

Functional Separation: A new panacea in telecoms regulation?

by

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Abstract

Sector-specific regulation of telecommunications aims at creating a framework for effective competition. 10 years after the liberalisation of telecommunications networks and services (with respect to Europe and the fixed network area) , many markets are still characterized by weak and ineffective competition or no competition at all. Amongst others this refers to the de-facto possibilities as well as to the economic incentive of the vertically integrated incumbent to discriminate against competitors by leveraging his significant market power from the access network to other especially downstream (service) markets. Hence, there is a discussion about introducing separation (under the terms “functional”, “structural” and others) as a regulatory remedy adding to the catalogue of potential obligations for SMP operators. This paper describes aims and methods of separation of telecoms operators in the context of the European regulatory framework. The appropriateness and the feasibility of separation concerning its different dimensions and forms will be discussed along with a cost-benefit analysis and the assessment of this regulatory measure.

1. Separation of telecoms network operators in Europe: a discussion 10 years after the liberalisation of fixed networks

For most of the European countries 1st January 1998 was the „magic date“ by which liberalisation of fixed networks including voice telephony started and regulation began to shape the framework for competition. Since then, the EU member states applied different policies which led to different levels of competition and the market situation is characterized by different business models. The implementation reports of the European Commission¹ give information about the competition level achieved in each of the EU member states. After 10 years it can be concluded that

- former incumbents have lost significant market shares
- alternative operators have established themselves thereby offering services in different parts of the telecommunications value chain
- meanwhile also in the access area of fixed networks competition is increasing and developing positively (foremost for telephony products as well as broadband access)².

All this was achieved by obligations, regulating the former incumbents concerning non-discrimination, transparency, access (wholesale offers), accounting separation, and price regulation (“cost control”). These obligations are embodied in the EU directives of 2002, in particular article 9 to 13 of the directive on access and interconnection³.

¹ E.g. European Commission (2008)

² Whether this competition exists in the desired intensity, quality and extent respectively if it is sufficiently secured on the level of infrastructure is not the point here. It is only referred to that competitive developments have taken place.

³ See directive 2002/21/EC on a common regulatory framework, 7 March 2002, Official Journal, OJ L 108, 24.4.2002 and directive 2002/19/EC on access and interconnection, 7 March 2002, Official Journal, OJ L 108, 24.4.2002

http://ec.europa.eu/information_society/policy/ecomms/current/index_en.htm.

So far, national regulatory authorities have been regulating with the above mentioned provisions of the access directive to create and develop competition. Especially the provisions on cost control and tariff regulation have proven to be an effective measure, but to different degrees depending on whether they were employed as either strict cost-oriented regulation or as a type of “softer” criterion.

On 13th November 2007 the EU Commission presented a draft proposal of the future regulatory framework⁴. The European legal framework again seems to face a significant modification. Around the year 2010 a new reform package shall enter into force, which considers the so far (positive) experiences with competition and which aims at reducing sector-specific regulation, where effective competition exists, while maintaining sector-specific regulation and obligations, where sustainable problems persist. This raises the question if and to what extent the existing remedies are efficient and sufficient in the respective markets.

A new element enters the discussion, namely whether another obligation respectively a further structural measure may prove successful to achieve the aims of competition. The so-called “separation” – which can come in various different forms and definitions – means that the former vertically integrated parts of the incumbent’s activities are being separated and split up. It is assumed that separation helps to overcome the main bottleneck⁵ “customer access” (or at least helps neutralizing the negative effects arising from the bottleneck character) by separating the access network. Thus, the separated access business unit provides the formerly integrated service division and all other customers with non-discriminatory services for access to the last mile (end-user access lines and other wholesale offers).

2. Motivation for separation

a) Assessment and status of the current discussion

The fact, that separation is discussed 10 years after market liberalisation may indicate that the existing “instruments” do not work sufficiently well. In particular separation as an additional remedy is being justified by the circumstance that

⁴ See European Commission (2007). The focal points are: (1) less but more effective regulation, (2) to strengthen the independence of the national telecoms watchdogs, (3) to preserve and enhance consumer protection, (4) to enhance the security and reliability of Europe’s communications networks, (5) to create the right conditions to move towards a single market by fostering pan-European markets and ensuring that EU rules are applied consistently across Europe. In this context a European Telecom Market Authority (EECMA) shall be installed. . . At the time of finalizing this text for the ITS conference (April 2008), most voices regarding the proposals of the EU commission are rather critical.

⁵ A bottleneck is “an input to a production process, such as a certain part of a network, is a (monopolistic) bottleneck – or equivalently, an essential facility – if it is essential to provide services to end-users, and it cannot be economically reproduced, typically because of substantial sunk costs”, de Bijl (2005), p. 4.

regulating the behaviour of vertically integrated operators (as it is stipulated in the current framework) is limited and cannot overcome all existing competitive problems; therefore regulation via incentives is taken into account.

