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RAIL FREIGHT SERVICE BUSINESS MODEL DEVELOPMENT

Cost structure, pricing policies and revenue management

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ABSTRACT

Stimulating rail freight market is set high on the European policy makers' agenda in pursuit of efficiency and sustainability goals. This paper discusses developing business model to be used in this respect. It is important to understand main cost-drivers for rail freight services and pricing policies companies can adopt. We advocate the use of price differentiation strategy but observe limited application of it in practice due to the (supposed) weak position of service suppliers. We claim that price differentiation in combination of advanced logistics management techniques can lead to more successful business models than practiced today.

KEYWORDS

Intermodal rail services, business model, price differentiation, supply and demand

INTRODUCTION

In Europe, diverse policy measures and research projects have been dedicated towards the development of rail freight sector as a means to realise efficient and sustainable transportation system. Research projects RETRACK aims at establishing commercial viable and high quality rail freight services run by a group of private undertakings along the west-east European corridor. To realise this objective one main task is the development of business models (Ludvigsen, 2007). Triggered by this the aim of this discussion paper is to throw some light on the development of such business models taking into account special peculiarities of the rail freight market, and the problems to achieve full cost coverage. Term *business model* referred to in this paper addresses the question how rail freight services can best be optimised so that higher financial performance can be achieved for the rail operator/railway undertaking. This deals with, among others, cost structure, pricing strategies, and revenue management in relation to volume fluctuation and forms of collaboration among actors.

BUSINESS SEGMENTS OF RAIL FREIGHT MARKET

To determine which business models are successful it is important to first recognise the structure of the market in which rail freight parties operate. The rail freight market structure is characterised by four main business segments, namely, intermodal segments, block train segment, wagon group segment, and single wagon segment. In the intermodal business segment, a railway undertaking that owns (or sources in) traction resources does business via an (independent) rail operator, who has direct contact with the shippers and who takes full commercial risks for the service setup and occupation of the train. The entire transport service consists of two sub-services: the rail freight service provided by the rail operator for the shippers; and the traction service provided by the railway undertaking sold to the rail operator. In the rest three business segments a railway undertaking does business directly with the shippers. But the risk-taking forms vary: for block train segment the risk is fully covered by the shippers; for wagon group segment it is shared between shippers and the railway undertaking; and for single wagon segment the risk is borne by the railway undertaking alone. The contractual relationships involved in the intermodal segment are particularly worked out. It takes into account door-to-door rail-road transport chain including terminal operators and road operators, to be able to compare with road operation in an equivalent scenario.

COST-ELEMENTS OF RAIL FREIGHT SERVICES

In essence, total costs of rail freight service operation consist of six cost-elements: infrastructure costs; energy costs; overhead costs; labour costs; locomotive costs; and wagon costs (NEA, 2008). Infrastructure- and energy costs are variable costs. Overhead costs are fixed costs as it doesn't vary by the number of trains operated or by the volume fluctuation. The cost-elements of labour-, locomotive- and wagon resources are considered either as fixed or variable costs, depending on the type and length of the contract and whether these cost-elements vary together with the varying volume. For long these resources are contracted for long term and so the costs are fixed. Since the cost-driven private railway undertakings entered the market, short-term contracts are increasingly established to fulfil the needs of the private companies and to reduce the fixed costs. Nevertheless, companies desire to own a mix of long-term and short-term resources since short-term contracting runs higher risk of failing to attain scarce resources. In addition, there are also other costs involved, for example, long-run investments (accession to the network; investments in equipment, long-term staff), costs of marketing and sales activities, and costs relating to maintenance, spare capacity (equipments and staff). For simplicity, these costs are assembly incorporated in the cost categories mentioned above.

PRICING PRINCIPLES FOR INTERMODAL RAIL SERVICES

A rail operator prices his intermodal shuttle services based on three principles: (a) total operational costs plus agreed profit margin and risk compensation; (b) benchmark price from competing suppliers on similar routes or routes with similar distance or suppliers of other modes; (c) customer surplus (willingness to pay). This is founded on well-known transport economics. The risks refer to: (a) occupation degree of the wagons in allowed weight and length of the train; (b) supply and demand fluctuations mostly in relation to other modes of transport and seasonal patterns; (c) backhaul possibilities; (d) last minute cancellations; (e) no show. Furthermore, win-win situation (i.e. overall cost reduction, higher profits) can be gained when transparency/cooperation increases between the rail operator and railway undertaking. The advantages are: (a) economies of scope and lower transaction costs (cost

reductions through synergies); (b) both parties are jointly responsible and share risks and profit. The disadvantages are, however, (a) through open cost calculation parties see the total potential profit and may use their market power to acquire a higher share of that profit. This may potentially lead to friction between the parties. (b) *Entry barrier* in terms of transaction costs to build trust and common understanding; and *exist barrier* in terms of inflexibility and costs to quit consortium.

