Regulating Connectivity of Multimodal Digital Mobility Services

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Multimodal Digital Mobility Services (MDMS) increase the attractiveness of the public mobility sector and thereby contribute to sustainable, demand-oriented and climate-friendly passenger transport. However, MDMS are currently deployed in a fragmented manner, lacking a proper legal and market framework to develop more successfully and to provide a full range of offers across the EU. The mobility sector is characterised by market power asymmetries and vertical integration, which are obstacles to the deployment of MDMS. These obstacles must be overcome by a clear European legal framework providing adequate regulatory instruments in order to create a level playing field that enables effective competition in the distribution markets. When shaping this legal framework within the MDMS-Initiative of the European Commission, existing legislation from other regulated sectors can be considered as legislative references.

Keywords: multimodal digital mobility services; distribution markets; data access; unbundling; distribution commission

I. General Need for Regulation

1. Importance of MDMS and Intermodal Transport Connectivity

As digitalisation advances, the mobility sector is undergoing major changes. New types of mobility offers are being developed, which concentrate on the distribution level only ('Mobility as a Service'). This includes accompanying services such as travel information, comparisons of transport modes or real-time information, as well as the accessible and digital sale of tickets. The focus is particularly on multimodal digital mobility services (MDMS) that should enable users to combine tickets from different transport providers and transport modes in a uniform digital booking process and thereby ensure *intermodal transport connectivity*.

Under its MDMS Initiative,[1] the European Commission defines MDMS as 'systems providing information about, inter alia, the location of transport facilities, schedules, availability and fares, of more than one transport provider, with or without facilities to make reservations, payments or issue tickets[2] (eg route-planners, Mobility as a Service, online ticket vendors, ticket intermediaries). They help both passengers and/or other intermediaries compare different travel options, choices and prices, and can facilitate the sale and re-sale of mobility products from different operators within one or across several transport modes. By facilitating access to information, booking and payment of mobility services, these services will improve ecological sustainability, resilience, efficiency and comfort of the transport system.

Providers of MDMS do not focus on the demand for a single transport mode but integrate several transport modes and transport providers (railway companies, airlines, long-distance bus providers and

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1 Commission, 'Proposal for Multimodal digital mobility services' <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13133-Multimodal-digital-mobility-services_en> accessed 13 July 2023.

2 Commission, 'Inception Impact Assessment on MDMS' Ares(2021)6062336, 1.

means of urban and regional transport) into a single mobility app or online portal. For example, successive tickets for passenger rail transport can be combined with airline tickets, long-distance bus tickets, rental vehicles including car-sharing or rental bicycles. This facilitates access to multiple travel options and increases the overall attractiveness of the mobility sector. MDMS go beyond the mere distribution of individual tickets and, accordingly, constitute a new form of mobility services. The generation of efficient multimodal transport chains via internet-based mobility platforms creates specific mobility services, ie distinct in value-adding within one or across several transport modes, however, based only on the level of digitised distribution.

Moreover, MDMS play a central role in terms of transport policy.[3] Rail transport in particular is supposed to substitute for road and air transport. Thus, advancing digitalisation, as well as the offer of MDMS at the distribution level, contribute to an innovative mobility sector with more demand-oriented and climate-friendly regional and supraregional transport services.

MDMS are currently deployed in a fragmented manner, lacking the proper legal and market frameworks to develop more successfully and to provide a full range of offers across the EU. While 'Mobility as a Service' applications are being developed in many cities, the legal framework for their development varies from one Member State to another.[4] For long distances, few MDMS exist that offer comprehensive multi-modal, multi-operator options to passengers. Many issues remain, such as difficult co-operation between mobility operators and MDMS; lack of access to data; complex and lengthy negotiations to obtain licences and distribution agreements; the lack of common standards and interfaces and the lack of solutions concerning revenue sharing.[5] In some cases, those distribution agreements between operators (both public and private) and mobility service providers are unbalanced, due to the inequality of bargaining power in favour of incumbent operators. Different market realities exist for the distribution of transport products depending on the respective modes. As a result, the societal, economic and environmental benefits from enhanced multimodality and the use of the most sustainable transport modes are not fully exploited. Some current practices also risk limiting competition among transport service providers by restricting access to customers and to the development of a level playing field for transport services.[6]

One of the main risks is that incumbent MDMS providers adopt anti-competitive practices that limit the proper deployment of MDMS.[7] In some cases, MDMS incumbents do not integrate other operators' offers, leading to less transparency, less comparability and fewer choices for users. This behaviour is especially likely to occur when a vertically integrated MDMS provider is also an operator, competing with other operators (eg large incumbent state-owned railway undertakings). In other cases, within the terms of commercial agreements for land-based modes, waterborne and maritime transport, operators limit the ability of MDMS to compete on equal footing by restricting access to equivalent and relevant data, as well as refusing to grant fair, reasonable and non-discriminatory remuneration.

The proper deployment of MDMS thus requires a distribution-related regulatory regime, as many transport sectors (particularly the railway sector) are still characterised by vertical integration and market power asymmetries. Incumbents' unwillingness to cooperate hinders market entry, particularly for external mobility service providers.