The following table shows the evolution of the regulatory framework and the structure of this article:

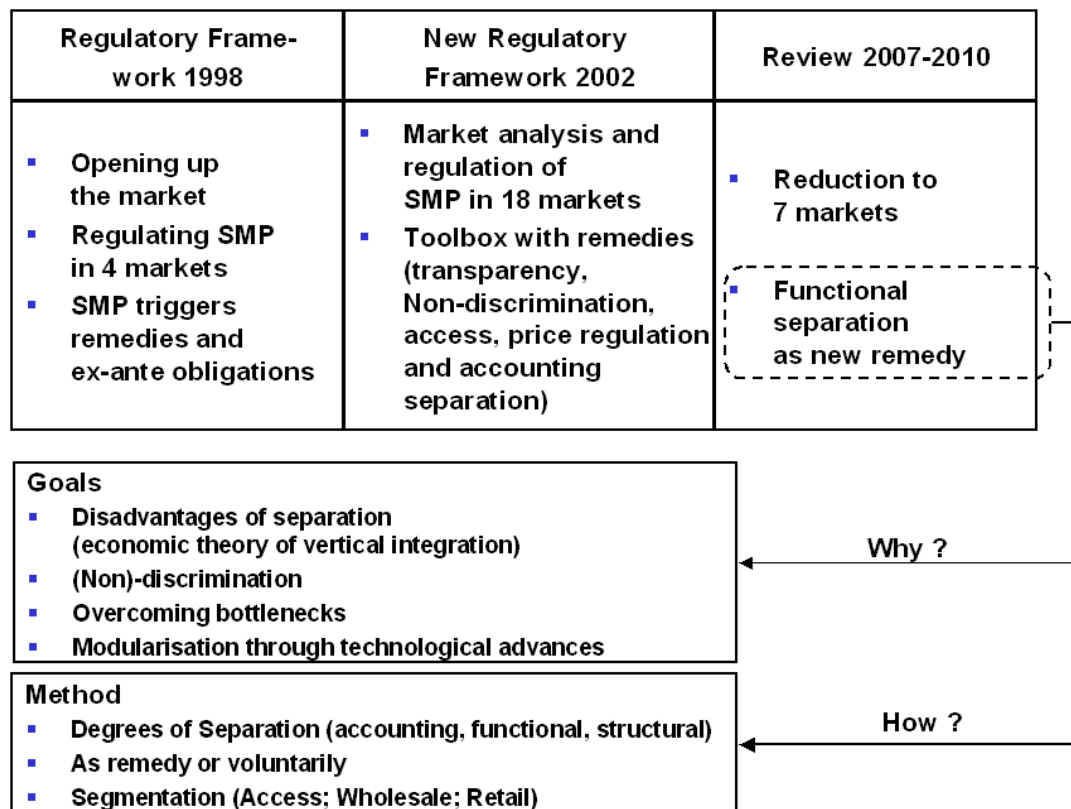


Figure 1: Evolution of the regulatory framework

The topic of this chapter is the discussion of motivations and aims for the regulatory tool „separation“. Key elements of the discussion regarding separation are

- the questions of regulation of incentives to overcome the problem of discrimination (see chapter 2 b),
- the bottleneck-character of the access network (see chapter 2 c) and
- the modularization of the telecommunications industry (see chapter 2 d).

Subsequently in chapter 3 the methods of separation are discussed. In chapter 4 the implementation as part of the current review process of the European regulatory

framework will be described. Chapter 5 deals with problems not yet resolved and chapter 6 completes this paper with an evaluation from the authors point of view.

The European Regulators Group has described the effects, possibly to be achieved by separation, as follows:

„Existing access remedies under the EU framework, and supporting remedies such as accounting separation, attempt to ensure non-discrimination by imposing rules on a designated operator. These remedies might not, in all member states, be enough to prevent discriminatory behaviour from a vertically integrated operator. (...) Therefore, functional separation seeks to ensure “full equivalence” of regulated wholesale products. (...) Functional separation should only be implemented when it can be shown that other mechanisms or remedies (accounting separation, non-discrimination etc.) cannot ensure non-discriminatory access. Functional separation requires a vertically-integrated operator to establish a business unit to service its upstream wholesale customers which is separate from its own downstream operations. The separate upstream unit would then have a commercial incentive to service all customers fairly (rather than discriminate in favour of the operator’s own downstream business). Unlike other network industries, the electronic communications industry is inherently dynamic, and so particularly susceptible to changes in technology. This means that the boundaries of economic bottlenecks can and do change over time. Functional separation also allows the operator to continue to enjoy many of the benefits of vertical integration, so long as these benefits are not based on the leveraging of market power derived from monopoly infrastructure, or infrastructure which is uneconomical to replicate.”⁶

Therefore, separation is intended to become a remedy in cases where existing obligations have proven to be ineffective or insufficient to enable competition. The crucial point is to overcome the weaknesses, which could not be eliminated by the obligation of non-discrimination and transparency.⁷

The enhancement of the possible regulatory measures with a separation obligation comes at a time when voices are raised to reduce sector-specific regulation and to define a glidepath towards the application of competition law. How do the statements

⁶ See ERG (2007).

