one recovering direct costs associated to these elements.

¹¹ Actual amount depends on the type of service and whether it is high speed or not.

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capacity requests, leaving the remaining parts of the TAC pending until the RU runs the path.

The reservation charge is computed on a monthly basis and refers to a single type of line and service. RUs are charged for every train km of inefficient use of capacity, which is described by the law as the difference, in absolute value, between allocated capacity and capacity used, that exceeds 2% for passenger services and 15% for freight services (of allocated capacity). Therefore, according to the national law, this charge applies to cases of cancellation, but also to capacity used in excess, what implies that ad-hoc paths could be also penalised.

The amount of the reservation charge equals the sum of the three¹² components of TAC plus mark-ups (when applicable). That implies that RUs could end up paying a total reservation charge that equals the full amount of the TAC, the mark-up, and the previously paid Component A of TAC¹³, for the inefficient use of capacity that exceeds the above mentioned percentages.

In 2017 the RB issued a decision on tariffs analysing the proposal of the IM for this charge. The IM had justified its introduction because of the lost profit due to inefficient use of capacity. Given that the charge should be established as a compensation for IM's lost profits, the RB capped the proposal in two different ways:

- The RB indicated that, since the IM's network statement allows for ad-hoc path requests up to 24 hours before departure, applying the charge to these cases would be disproportionate, because the RU will actually run the path and pay the TAC for it.
- The RB also considered the amount for cancellation excessive. Given that Component A of TAC is charged separately from the other components when requesting capacity, applying the reservation charge as proposed by the IM would imply paying this component twice, making the non-used paths more profitable for the IM than normal usage of allocated capacity, even when the former case implies less costs for the IM.

Therefore, the actual scheme of the reservation charge in Spain only applies to cancellations (and not to ad-hoc paths) and it is paid for each train km that exceeds 2%, for passenger services and 15% for freight services of allocated capacity. In addition, the amount of the charge is capped at the total amount of the TAC that the RU would have paid had it run the path.

Regarding early cancellations, the IM does not charge for paths cancelled more than 24 hours in advance, meaning that RUs do not have to afford reservation charge. However, given that Component A of TAC is charged for capacity allocation, this amount is not refunded.

¹² Component C only applies to electric trains.

¹³ That RUs pay for capacity allocation requests, regardless if the path is run or not.

4.4 Procedural Problems

In some countries, there are procedural issues, which force the main IM and the RB to design different charging principles for different periods due to particular circumstances.