2. Data Bottleneck

As addressed by the Commission within the MDMS Initiative, a proper deployment of MDMS requires, in particular, a transparent and non-discriminatory third-party access of MDMS to incumbent operators' real-time forecast data and journey information, as well as data necessary to ensure effective competition.[8] Access to and the processing of real-time forecast data is of central importance for the entire planning and conception of multimodal travel chains as tailored to the specific needs of travellers, thus rep-

3 Commission, 'The European Green Deal' COM(2019) 640 final, 12.

4 Regarding the need for regulation in the German railway sector, see Christian Koenig and Carlos D Cesarano, 'Novellierungsbedarf der Eisenbahnregulierung zur Förderung eines wirksamen Wettbewerbs im Vertrieb internetbasierter Mobilitätsdienstleistungen' (2023) N&R, 42.

5 Commission, 'Inception Impact Assessment' (n 2) 2.

6 Ibid.

7 Ibid, 3.

8 Ibid, 4.

resenting a functional condition for business models designed to book multimodal travel chains (data access as an 'essential facility'[9]). Hence, third-party data access is necessary for the market entry of MDMS.

Furthermore, third-party data access and the herewith associated provision and development of MDMS is also essential for transport providers competing with incumbents at the transport level. MDMS constitute an important channel to increasing the reach and demand for transport services, particularly for much smaller and less popular transport providers.[10] However, if travellers are steered to incumbent's channels, alternative transport providers will reach only a few potential customers for their transport services, and incumbent's market power will become even more entrenched in the transport markets. Against this background, access of MDMS to real-time forecast data and data necessary to ensure effective competition is both a central functional condition for competition at the distribution level and a catalyst for competition at the transport level, as transport providers competing with incumbents can increase their reach and gain new customers through new types of mobility platforms. Thus, third-party data access is of major importance for the competitive character of the entire transport sector.

In order to ensure effective competition at both the transport and distribution levels, regulation of the transport sector must comprise the entire value chain. Value chains in the transport sector are comparable with those in conventional network industries. Regulation of the energy industry, for example, is geared towards a three-part value chain,[11] which certainly has parallels to the transport sector regarding the economic need for regulation. However, in contrast to the energy industry, the transport sector lacks any access, tariff and unbundling regulations with regard to the distribution level. Such regulation is crucial for the societal, economic and environmental benefits from enhanced multimodality and, in particular, the use of the most sustainable transport modes based on transparent consumer choice.

The energy and transport sectors are comparable, as the separation between the network infrastructure-bound service (generation in the energy sector, transport modes in the transport sector) and the distribution level enables business models that focus solely on distribution. In the energy sector, for example, this has led to a competitive distribution environment, allowing end customers to choose from numerous offers from energy providers that operate only at the supply level. This increases public welfare, particularly through creating affordable prices and attractive offers for end customers.

The difference between the energy sector and the transport sector is that the distribution of energy (electricity or gas) does not require access to data, as energy carriers do not differ in quality or delay the transport process. On the other hand, distribution in the transport sector, particularly through MDMS, relies on such information in the form of real-time forecast data. In contrast to the energy sector, access to data, which indicate the quality of the distributed end-customer service, is a functional condition, as without data access, the coordination of multimodal travel chains (eg re-adjustments in cases of unscheduled cancellations or delays) is impossible.

Whereas regulatory provisions with regard to distribution in the energy sector are limited to consumer protection through the structure of supply contracts,[12] the transport sector consequently requires a bottleneck regulation with regard to the real-time forecast data. The network level not only constitutes a bottleneck for the transport level due to the infrastructure (ie rail infrastructure); rather, the network level represents a bottleneck for competition at the distribution level due to the real-time forecast data with regard to transport services.

In addition, the real-time forecast data do not only originate from transport infrastructure operators at the network level, but also from transport providers carrying out the actual transport service. Real-time forecast data of passenger transport relevant for the distribution level comprise processed da-

9 The European Court of Justice first applied the 'essential-facilities doctrine' in Case C-7/97 *Oscar Bronner GmbH & Co. KG v Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG and others* [1998] ECLI:EU:C:1998:569.

10 For example, the German Federal Cartel Office has identified this correlation with regard to the railway sector in the press release on the pending proceedings against *Deutsche Bahn* (<https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Pressemitteilungen/2022/20_04_2022_Bahn.pdf?__blob=publicationFile&v=4> accessed 13 July 2023).

11 Generation, transmission and supply.

12 For example, 'Consumer Empowerment and Protection' within the meaning of Directive (EU) 2019/944 of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU [2019] OJ L 158, art 10 et seq.

ta which are objectively suitable for predicting the further probable course of the journey, considering known or expected influences such as operational disruptions or scheduling decisions. The data also includes information on the capacity utilisation of transport modes due to previous bookings. These impacts on the further expected course of the journey stem both from the sphere of the transport infrastructure operators (eg track changes or infrastructure-related major disruption events, known as 'track-specific forecast data') as well as from the sphere of the transport service providers (eg information on train cancellations or replacement journeys, known as 'transport-specific forecast data').

Against this background, access to real-time forecast data, which consist of track-specific forecast data and transport-specific forecast data, constitutes a functional condition for business modelling of mobility service providers at the distribution level. Thus, both the network level and the transport level in the transport-specific value chains represent a bottleneck for competition at the distribution level due to the available data.