⁷ See Lehr, W.H./Hubbard, R. Glenn (2003), p.11: “If the historical operator participates in any of the retail markets that use the bottleneck facilities, than that firm will have a strong incentive to favor its retail operations over those of non-affiliated providers. The historical operator will also have an incentive to discriminate selectively among competitors in order to favor any with business strategies or technologies that pose a lesser threat to ILEC market power.”

concerning effective competition match with the necessity of a further regulatory instrument?

Another reason for the discussion of separation as a new regulatory instrument is the limited extent of infrastructure competition. Closely associated with the imminent implementation of new technologies and next generation networks the question must be answered, whether obligations for protecting service-based competition (which exists beyond doubt and is successful in obtaining market shares) have to remain in place. Likewise, it is undisputed that infrastructure based competition supports the welfare of an economy to a larger extent and establishes a structurally secured form of competition. Therefore, it is a requirement to analyse the interrelationship between separation and infrastructure competition and to conduct an impact assessment of the risks and chances that go along.⁸

Today, the market faces a technological change of formerly unknown dimensions with respect to the envisaged replacement of PSTN-technology by IP-technology and especially concerning the implementation of the so-called next generation networks (in the core network as well as in the access network)⁹. This technological change will significantly influence the market and its regulation. Especially, there is evidence, that the bottleneck characteristics of the access network might be overcome by the technological development – but on the other hand there is also scepticism as in some observers' opinion e.g. new fibre deployment can lead to increased economy of scale and new access monopolies.

⁸ “To conclude, the bottom line of the discussion above is that infrastructure competition, if it is feasible, tends to be superior to services competition. Although it may lead to inefficient duplication of networks, it does give rise to greater potentials for competition and innovation, which will have their payoffs for dynamic efficiency in the longer run. In this respect, the main question that underlies the desirability of structural separation is whether infrastructure competition is feasible.” de Bijl, P. (2005), p. 12.

⁹ See Reichl, W.; Ruhle, E.-O.: NGA, IP-Interconnection and their Impact on Business Models and Competition, Communications & Strategy 69, Q1/2008.; Marcus J. Scott: Interconnection in an NGN Environment, Background Paper, ITU, April 15, 2006; COMREG Position Statement: Regulatory Aspects of Next Generation Networks, July 8th, 2007, document 07/40; OFCOM, Future broadband, Policy approach to next generation access, Consultation, 26.September 2007; ITU: Trends in Telecommunication Reform 2007 – The Road to Next-Generation Networks (NGN), Geneva 2007; Amendola, G., Pupillo, L.: The Economics of Next Generation Access Networks and Regulatory Governance in Europe: One Size Does not Fit All, Istanbul 2007; DotEcon: Distance gradients - Assessing the impact of NGNs on interconnection tariffs on distance gradients, 2006.

The interrelationship of integration and modularisation is a mechanism which becomes obvious throughout the industry through market development and technological progress in a competitive environment. Therefore, it has to be analysed, whether the desired separation (i.e. modularisation of business models) will emerge without further regulatory intervention.

b) Regulation of incentives instead of regulation of company behaviour

A main reason for the discussion of separation is to overcome the tendency of the incumbent to discriminate competitors. This is mentioned in the literature, though the obligation of non-discrimination is an element of today's remedy tool box¹⁰. When a new instrument is discussed regarding a potential implementation, this logically implies doubts about the efficiency of the existing regulatory instruments and their efficiency. Separation is an instrument to regulate the operational incentives instead of the operation and behaviour of the incumbent. If a vertically integrated company is characterized by segments with monopolistic structures as well as by business areas with competitive features, there is the possibility and an economic incentive for discriminating behaviour, especially through the leveraging of market power from one market segment to another¹¹. This finding motivates the current discussion of separation.

How could the efficiency of regulatory obligations be measured? How is it possible to determine whether the incumbent favours his own retail area over his competitors? Behaviour can only be judged from an objective point of view. Complaints and filing of cases to regulators or courts by competitors are surely not the only way to determine discrimination. The criterion for that should be in a way similar to a prize-cost squeeze (on a qualitative service level) including the total ordering, delivery and service process. A comparison between external and internal customers needs detailed insight into business processes (which is hardly possible from an external point of view) and would mean a considerable effort such as reviewing whether the service level agreements, which should be identical for the own retail area as well as

¹⁰ See Lehr, W.H/Hubbard, R.G. (2003) and Otruba, H. (2007). See also Ruhle, E.-O.: Strukturelle Separierung in der Telekommunikation, in: JUCONOMY Newsletter May 2007, p. 9, <http://www.juconomy.com>

for the contract partner, have been adhered to. Concluding, one has to assume that only a limited extent of regulation of company behaviour is possible. Whereas price regulation is “simple” and “reasonable”, the underlying business processes differ from company to company. Although a company can be obliged to treat internal and external customers equally, this is contradictory to basic economic interests and creates a conflict within the company. Therefore, it is worthwhile discussing the regulation of the incentives.

A consequence of regulating incentives however is ,that regulation remains a “permanent task” and the replication of access infrastructures has economic limitations.

“In fact, underlying the liberalization of telecommunications markets was the belief that technological progress would end the natural-monopoly nature of the industry. Given the high expectations, however, the rollout of local networks has been disappointing or at best narrowly targeted, and at present throughout the European Union (EU), there is still relatively limited competition in the ‘local loop’.”