PRICE DIFFERENTIATION STRATEGY

To effectively implement price differentiation strategy the rail operator needs to understand their customers with regard to the distinctive characteristics of their shipments, operational constraints, and logistical requirements. We identify five areas where price differentiation can be applied for intermodal market segment: (1) lower price can be offered to these shippers if shipper delivers high volume; (2) when a shipper can give volume guarantee prior to the actual service execution, capacity utilisation becomes more predictable and hence lower price can be granted. But in practice, customer can hardly give guarantee due to market/trade fluctuation. This makes this type of price differentiation hard to achieve; (3) the weight and length capacities of the train are the range of rail operators to maximise capacity utilisation to optimise turnover and profit. In market segments where light and longer maritime containers are more available, lower price can be offered for shippers who have heavier and shorter continental containers to optimise both weight and length utilisation; (4) pricing based on remaining capacity can only be applied where there's no cheap alternatives and the negotiation position of the service provider is strong. In intermodal rail market where supply is larger than demand, rail operator prefers not to increase the price too high. (5) if the service is about to depart the rail operator can then consider dropping the price largely in the last minute to sell off the capacity for a lower price. Despite of the above, problems with implementation of price differentiation are foreseen: (a) shippers determine their transport prices for long-term and price differentiation does not fit into this system. (b.) efforts to change the current booking formula to match the pricing strategy; (c) the margin is not enough to create (spectacular) price differentiations; (d) prices of the competitor are public, but rebates of the demand volume and the guaranteed volume not; (e) supply is higher than the demand and as such price differentiation works partly.

REFLECTION ON SUCCESSFUL BUSINESS MODELS

Anchor customer business model for rail freight service advocated by Ludwigsen (2007) in RETRACK is considered unrealistic in most transport operations since new initiatives only pay part of the integral cost and cross-subsidisation exists to cover the difference between integral and attributable cost. The business model advanced in this paper is made to define the risk allocation of possible cost recovery among consortium partners. This note is to indicate the need for such alternative business models in order to avoid the risk that consortium will fail to find the necessary anchor customer to start the shuttle service. The alternative cost recovery presented here structure starts from another angle: 'charging what the traffic can pay' principle. This means that there is price differentiation between customers, and that those that can afford to pay a higher price than others, pay more and others pay less. There is no 'anchor' customer, but there are consortium partners that share risks of unrecovered cost. Starting customers only pay variable cost and part of the fixed cost, and as the success increases, other fixed costs are added and shared by others. There seems to be an opportunity for introducing business models where the risks of uncovered fixed costs are being shared at the expense of sharing excess revenues if the total amount of revenues is higher than the

integral costs. Each time a new partner enters into the consortium, some additional costs will have to be made. If these extra costs are less than the benefits that arise through scale economies, it is attractive to enlarge the consortium (with these additional shippers/customers). To make this business model work, a shareholder risk agreement and coordination among the concerned parties is needed. A Third Party Logistics Service Provider may fulfil this role. These types of business models have been successful elsewhere; especially markets where there are many opportunities for economies of scale and scope (see i.e. Groothedde et al, 2005). In the present situation the market for rail services is highly fragmented and no dominating international player seems to have enough power to launch such a system.

SUMMARY AND CONCLUSIONS

This paper sheds light on various factors with regard to the development of business models for rail freight transport service setups. The first factor addresses the characteristics of the rail freight market. Four business segments are identified; they differ from one another by the risk sharing structures and the service operational characteristics. This is followed by an overview of the stakeholders engaged in the operation of intermodal shuttle services and their contractual relationships with one another. Based on this, benchmarking can be made between intermodal rail and road-only transport with regard to the total operational costs and the transaction costs derived from their distinctive contractual relationship structures. The second factor refers to the total cost-elements necessary for operating an intermodal shuttle service. This is investigated in order to understand the decision-making of a rail operator during the setup of his services (e.g. pricing strategies, revenues). The cost-elements are divided into variable costs and fixed costs, and the rationale behind the division is clarified. Time horizon being considered in the actual situation plays a key role in the cost division. The third factor deals with the way pricing for intermodal rail services is realised. Pricing is realised based on three general factors: total operational costs with agreed profit margin and risk compensation, benchmark prices in the market, and the willingness to pay of the clients. This is followed by the fourth factor, in which various possibilities for introducing price differentiation strategy aimed at achieving higher revenue are surveyed. The margin of price differentiation strategy is determined by the degree of cooperation between the stakeholders at the supply side. In the fifth and the last factor, reflection is made on successful business models in intermodal rail freight transport. Instead of aiming at anchor customer, business models which aim at incorporating price differentiation strategies, defining the allocation of risks for possible cost recovery amongst the consortium partners, and encompassing 3PLs for coordinating risk agreement between these partners seem to match well the reality in the current rail freight market, and provide more promises for securing the business viability of the rail freight service providers.

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