3. Range of MDMS Bottleneck Regulation

Accordingly, a data-specific bottleneck regulation of the transport sector must be established through specific regulatory obligations and unbundling provisions which enable market access for external mobility service providers. In particular, real-time forecast data must be available to external mobility service providers on a non-discriminatory basis (see Section II).

In addition to the scope of the Commission's Inception Impact Assessment within the MDMS Initiative, an MDMS Regulation should establish further regulatory instruments necessary to enable mobility service providers offering MDMS to enter and compete in the distribution markets, thereby creating 'intermodal transport connectivity'. Distribution markets in the transport sector shall be comprehensively liberalised. The aim should be effective competition in favour of all actors. Against this background, the following regulatory components are necessary to overcome market power asymmetries and vertical integration currently hindering the business activities of competitors in the distribution markets:

- Legal, informational, and accounting unbundling (see Section III).
- Regulatory entitlement to be granted a fair, reasonable, and non-discriminatory distribution commission (see Section IV).
- Avoidance of margin squeezes (see Section IV).

II. Third-Party Data Access

1. Data as an Essential Facility

Mobility service providers offering MDMS carry out a value-added service to the user that goes beyond the mere mediation of transport offers or their distribution. This service consists of a combination of offers from various transport providers, the provision of comparison possibilities of travel routes according to different preferences of the traveller, the individualisation and optimisation of travel chains as well as the provision of travel-related information and services. This service spectrum of mobility service providers is characterised by the fact that access to and the processing of real-time forecast data represent an essential component of MDMS:[13]

- The search and comparison of travel connections as well as the sale of tickets and post-sale assistance to passengers via MDMS requires access to real-time forecast data, which is needed in particular for short-term and daily booking as well as search queries (eg while on the move). Only the integration of real-time forecast data can avoid showing customers delayed or cancelled connections.
- Travel assistance provided by mobility platforms in real time also relies on real-time forecast data, as users need to be informed about current delays, cancellations, changes and transfer times for the booked journey, for example, in order to provide a timely alternate route if a connection is cancelled. These are also essential factors of travel comfort and customer satisfaction: information based on real-time forecast data is essential, especially for travellers with limited mobility and travellers who want to use waiting and transfer times efficiently (eg for shopping).
- The offer of multimodal travel chains particularly relies on real-time forecast data. Only reliable in-

13 Commission, 'Inception Impact Assessment' (n 2) 4.

formation on well-running and efficient synchronised transport modes, including *inter alia* short-term changes in timetables, enables mobility platforms to coordinate and promote multimodal travel chains by permanently linking and optimising routes with suitable connections between independent transport providers.

- Supplementary service components of MDMS can also only be provided through access to real-time forecast data. This includes, for example, accompanying services in the form of automated rebooking, refunds or compensation functions. This aspect is particularly important in the context of creating a harmonised framework for passenger rights across Europe.

In addition, the transport sector is characterised by delays and short-term cancellations, which underscores the central importance of access to real-time forecast data for the provision of MDMS. Due to frequent delays and short-notice cancellations, mobility platforms are unable to provide MDMS based solely on target timetable data. The offer of seamless and optimised travel connections is dependent on the real-time recording of actual timetable data and its adjustments in order to enable precise coordination and a comparison of transport connections.

Without access to real-time forecast data, it would be impossible to coordinate multimodal travel chains, particularly to make any short-term adjustments in cases of unscheduled cancellations or delays. Only permanent, continuous and real-time access to sales-relevant forecast data enables mobility service providers to develop and offer innovative MDMS and optimise the user experience in order to attract and retain customers.

2. Range of Data Access

Alongside real-time forecast data, third-party data access should comprise other data necessary to ensure effective competition. This includes, for example, specific information on all available fares, special offers and discounts, loyalty cards, railcards, subscriptions and seasonal tickets of transport services (commercial data), the access to which is a functional condition for MDMS business models.

In order to create a level playing field in the distribution markets, third-party data access requires a broader view on all data necessary to ensure effective competition. In particular, real-time information on current fares of transport providers should be covered by third-party data access, since MDMS providers need this information in order to ensure that customers receive the most favourable offer. Early or exclusive disclosure of such information to integrated mobility service providers, on the other hand, would lead to crowding-out effects, since integrated mobility service providers could more easily offer their customers more favourable mobility services.

Such access to commercial data is also necessary for effective avoidance of margin squeezes.[14] Only transparent access to the fares of transport providers enables external mobility service providers to identify margin squeezes considering wholesale and retail charges of vertically integrated undertakings.

However, third-party access to other data should not be limited to commercial data only. Rather, the access claim should comprise all data that constitute a relevant competitive factor and functional condition for specific MDMS business models. This includes, for example, information necessary to assist passengers in requesting compensation or refunds, the full range of seat reservation options, data on onboard services and special transport (for example, animals; bikes) as well as information necessary to assist passengers when boarding an alternative transport service in case of delays, such as delay confirmation tools and information on journey continuation options.

Third-party data access should thus include all data necessary for competitors to provide MDMS as efficiently as vertically integrated mobility service providers. The outcome should be a comprehensive equality of access to all sales-relevant data and information enabling competitors to operate on an equal footing ('data related level playing field').