It is widely accepted that behavioral regulation, such as regulating wholesale access prices, has its limitations. Therefore, it has been suggested in policy discussions that it may be better to directly change incumbents’ incentives, rather than trying to control their behaviour. One way to do this is to vertically separate the regulated firm into monopoly part and a competitive part (‘structural separation’).”¹²

This may lead “to a crystallization of market power in the access market, which may distort the rollout of alternative networks” (De Bijl (2005), p. 7). From this the conclusion can be drawn, that the instrument of structural separation should only be applied, if a permanent bottleneck of the access network can be found.

c) Bottleneck character of the access to telecommunications networks

For the liberalisation of telecommunications markets vertically integrated operators have been obliged to offer wholesale services at regulated tariffs. For SMP operators the regulation persists in a changed form. These wholesale services¹³ include access

¹¹ See Cave (2006).

¹² See De Bijl, P. (2005).

¹³ This is effected in various forms e.g. unbundled local loops, shared use (line sharing), naked DSL,

to the local loop, bitstream access and the offer of leased lines (especially terminating segments). The obligation is based on the assumption, that a competitor may not be able to immediately economically replicate the infrastructure of the access networks.¹⁴

The applicability of the tool “separation” depends upon whether the access to communications networks may be defined as a permanent bottleneck. A bottleneck is defined as a part of the production process, which is an essential prerequisite for services to end-users on the one hand, but cannot be reproduced economically because of high sunk costs on the other hand. The table below (from De Bijl (2005), p. 14) shows a decision tree for the application of structural separation as a remedy.

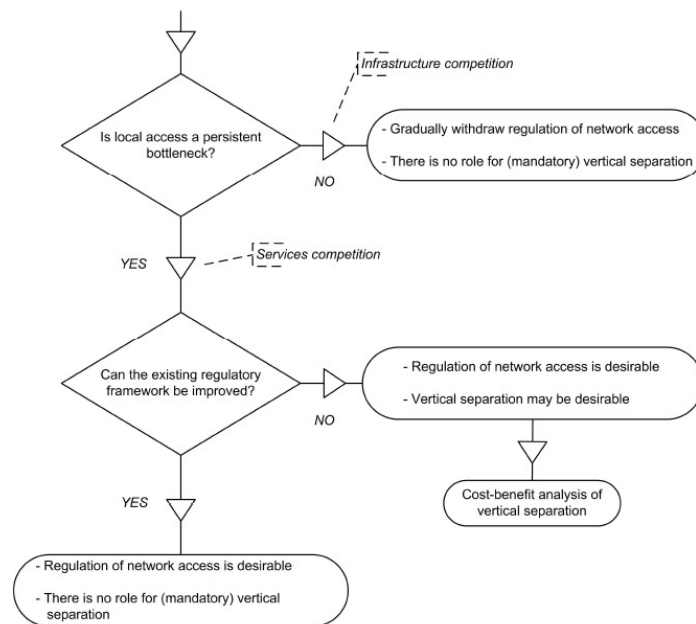


Figure 2: Questions and decision tree for the application of structural separation as a tool

The main question is whether the access to telecommunications networks can be seen as a permanent bottleneck? Today, copper, which has been rolled out by the former incumbents under monopolistic conditions, is regarded as dominant technology in access networks. Since the liberalisation, investments in the traditional

¹⁴ resale (wholesale line rental or DSL resale) etc. Not every form is regulated. This is also connected to the theory of the ladder of investment according to which competition first emerges on the service level (implying a large share of the provision of services in the value chain by the incumbent) and develops towards infrastructure-based competition by replacing the added value (elements in the value chain) of the incumbent by infrastructure elements of the competitor.

access network have declined considerably.¹⁵ Amongst others, this may be referred to the declining demand for copper access networks because of the increasing supply with mobile phone services (fixed-mobile substitution).¹⁶

Today the highest growth rates can be found in the broadband market. The provision with broadband is generally regarded as the driving force for the whole economy, and it is largely based upon the copper access network and cable networks. Although wireless access becomes more and more important, fibre access networks are considered to be the main future technology¹⁷. The speed by which fibre access is becoming the predominant issue in business and regulatory discussions is accelerating.

Whether access means a constant bottleneck depends upon the companies' ability to convince their shareholders to invest into the modernisation of access networks. Presumably, a modernisation will only be accomplished, if a suitable business case exists. This case perhaps can be construed for urban areas, whereas in rural areas the roll-out will be a long time coming. From this it can be deduced that the interpretation of a "permanent bottleneck" might differ from region to region¹⁸.