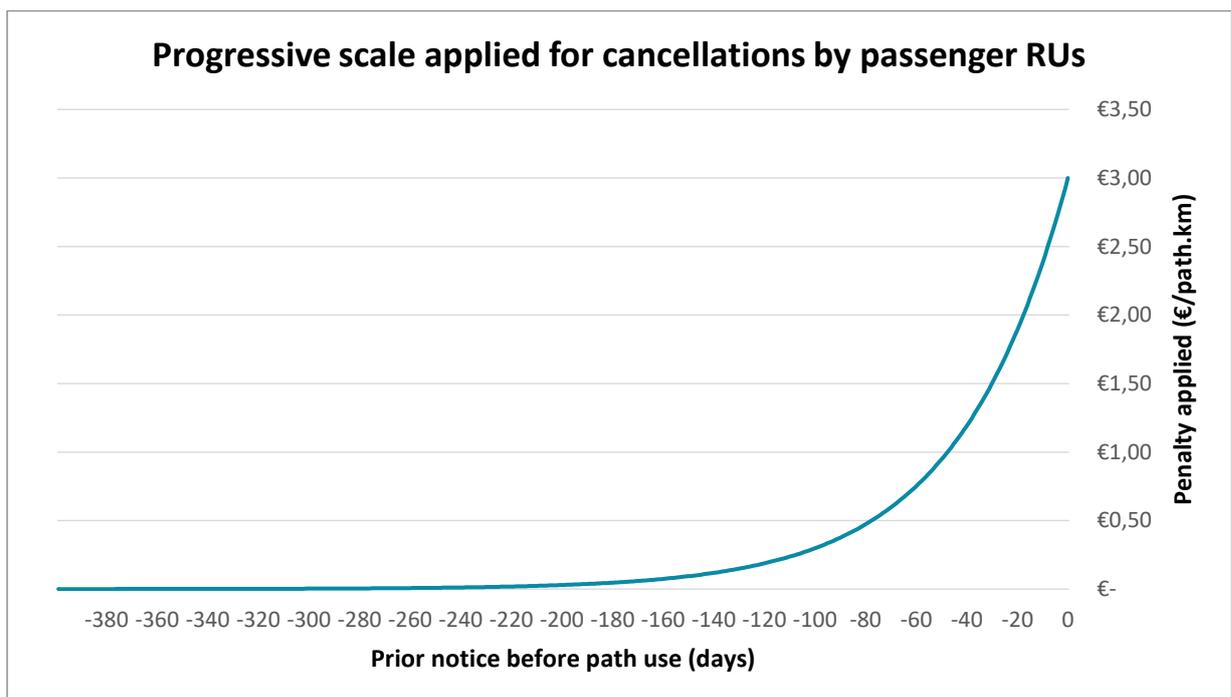
4.4.1 French Case

Since 2014, and following several appeals lodged by railway undertakings against SNCF Réseau, the French infrastructure manager, Arafer decided to put in place, along with the Ministry of Transportation, a new mechanism to encourage both the IM and RUs to better use the capacity reserved. The idea was to create a reciprocal mechanism aiming at:

- Encouraging RUs not to overbook capacity and, if so, to cancel early unnecessary capacity bookings; this allows new RUs to book this capacity made available again, and
- Encouraging the IM not to modify or cancel already booked capacity because of unplanned infrastructure works.

As the French railway network begins to be tense mostly on important nodes, the French regulatory body considered that it was of prime importance to allow better use of available capacity by encouraging RUs to only order capacity that is needed and by setting up a penalty system for capacity cancelled late. Of course, the capacity that is not cancelled and unused is highly penalized, and this is capital to guarantee that RUs are encouraged to cancel unused capacity rather than not using it.

In practice, the RI mechanism works as a smooth, continuous penalty curve that is similar for RUs and the IM: the later the path is modified or cancelled, the higher the penalty is. If the path is not cancelled before D-1 by the RU and finally unused, the maximum penalty is applied.



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The same form of penalty is applied for cancellations and modifications made by freight RUs or by the IM, with different scales, following this curve equation:

$$Penalty(D - n) = penalty(D - 1) * 2^{(1-n)/N} \text{ where:}$$

- D is the theoretical path use day
- n is the prior notice (in days)
- $penalty(D-1)$ and N are two constants depending on the type of traffic (freight Vs. passengers), the type of vibration (cancellation vs. modification) and the requester of this vibration (RU Vs. IM)

In summary, this RI mechanism aims at holding the stakeholders responsible and thus optimizing the capacities offered by the network by creating systematic and fixed reciprocal incentives involving penalizing the infrastructure manager (IM) or train path applicant in the event of cancellations or modifications made by the latter. It targets, on the one hand, the effective and stable issue of allocated train paths, by encouraging the infrastructure manager of the national rail network to not cancel or modify them, and on the other hand, it targets the early return and stabilization of the capacities reserved by train path applicants both for freight and passenger transport. Each year, penalties due by RUs or the IM reach approximately 15 to 25 Mio € and are slowly decreasing, showing that this mechanism starts showing effects.

5 Conclusion

This is the first attempt of IRG-Rail to provide a detailed overview of the practices of reservation charges across the main IMs operation in the countries of IRG-Rail members participating in this study. The report shows that the most common cases of reservation charges are cancellation charges. Some countries also charge for amendments.

We were surprised to see that there is wide variety in the understanding of what constitutes a cancellation and an amendment (see Section 3.1), which lead us to the conclusion not to show and compare the quantitative data that we had collected, because we do not believe that we would compare like with like. Additionally, it was rather difficult to collect quantitative data on the number of cancellations, train km, and charges levied for cancelled capacity. In order to be able to evaluate the effect of the cancellation charge, IMs and RBs should collect more data.

Our analysis shows that it is quite common for countries to differentiate, the charges according to time. However, only a few countries change the methodology of the calculation of the charges based on the time before the departure. Most notably Germany (see Section 4.3.1) and France (see Section 4.4.1). Generally, time and the price level seem to be the most important factors to differentiate the cancellation charge. Cancellation charges are usually lower the earlier the capacity is cancelled. This should set an incentive for RUs to give up booked capacity in order for other RUs to be able to use it.

There are only very few cases of a further differentiation across main services (freight vs. PSO / Non-PSO) and most countries have a natural cap on the cancellation charge because it is charged as a percentage of the original TAC. Only in a few countries, RUs do have to pay an extra charge on top of the TAC in case of a no show.

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The analysis of received responses shows that amendments are treated differently across IRG Rail members. The majority of IRG Rail members treat amendments as a cancellation and only some countries apply a different charge or allow for amendments to avoid cancellations. Concerning the issue of Force Majeure and cross network traffic, many countries do not charge in these cases, but in some countries the practices are not very transparent or not discussed at all.

Only a few countries have done an evaluation of the effect of reservation charges and it will be interesting to see how these charges adapt over time and if their intended impact can be observed.