3. Modalities of Data Access

The data access should be granted on fair, reasonable, non-discriminatory and transparent terms (FRAND principles). It may be carried out on regulated terms based on an order of data access by an independent

14 See Section IV.2.

authority,[15] or on negotiated terms according to a contract that sets out the modalities of data usage.[16]

Third-party data access should address vertically integrated transport undertakings. The currently prevailing potential for abuse, in particular regarding the provision of sales-relevant real-time forecast data, comes from vertically integrated undertakings that collect the data and make it available to their own integrated mobility service providers, exclusively or at significantly more favourable conditions. A general extension of third-party data access to all transport providers or operators of transport facilities that are not vertically integrated does not appear necessary at the present time. While network economies (eg in the energy or telecommunications sector) are often characterised by the special features of a 'natural monopoly', this economic implication that justifies a generalised third-party access related to all network operators does not exist regarding the data in the transport sector. The need for regulation of MDMS data access rather follows from the prevailing potential for abuse by vertically integrated undertakings.

By contrast to third-party access rights in other sectors, data access should not be subject to a right of refusal of the addressee due to a plea of *impossibilium nulla est obligatio* for operational or economic reasons.[17] Such access refusal is only justified for those network infrastructures with limited capacity. The right of access refusal is thus a manifestation of limited network capacities as well as of cost-intensive capacity expansion. Data access, however, is neither subject to limited capacities nor to any need for cost-intensive capacity expansion. Rather, the vertically integrated transport undertaking may incur additional costs associated with the provision of the data. In this regard, it must be considered that these costs for data collection, cleaning, storage and maintenance also regularly incur without third-party access as 'anyway-costs', particularly in the event of proper unbundling[18] of the vertically integrated transport undertaking. Moreover, those additional costs exceeding 'anyway-costs' (eg for external data interfaces) should instead be compensated through an appropriate fee.[19]

4. Content of Data Access

In terms of content, third-party data access should provide comprehensive real-time forecast data in the form of processed data that are suitable for objectively predicting the further expected course of the journey within one or across several transport modes, taking into account known or expected influences, such as operational disruptions or scheduling decisions. Forecast data is typically determined and compiled by means of a timetable-related target or actual comparison and by including additional information, empirical values, historical data or external data sources. Real-time forecast data include, for example, forecast arrival and departure times and the current entry and departure track, data on cancellations, route changes, additional journeys and replacement services, data on the reason for a cancellation or delay, information on major disruption events (current and future events, for example, planned maintenance) and track changes. These data are continuously generated and updated in order to map arrival and departure times, as well as short-term timetable changes, as accurately as possible (ie in real time).

When granting third-party data access, structural preferential treatment of vertically integrated mobility service providers must be prevented. The data made available to external mobility service providers must not be inferior in quality, timeliness and content to data made available to affiliated (ie integrated) mobility service providers. For this purpose, it shall also be ensured that the mobility service providers receive the relevant data in real time directly from the part of the vertically integrated undertaking that collected the forecast data ('first-hand data access'). Accordingly, track-specific forecast data (eg track changes or infrastructure-related major disruption events) shall be provided by the infrastructure operator, whilst transport-specific forecast data (eg information on cancellations or replacement journeys) shall be provided by the transport provider.

The data must be provided immediately in real time via interfaces or equivalent technical possibilities for permanent electronic data transmission.

15 Known as 'regulated third-party access', see for example Directive (EU) 2019/944, art 6.

16 Known as 'negotiated third-party access', see for example Directive 2009/73/EC of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC [2009] OJ L 211, art 33, para 3.

17 For example, Directive (EU) 2019/944, art 6, para 2.

18 See Section III.

19 See Section II.5.

Sales-relevant forecast data in particular are characterised by the fact that they are objectively suitable for predicting the further probable course of the journey, considering known or expected influences such as operational disruptions or scheduling decisions. These influences are regularly characterised by a sudden and short-term occurrence and cannot always be reliably predicted in the long term. Accordingly, the timeliness of data provided is essential for its sales-specific usability. Forecast data only have a real added value for the optimisation of travel routes, traveller information and other uses carried out by providers of MDMS if they reflect the current comparison between the actual and the target status.

Consequently, the addressees of the data access claim must provide the data without culpable delay at the time of collection via a machine-readable format by means of an interface or an equivalent technical possibility for permanent electronic data transmission.

5. Compensatory Data Access Fee

The vertically integrated transport undertaking may charge a compensatory fee for granting data access. However, the fee must be fair, reasonable, non-discriminatory and transparent in terms of both amount and composition. In particular, the fee charged to external mobility service providers must not be less favourable than the fee actually charged or calculated by the vertically integrated undertaking in comparable cases for granting data access to affiliated (ie integrated) mobility service providers. External and integrated mobility service providers are to be treated under equal terms and conditions for granting data access.

The fee should be calculated on the basis of additional costs incurred by the vertically integrated undertaking due to the permanent provision of real-time data. The granting of data access should not economically enrich the vertically integrated transport undertaking. Rather, the fee should merely be intended to compensate for the economic disadvantages suffered by the vertically integrated transport undertaking in the course of granting third-party data access (compensatory fee). Accordingly, the basis of composition for the fee should not be the economic value of the data, but rather the additional costs incurred by the vertically integrated transport undertaking. This includes additional costs for the establishment and maintenance of interfaces or other equivalent technical possibilities for the permanent electronic transmission of data in the course of third-party data access.