The assumption of different regional markets¹⁹ (geographic markets, sub-national markets) is an argument rather against the separation of the incumbent as an obligation. The separation of a company won't solve this problem, because the identical problem of discrimination we are facing today will emerge within that part of the company to which the access network is allocated and which has to partly operate in competitive areas while enjoying the position of a dominant provider in

¹⁵ See Cadman, R.: Regulation and Investment in European Telecoms Markets as well as London Economics, in association with PricewaterhouseCoopers; an assessment of the regulatory framework for electronic communications: growth and investment in the EU e-Communications sector, study for the EU-Commission, p. 90. The decrease of investment there (figure 4.7) is related to the whole fixed network and can be identified until 2003

¹⁶ Parallel to the copper access network there are networks of cable operators. But the coverage cannot be compared with that the coverage of copper access networks. A further access possibility to telecommunications networks is the ubiquitous mobile phone service which got far ahead of fixed networks by penetration of 112 % on a European level (see European Commission (2008)).

¹⁷ See e.g. OECD (2008) and OFCOM (2007).

¹⁸ The UK regulator OFCOM and the Austrian regulator TKK have started to split the broadband access into sub-national markets dependent on the intensity of competition.

¹⁹ See Telefónica: Transition to NGAN and sustainable competition; Presentation at OFCOM meeting 14.2.07. See Castelli, F.; Amendola, G.B.; Serdengecti, P. (2007)

other areas. As European law shows a tendency towards the consideration of intra-national differences via implementation of sub-national markets concerning market analysis and remedies (which also means imposing “regional” obligations), we have to draw the conclusion, that a separation obligation might not be compatible with this approach.²⁰

It has to be considered, that a “premature” separation might finally foreclose infrastructure competition. Who will be able to compete against an access division (LoopCo), which invests into the roll-out of access networks on the one hand and accepts quid pro quo a substantial intervention (i.e. the separation) in the company on the other hand? One can argue that separation strengthens the position of the monopoly-part of the incumbent, while accordingly weakening the (competitive) retail-part. Therefore, it makes sense to consider separation only if one defines the access network as an enduring bottleneck. This is a difficult decision, because the decision itself (to define the access network as a constant bottleneck) might turn into a self-fulfilling prophecy.²¹

If the bottleneck feature of the access network is questioned, one would have to refrain from the instrument of structural separation, because there are market solutions by which a competitive level, that would not match the prerequisites for separation, could be achieved. On the one hand it is understandable why the discussion of separation came up together with the technological progress, but it is likewise irritating on the other hand as first signs of infrastructure competition (on the basis of independent access networks) can be seen, which should make separation superfluous in case of a consequently pursued competition.

d) Modularisation of the industry

²⁰ Also, the further development of the wireless technology may solve the problem of the persisting bottleneck. The European framework envisages the technological neutrality of the frequency use, which will lead to a competition of technologies. At any rate, the development of radio base stations needs less investment than the maintenance of each location with optical fibre. Here, it has to be looked at the access (network) to radio base stations.

²¹ The EU-Commission has accommodated for this discussion with the obligation of conducting an impact analysis.

The vertical integration of companies is not necessarily a permanent phenomenon. According to Fine (2001) in a structure of vertically integrated companies competitors arise in niche areas. Along with the organisational slack and high complexity of vertically integrated companies those competitors exert pressure towards disintegration (modularisation). This trend can be shown by examples from other industries such as automobile and computer industry. Out of the vertical structure of the computer industry with companies like IBM, DEC, Burroughs and others a horizontal structure with INTEL, Microsoft, DELL and a lot of other hard- and software producers emerged. Fine describes the dynamics of the product architecture and the value- chain as a double helix where modular products and horizontal industry alternate (respectively are interrelated) with integrated products and vertical industry.

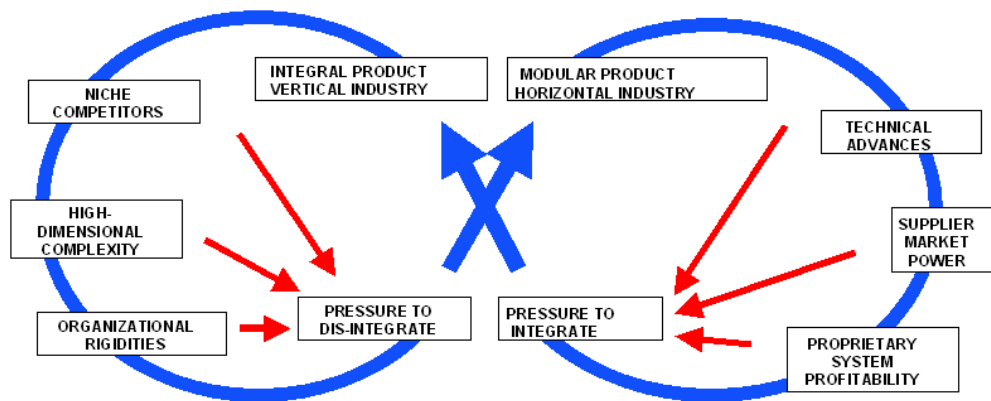


Figure 3: The dynamic of the architecture of products and the structure of the value chain