When calculating the fee, it must be considered that the vertically integrated transport undertaking, in view of a proper unbundling regulation,[20] must set up an intra-group interface or other equivalent technical possibility for permanent electronic data transmission to make the data accessible to the integrated but unbundled (eg distinct legal, informational and accounting) mobility service providers. The costs for setting up this intra-group interface or other equivalent transmission option are therefore 'anyway-costs' that cannot be refinanced via the data access fee. Rather, the compensatory data access fee only covers the additional costs that are incurred in the course of third-party data access in addition to the already required intra-group facility. If the interface or other equivalent transmission options to be set up within the group can also be used by external mobility service providers without cost-increasing adaptation or expansion, there are no additional costs that would have to be compensated by data access fees. Accordingly, costs that vertically integrated undertakings have to bear granting data access under unbundling conditions, *inter alia* to their affiliated distribution unit, are presumed to be 'anyway-costs' not qualifying for compensation.

III. Legal, Informational, and Accounting Unbundling

1. Need for Unbundling Regulation

Third-party data access creates a level playing field for the entry of mobility service providers to distribution markets. However, it must also be ensured that competition in the distribution markets is not distorted by data and information flows within the vertically integrated undertaking. For example, railway undertakings operating at the transport level, as well as operators of railway facilities active at the network level, may have information at their disposal, the disclosure of which may cause competition-distorting

20 See Section III.

information advantages for integrated mobility service providers.

On the one hand, it must be ensured that economically advantageous information regarding the activities of transport providers, as well as operators of transport infrastructure, is always disclosed in a non-discriminatory manner. On the other hand, commercially sensitive information that endangers competition at the distribution level must be kept confidential. This includes, in particular, information about mobility service providers who are granted third-party data access ('data users'), which may give integrated mobility service providers a competitive advantage in the distribution markets.

Reference is made to the informational unbundling in the energy sector[21] that is intended to guarantee non-discriminatory network access and undistorted competition on the upstream and downstream energy supply markets. The confidentiality obligation regarding commercially sensitive information is intended to prevent competitors of network users active on the upstream and downstream markets from gaining knowledge which could lead to an unjustified market advantage. The requirement of non-discriminatory disclosure of commercially advantageous information is intended to avoid deliberate imbalances in access to activity-related information that distort competition in upstream and downstream markets.

In the transport sector, there is a similar interest in protecting competition through informational and data-specific unbundling with regard to non-discriminatory data access. At this point, however, the difference between the transport sector and the energy sector becomes apparent. Whereas in the energy sector only the network level acts as a bottleneck for competition on the generation and supply levels, the bottleneck for competition on the distribution level in the transport sector is on the infrastructure level as well as on the transport level. On the one hand, mobility service providers are dependent on information and data from both the infrastructure level and the transport level. On the other hand, however, data and information flows from both levels can distort competition at the distribution level. Thus, the informational and data-specific unbundling must include both levels. Independence of the distribution level from the network level as well as the transport level must be ensured to protect competition on the distribution markets.

2. Legal Unbundling

First, legal unbundling of mobility service providers is necessary to ensure independence from transport providers, operators of transport infrastructure and, in vertically integrated transport undertakings, from other areas within the undertaking. The proper application of informational and data-specific unbundling provisions requires legal unbundling. Without a legal separation of the undertaking's segments, it would not be possible to clearly determine the addressee of the unbundling requirements. In addition, there is a risk of circumvention of the unbundling provisions through internal restructuring measures (eg non-transparent establishment of cross-sectional departments) if the mobility service provider, whose independence must be guaranteed, legally remains in the vertically integrated undertaking. Legal unbundling requires the mobility service provider to be legally independent from transport providers, operators of transport infrastructure and, in vertically integrated transport undertakings, from other areas of the undertaking, which must be ensured by separating the legal form. Although no specific legal form is predefined for the organisation of the separate undertakings, the legal form of the mobility service provider must be completely separated from the transport and infrastructure level. In order to ensure effective separation, the different legal undertakings must themselves operate and provide services in the different markets.

To ensure proportionality of legal unbundling, an MDMS Regulation should establish a *de-minimis* rule for mobility service providers with no significant competitive impact.[22] In particular, small and regionally operating transport providers that distribute their own tickets and thereby become mobility service providers should be subject to a *de minimis* rule. Without a *de minimis* rule, every vertically integrated transport undertaking, regardless of its size or relevance for competition, would have to set up a separate distribution subsidiary. Subject to the application of the *de minimis* rule should be the vertically integrated transport undertaking, which must be considered as a whole. This is necessary to prevent

21 Directive (EU) 2019/944, art 41.

22 For example, Directive 2009/73/EC, art 26, para 4 also contains a *de minimis* provision as an exception to the legal unbundling of distribution system operators.

vertically integrated transport undertakings from circumventing legal unbundling by establishing subsidiaries which, if considered in isolation, would fall into the scope of the *de minimis* rule.

3. Informational Data-Specific Unbundling

Furthermore, informational data-specific unbundling provisions are necessary to prevent information and data flows between the infrastructure and transport levels and the distribution level that endanger competition at the distribution level.

This includes a confidentiality obligation regarding 'commercially sensitive information'.[23] Commercially sensitive information includes information on external mobility service providers operating at the distribution level which the transport providers, infrastructure operators and vertically integrated transport undertakings obtain by granting third-party data access ('data user-specific information'). Accordingly, the framework conditions of data usage contracts, as well as the amount of the fees to be paid for data usage, are subject to a confidentiality obligation, as the knowledge of integrated mobility service providers about such information can create competitive advantages on the distribution markets.

In addition, 'economically advantageous information' must be disclosed in a non-discriminatory manner.[24] The requirement of non-discriminatory disclosure of economically advantageous information covers all information about the activities of the addressees of unbundling ('activity-related information', ie information at the transport or infrastructure level) which is of economic relevance to the business activities of mobility service providers. This includes, for example, information from transport providers on an adjustment of the conditions of transport and new ticket models or information from the operators of transport infrastructures on the development of new route segments, for which special discount campaigns are conceivable. Such information must be disclosed equally to all mobility service providers, allowing them to adapt distribution models in a timely manner. Early or exclusive disclosure to integrated mobility service providers, on the other hand, would create a competitive advantage in terms of knowledge, since integrated mobility service providers could inform their customers earlier and better about adaptations and innovations and offer MDMS specifically tailored to these.

4. Accounting Unbundling

To avoid competition-distorting cross-subsidies within the vertically integrated undertaking, accounting unbundling provisions are necessary.[25] It must be ensured that neither the transport nor the infrastructure level transfers financial resources to the distribution level that can lead to market advantages for integrated mobility service providers. Therefore, provisions on the unbundling of accounts are intended to protect competition on the distribution markets from financial ambiguities. Financial transfers from the transport or infrastructure level to the distribution level could result in financial advantages for integrated mobility service providers. The consequences could, for example, be predatory pricing tactics. The separation of accounts for activities at the transport, infrastructure and distribution level, as well as other activities outside these areas, is therefore intended to avoid discrimination, cross-subsidisation and distortions of competition.

Moreover, legal and accounting unbundling provisions are interrelated closely with the avoidance of margin squeezes.[26] Often, margin squeezes occur due to a lack of unbundling. From an economic perspective, margin squeezes are a special form of predatory pricing tactics, where an undertaking accepts short-term losses in order to drive one or more competitors out of the market. Therefore, the vertically integrated distribution divisions, which deliberately undercharge on retail fees, can only survive in the market if they are kept alive by the incumbent through opaque resource transfers. From an economic point of view, these vertically integrated distribution divisions also receive compensation and commissions for their distribution services from the transport providers affiliated with them, irrespective of the open or concealed intra-group settlement method.

Legal and accounting unbundling are necessary regulatory components to avoid such cross-subsidies

23 For example, Directive (EU) 2019/944, art 41, para 1, sentence 1.

24 For example, ibid, sentence 2.

25 See, for example, Directive (EU) 2019/944, arts 55-56.

26 See Section IV.2.

and financial ambiguities that enable the incumbent to impose margin squeezes. Therefore, an MDMS Regulation should ensure a clear legal and accounting separation between the distribution and transport arms of the incumbent in order to prevent predatory pricing tactics. Without unbundling, on the other hand, the vertically integrated distribution division would be left in a financially advantageous position and, through hidden cross-subsidies, would be enabled to undermine the market position of third-party mobility service providers through predatory low-price tactics in the form of margin squeezes.

IV. Remuneration of Mobility Service Providers and Avoidance of Margin Squeezes

1. Distribution Commission

To ensure sustainable and long-term effective competition in the distribution markets, a regulatory entitlement to be granted a fair, reasonable and non-discriminatory distribution commission is necessary. This is essential to ensure the competitiveness of external mobility service providers in relation to integrated mobility services providers that are part of a vertically integrated transport undertaking.

The business model of mobility service providers in the distribution markets relies on distribution commissions, which represent a central revenue source and are thereby essential for covering costs and generating an adequate profit margin. Distribution commissions regularly depend on the successful sale of a ticket, causing a high degree of variability within the central revenue source.

On the other hand, the costs for MDMS are characterised by high initial investments. High initial investments are incurred in connection with the development of the platform, the programming of algorithms and the integration of multiple transport services. Fixed costs in ongoing operation consist of personnel costs, costs to ensure the operation of the online portals and apps or advertising costs. MDMS only have to bear a few variable costs in connection with their offer of integrated mobility platforms. These include, for example, processing costs for bookings, processing fees for debit and credit cards – given that a platform also handles payment processing – or the costs of cancellations and refunds. In addition, however, significantly higher overhead costs exist which consist, in particular, of marketing costs, system costs (related to the technical provision of MDMS) and personnel costs, as well as other overhead costs (eg costs in connection with office buildings or customer support and information, which is often carried out by the company's own service centres). Another cost component that would have to be included in the composition of the distribution commission would be the data access fee, to be formed only on the basis of the additional costs, which the mobility service providers would have to pay in the context of data access.[27]

Without such regulatory entitlement, vertically integrated transport undertakings would be free to grant a distribution commission within the scope of framework agreements for third-party MDMS. Due to existing market power asymmetries, vertically integrated undertakings could counteract the business models of external mobility service providers in the distribution markets by refusing to pay commissions. A regulatory entitlement, however, secures market entry by ensuring that external mobility service providers receive distribution commissions as a central revenue source.