These considerations can also be applied to the telecommunications industry. As long as voice telephony was the only integrated product, vertically integrated operators have been dominating. Today, this also applies to mobile network operators. Fixed network operators are expected to offer a certain product variety. Today, the ever increasing variety can hardly be offered by a vertically integrated operator, similar to DEC or IBM which cannot retain their position against e.g. Microsoft with respect to the variety of products and the extent of service provision in the value chain. Hence, it follows that fixed network operators have to concede to their position in a horizontal industry. Consequently, the position for these companies is defined by the access to communication services (i.e. bit pipe). The transformation of the communication industry is ongoing and affected by technological possibilities. Therefore, it can be derived, that for the last decades the vertically integrated structure of former telecommunications incumbents has been appropriate (integration

benefits, aspects of the company theory), but maybe nowadays this structure is not reasonable anymore, when differentiation and specialisation of business models are a fact. Companies might conclude that separation could be a reasonable solution. This would result then in a voluntary divestiture.²²

The delineation above might be interpreted towards dissolution of vertical structures in telecommunications in any case. Thus, the circle closes concerning the bottleneck discussion. If access is a permanent bottleneck, separation can be applied, in case non-discrimination cannot be ensured otherwise. If access is not a bottleneck, then transition to a horizontally structured industry will take place for economic reasons. In this case, if the current obligations, ensuring open access, in case SMP exists, are retained, then maybe the same results can be achieved (based on the development of access competition via fibre networks) as aimed at with separation.

The authors are of the opinion that the regulatory instrument „separation“ can have a supportive effect in this area and will ease the transition towards horizontal structures.

3. Forms of separation

Separation implies a very substantial intervention to a company. Both, the framework of such a measure and the effects of it are discussed controversially. In this chapter different aspects and forms of separation are described.

a) Methods of separation

Maybe the best known case of separation is the divestiture of AT&T into a long-distance network operator and seven regional telecommunications (bell operating)

²² See for a similar line of thought e.g. Lehr/Hubbard (2003), p. 25: „If, as is hoped, there will be sufficient facilities-based competition for local access services in the near future, then it would make little sense to order structural separation today.“ as well as p. 31: “In the broadband world described above, the vertically integrated incumbent is subject to effective open access regulation for its broadband bottleneck facilities, while at the same time competing in a potentially wide range of rapidly changing, unregulated, competitive retail markets. If the broadband scenario is realized, the incumbent is much more likely to find voluntary divestiture attractive.”

companies (RBOCs) in the mid 80s.²³ Today, several dimensions of separation are discussed²⁴, of which the following will be discussed in this chapter:

- Structural and functional separation
- Segmentation into access- and network services or more complex structures
- Forced or voluntary separation.

These three dimensions shall be analysed further. Martin Cave already described the various forms of separation in 2006, which will be discussed in the sequel²⁵:

0. Accounting separation (as it currently exists)

1. organisational separation of the wholesale area

²³ Of course, this separation took place under different conditions circumstances and with different goals. Furthermore, it has been overcome today and the original situation has been re-established. See Ruhle, E.-O.: Konsolidierung des US-amerikanischen Telekommunikationsmarktes Innovationsanreize durch Regulierung?, in: JUCONOMY Newsletter April 2006, <http://www.juconomy.com>.

²⁴ See Cave, M.; Doyle, C. (2007), p. 7 ff.

²⁵ See Cave (2006), page 94. There are a lot of further publications, which deal with the implementation of separation. In ERG (2007), Box 1 different components of separation are mentioned e.g.

(1) Separation of functions:

- (a) creation of a separate business unit A responsible for the production and supply of products in question,
- (b) obligation to supply all operators under non-discrimination conditions (equivalence),
- (c) separation of operational support systems,
- (d) separation of the brand and

(2) separation of employees

- (a) employees are not permitted to work some of the time for A and some of the time for another department,
- (b) restrictions of the movement of A's managers to the rest of the group,
- (c) physically separate offices and places of work,
- (d) pay incentives,
- (e) code of conduct, notice boards, training and

(3) separation of information in form of

- (a) limit to the flow of information between A and other divisions (firewalls, Chinese walls),
- (b) implementation of separate access systems (information specific to the needs of the employee),
- (c) separation of information management systems.

ARCEP (2007), page 4 describes different forms of separation, namely

- (1) accounting separation: separate financial reporting for each of the operators lines of business in its regulatory accounts;
- (2) functional separation: creation of a separate business unit along with operational rules to establish Chinese walls between the new business units and the incumbent operators other operations;
- (3) legal or (structural) separation: making the new business units into a separate subsidiary;
- (4) ownership separation: divestment by the operator of its newly created subsidiary (resale to different share holders).

Kirsch and von Hirschhausen (2008; pp. 73) discuss separation as a possible tool in comparison to

2. virtual separation
3. functional separation
4. functional separation including incentives and/or company guidelines
5. legal separation (but same owner)
6. ownership separation.

Accounting separation requires a differentiating economic analysis for each company segment.²⁶

The organisational separation of retail and wholesale (number one of the list above) has been implemented in some companies voluntarily. Because of different customer groups most of the incumbents separate their business into a key accounting and an end-user segment. This separation does not necessarily entail anything about an independent management of the wholesale area and the prevention of discrimination.²⁷

Virtual separation (number 2 of the list above) on the one hand requires a consistent structuring of the interface within the wholesale department (concerning ordering, processing and billing) for internal and external customers, but may not assume the physical separation of networks, real estate etc. It has to be ensured, that orders, for instance, are carried out as they are received and that the management of personnel is working consistently.

Functional separation (numbers 3 and 4 of the list above) requires a complete change of business practices with the intention to allocate assets and inputs to a particular unit, which then – by using identical processes – takes care of internal and external customers. Level 4 of functional separation is completed by management incentives which means that the business objectives of the wholesale unit are put in the top priority spot as opposed to the objectives of the whole group. This, too,

e.g. access regulation and assess the implementation in the UK.

²⁶ Cost accounting separation, which can be (and has been) imposed in Europe since 1998 is an obligation on the SMP operator(s). Especially for tariff regulation it means to avoid cross-subsidisation between different businesses, e.g. to use advantages from markets with SMP on markets with more intensive competition (leveraging of market power). Today, this form is realised by separated accounts.

²⁷ The obligation of cost accounting separation is generally supplemented by the obligation, that all products, offered downstream to the own retail arm, also have to be offered to the competitor under

serves to set the right incentives. The separated unit, has to act according the criteria which ensures the optimization of its own result and is not subject to the achievement of the goals of the retail unit any longer.

Numbers 5 and 6 represent the so-called „structural separation” – either as a legal entity of its own or with a separated ownership structure.

Generally, it is assumed that in fact adequate separation reduces regulation, but that it is not possible to abstain from regulation completely, especially with regard to tariffs, quality and investments (also access). The reduction of regulation particularly refers to the so-called retail segment (end-user), because efficient regulation should prevent the end-user segment of the historical operator (on the wholesale level) from acting in a discriminatory manner or be able to exploit benefits, which give way to leverage market power. A regulation of the wholesale part remains necessary especially during the transition period.

All in all separation creates a rather heterogeneous impression. Incumbents, which have gone through a separation process, and also the responsible regulatory authorities report about positive effects, while competitors emphasize the problems which arise along with separation, especially in cases where a regulated operator has gained regulatory freedom in other areas (e.g. end-user market). The situation is different in countries, where separation is not yet implemented. Here, incumbents argue against separation (for different reasons, mainly because of assumed negative effects), whereas competitors put pressure on the authorities for separating the incumbents.

b) How is separation implemented?

Each separation requires the delineation of processes and assets. As the reason for discrimination is the potential of combining bottleneck services and competitive areas, separation has to be effected at this interface. Two possible alternatives of a basic separation are discussed:

the same conditions (i.e. non-discriminatory) and circumstances.

- Wholesale/retail split (NetCo-model)
- Access/non-access split (LoopCo-model).

These two separation alternatives are based on the three-parted structure of a telecommunications operator:

- The retail area is responsible for marketing, service provision to end-users and takes care for the customer relationship.
- The access area is responsible for wholesale services such as access networks, the terminating segment of leased lines, parts of the aggregation network and the wholesale provision of leased lines.
- The remaining part of the company manages the core network, parts of the aggregation network and the traffic types: originating, termination, transit etc.

The optimal form of separation depends on competition as well as on the dynamics of the particular markets.

c) Voluntary or obligatory separation

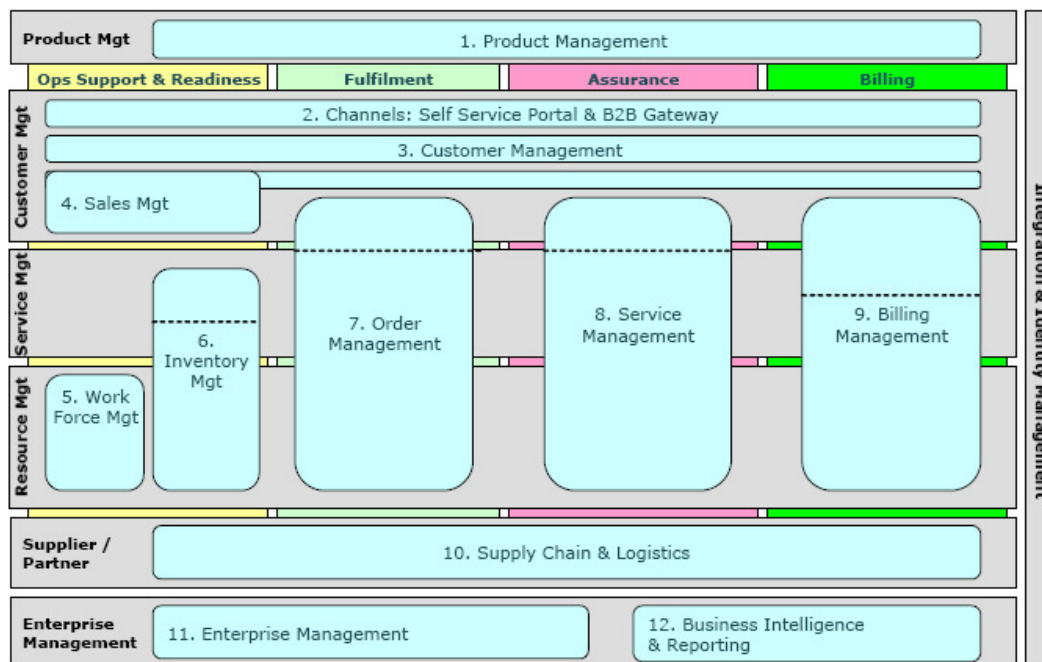
In an obligatory separation the regulator decides on the definition of separation. It can be assumed that separation against the operator's resistance is very difficult if not impossible and means a severe intervention concerning property rights, which may lead to undesired consequences.