In addition, vertically integrated mobility service providers also receive a distribution commission in material terms through intra-group settlement mechanisms, irrespective of the designation or structure of this remuneration in the internal settlement. Vertical integration thus creates a financial imbalance between vertically integrated and external mobility service providers, which needs to be overcome by adequate regulatory instruments. A regulatory entitlement thus ensures equality between vertically integrated and external mobility service providers, thereby creating a level playing field regarding the financial situation on the distribution markets ('financial level playing field').

In other regulated network industries, there is no need for such regulatory entitlement to be granted a fair, reasonable and non-discriminatory distribution commission. Instead, sector specific regulation focusses on the adequacy of the fees received by owners of essential facilities (ie network fees) only. Distribution commissions, on the other hand, generally do not require sector-specific regulation, since distri-

27 See Section III. 5.

bution services in other network industries, such as the energy or telecommunications sector, differ significantly from distribution services in the transport sector. For example, in the energy sector, suppliers buy electricity on the wholesale market to resell it under their own brand on the supply market. Besides specific resale features, there are no distribution services with an added value, justifying the payment of a distribution commission. In the transport sector, however, MDMS in particular create innovative 'intermodal transport connectivity' as a value-added service. With regard to the substantial investments in 'intermodal transport connectivity' tools by MDMS providers, their regulatory entitlement to a fair, reasonable and non-discriminatory distribution commission is both appropriate and necessary.

However, it is not sufficient to ensure that mobility service providers receive a distribution commission. Rather, the amount of the commission granted has to be fair, reasonable and non-discriminatory. In particular, distribution commissions must be sufficient to cover the costs of MDMS and to achieve an adequate profit margin. Without such commissions, on the other hand, mobility service providers could not be profitable in the medium and long terms, and, consequently, would exit the market. An adequate distribution commission enables mobility service providers to be competitive and is of constituent importance for effective competition in the distribution markets.

The transport sector is characterised by vertical integration and market power asymmetries. Vertically integrated transport undertakings can drive external mobility service providers into economic loss zones by granting too low (and thus inadequate) distribution commissions. This potential for discrimination is mitigated by a regulatory entitlement to be granted a fair, reasonable and non-discriminatory distribution commission (FRAND principles apply). The FRAND principles require the amount of the commission to be based on the value of the distribution service carried out by mobility service providers. Distribution commissions must cover the costs of MDMS and enable mobility service providers to achieve an adequate profit margin. It is particularly important to distinguish between 'fully integrated mobility platforms' (providing end-to-end ticketing service) and 'partially integrated mobility platforms' (connecting the customer to the operator after search and selection). A flat and uniform commission scheme that is applied to all mobility service providers is thus inappropriate. Rather, an appropriate distribution commission is always subject to a cost-oriented design.

Distribution commissions shall be structured in a non-discriminatory manner. In particular, distribution commissions paid to external mobility service providers must not be lower than distribution commissions received by affiliated or integrated mobility service providers for equivalent distribution services. A discrepancy between internal and external distribution commissions, on the other hand, would distort competition and endanger the competitiveness of external mobility service providers. Integrated mobility service providers would gain economic advantages and, through hidden cross-subsidies, could endanger the market position of external mobility service providers through low-price or predatory pricing tactics.

2. Avoidance of Margin Squeezes

To ensure the viability of MDMS in the distribution markets, margin squeezes must be avoided. From an economic perspective, margin squeezes represent a special case of an abuse of market power in the form of predatory pricing.[28] Predatory pricing occurs when a company accepts short-term losses in order to drive one or more competitors out of the market. Due to lower competitive pressure of reduced or even eliminated competitors, the vertically integrated undertaking can earn higher profits in the long run and compensate for short-term losses. The vertically integrated undertaking therefore aims to drive its competitors out of the market in order to maximise its own profits.

Margin squeezes are particularly likely to occur when a vertically integrated undertaking provides upstream services to its non-vertically integrated competitors, leaving such a small margin between the price for the upstream service ('wholesale charge') and its own end-customer price ('retail charge') that it is not possible for competitors to generate sufficient contribution margins.[29]

28 Richard Whish and David Bailey, *Competition Law* (7th edn, OUP 2012)754 et seq.

29 Ibid, 755.

To prevent predatory pricing tactics of vertically integrated undertakings, network economies related to the transport sector are already subject to provisions on the avoidance of margin squeezes. For example, Article 74 of Directive (EU) 2018/1972 contains specific provisions on price control, which is intended, in particular, to avoid price squeezes that could endanger competition. According to recital 192 of Directive (EU) 2018/1972, such price control in the telecommunications sector is necessary to avoid a margin squeeze whereby the difference between the retail prices and the interconnection or access prices charged to competitors who provide similar retail services is not adequate to ensure sustainable competition. Thus, the avoidance of margin squeeze is recognised as a regulatory imperative in sector-specific regulation.

The transport sector does not involve infrastructure-related upstream services (eg network access or interconnection in the telecommunications sector). However, mobility service providers offering MDMS on the distribution markets must acquire the travel permissions (ie tickets) from the transport providers at the upstream level. Thus, a cost-generating upstream service exists that requires a regulatory provision to avoid margin squeezes. The danger of predatory pricing tactics is just as present in the transport sector as it is in the telecommunications sector.

Moreover, margin squeezes are recognised as a category of the abuse of a dominant position within the internal market prohibited under Article 102 TFEU in the decision practice of the European Commission,[30] as well as in the case law of the European Court of Justice, on the special responsibility of dominant undertakings for existing competition. Accordingly, a dominant undertaking has a special responsibility to not allow its behaviour to impair genuine, undistorted competition on the internal market.[31] Dominant undertakings have to ensure that weaker market participants do not disappear from the market without being able to compete.[32] The requirement to avoid margin squeezes therefore has cross-sectoral validity and must also be implemented in the transport sector to allow effective competition on the distribution markets.

When determining adequacy of the achievable margin, the margin shall be compared to a cost benchmark sufficient to assess whether the achievable margin can cover all distribution costs, leaving an adequate profit margin. Long-run average incremental costs (LRAIC) should apply as cost benchmark. To determine the adequacy of the profit margin, the price level of the vertically integrated undertaking's end-customer services on the distribution markets is compared to the long-run average incremental costs incurred by external mobility service providers. Accordingly, it is not sufficient to assess whether the margin is adequate to cover the costs of an equally efficient – hence vertically integrated – competitor ('as efficient competitor'). Rather, the situation of a reasonably efficient competitor only active at the distribution level ('reasonably efficient competitor') is decisive.[33] This is necessary because

- the vertical integration, scale and scope advantages of the vertically integrated undertaking only lead to lower costs for the vertically integrated undertaking itself, but not for the external mobility service providers,
- the purchase and integration of the travel permissions by the external mobility service providers incurs transaction, integration and handling costs which are not incurred internally by the vertically integrated undertaking and
- external mobility service providers must undercut the price of the vertically integrated undertaking (which emerged from a state monopoly) in order to overcome its goodwill advantages.

Due to the absence of vertical integration and economies of scale and scope, even efficient competitors are not able to cover their distribution-related costs if they charge the same prices as the vertically integrated undertaking. Thus, the cost situation of a 'reasonably efficient competitor' that is not vertically integrated is decisive.[34] If the margin is sufficient for an integrated mobility service provider to achieve

30 *Napier Brown/British Sugar* (Case No IV/30.178) Commission Decision 88/518/EEC [1988] OJ L 284; *Deutsche Telekom AG* (Case COMP/C-1/37.451, 37.578, 37.579) Commission Decision 2003/707/EC [2003] OJ L 263; *Telefónica* (Case COMP/38.784) Commission Decision 2008/C 83/05 [2007] OJ C 83.

31 Cases C-280/08 *Deutsche Telekom v Commission* [2010] ECLI:EU:C:2010:603; Case C-209/10 *Post Danmark I* [2012] ECLI:EU:C:2012:172; Case C-52/09 *TeliaSonera* [2011] ECLI:EU:C:2011:83;Case C-295/12 P *Telefónica* [2014] ECLI:EU:C:2014:2062; Case C-23/14 *Post Danmark II* [2015] ECLI:EU:C:2015:651.

32 Cases C-280/08 *Deutsche Telekom*, para 178; C-209/10 *Post Danmark I*, para 25.

33 Case C-23/14 *Post Danmark II*, paras 59, 62.

34 Ibid, paras 59, 62.

a profit margin but is too low for an external mobility service provider to amortise his costs, an abusive margin squeeze occurs.

When assessing adequacy of the profit margin, granted distribution commissions must be considered and included in the achievable margin underlying the margin squeeze test. Consequently, an abusive margin squeeze occurs if the margin between the retail and wholesale charges is not sufficient to achieve an adequate profit margin despite the distribution commission granted.

V. Conclusions

To enable the provision of MDMS and thereby drive the continent to intermodal transport connectivity, a proper legal and market framework is necessary. An MDMS Regulation should overcome competitive obstacles for the deployment of MDMS and thereby comprise the following key components:

1. Third-party access to real-time forecast data and to data necessary to ensure effective competition: Third-party data access can be shaped with reference to infrastructure-specific third-party network access in the energy and telecommunications sector, set out in Article 6 Directive (EU) 2019/944 and Article 68 et seq Directive (EU) 2018/1972. Although data do not represent a network infrastructure in terms of a natural monopoly, the 'essential facilities doctrine' behind sector-specific network access nevertheless applies to data necessary to enter the distribution market in the transport sector. In order to enable competition, a *data-related level playing field* must be created.
2. Legal, informational and accounting unbundling of the distribution level: The energy sector provides a model for unbundling in order to avoid distortions of competition resulting from internal information flows or cross-subsidies in Articles 41, 56 Directive (EU) 2019/944. The transport sector also requires such unbundling to avoid distortions of competition by creating an *information-related level playing field* and *avoiding cross-subsidies*.
3. Fair, reasonable and non-discriminatory distribution remuneration (*distribution commissions*) and avoidance of margin squeezes: For example, Article 74 Directive (EU) 2018/1972 contains general provisions on the avoidance of margin squeezes in the telecommunications sector at the European level. In Germany, specific rules on margin squeezes apply in the telecommunications sector (Section 37, paragraph 2 No 3, Telecommunications Act - *TKG*) as well as in the postal sector (Section 20, paragraph 4, Postal Act - *PostG*),[35] providing a regulatory design model.

35 Thomas Brach, Justus Haucap and Christian Koenig, 'Die Anwendungsperspektiven der neuen Missbrauchsvermutung „Preis-Kosten-Schere" nach § 20 Abs. 4 PostG' (2021) N&R, 230.