Therefore, a form of quasi-voluntary separation has developed. As a reaction to potential obligations which arise out of competition law, BT has offered a voluntary "separation" of "OpenReach" (see chapter 2 e)).

d) The example of New Zealand

On 26 October, 2007, the New Zealand Ministry of Economics published a consultation, which plans a segmentation of Telecom New Zealand into access, wholesale and retail business units.

In 2007 Telecom New Zealand presented a detailed plan²⁸ concerning the implementation of EOI (Equivalence of Input). The plan deals with the allocation of unbundled access and bitstream services in a uniform way for all customers. Furthermore, the services of TCNZ are reorganized in a way, that they also use basic services as an input (“wholesale”). The effort, needed for this migration, is remarkable. It is cited as an example, that for providing a customer with basic broadband service 30 different applications are engaged (Telecom New Zealand (2007), page 79). Re-engineering Telecom’s systems to provide for EOI will be complex and time consuming. In most instances the EOI standard will be obtained in the year 2011. TCNZ is structuring the effort into 12 building blocks, which are integrated into the Enhanced Telekom Operations Map (eTOM)²⁹ as can be seen in the following figure.



²⁸ See Telecom New Zealand (2007)

²⁹ See TeleManagementForum www.tmforum.org.

In each of the building blocks new systems are to be installed, which fulfil functions, necessary either for EOI or for separation.

The proposal concerning a functional separation comes along with the announcement of investments into the access network. Hence, it follows that a certain monopoly position concerning the offering of infrastructure services can be attained with functional separation. In any case, the market for unbundled services and bitstream access can be improved substantially. With regard to tariff regulation the significance of the migration costs for reorganising the network is an important aspect.

e) The example of OpenReach

In September 2005 British Telecom offered a functional separation to avert the danger of a forced structural separation according competition law. OpenReach was separated by the company, to offer - to BT as well as its competitors - the same services on equal terms and tariffs in a non-discriminatory way, i.e. to ensure equivalence of inputs. The financial market valued this positively:

Helping to create a climate of confidence for sustainable infrastructure competition, investment and innovation, BT has shown a relatively strong share performance compared with many of its European peers since it announced its undertaking to functionally separate.³⁰

4. Separation as a new remedy of the European Commission

The EU Commission has included its considerations concerning separation into the draft regarding the revision of the EU regulatory framework. The public discussion often reflects only some parts of these considerations and therefore we attempt to give a broader picture here. On the one hand the revised access directive shall contain a section 13 a) addressing “functional separation” and a section 13 b), which deals with “voluntary separation by a vertically integrated undertaking”.

³⁰ Forsyth, Grant – OpenReach: BT's view in ARCEP (2007). See also Kirsch / von Hirschhausen (2008) on a general assessment.

As a start section 13 a) deals with the question of a possible obligation for functional separation:

“A NRA may ... impose an obligation on vertically integrated undertakings to place activities related to the wholesale provision of access products in an independently operating business unit. That business unit shall supply access products and services to all undertakings, including other business units within the parent company, on the same timescales, terms and conditions, including with regard to price and service levels, and by means of the same systems and processes.”

However, such an obligation shall only become effective under duly specified and restrictive conditions which include:

- the evidence that the imposition of appropriate obligations amongst those identified in Articles 9-13 to achieve effective competition has failed and would fail on a persistent basis to achieve effective competition;
- an analysis of expected impact on the regulatory authority, on the undertaking, and on its incentives to invest in the network, and on other stakeholders including in particular the expected impact on infrastructure competition and any potential entailing concepts on consumers;
- a draft of the measure being proposed, which has to include a number of predefined elements.

Such a recommendation regarding an obligation to functional separation has to be supported by the EU Commission and requires its approval. According to the concept of the EU Commission, operators, underlying the pursuant obligation, shall not be relieved from other obligations according section 9-13 of the access directive. Hence, the implementation of functional separation as an obligation is labour-intensive, particularly as it is only a preparation for a positive decision. If necessary, there will also be an examination concerning the compliance of obligations.

On the other hand there is voluntary separation by the regulated operator, which means:

“Undertakings ... shall inform the national regulatory authority in advance if they intend to transfer their local access network assets or a substantial part of them to a separate legal entity under different ownership, or to establish a

separate business entity in order to provide to all retail providers, including its own retail divisions, fully equivalent access products.”

This shall only be possible on the basis of previous consent by the regulatory authority. One should keep in mind here, that further different forms of separation are mentioned. Apart from the abovementioned functional separation there is – concerning access networks – also structural separation regarding the spin-off of a separate company with different owners. Here, again, specific measures and roles are assigned to the national regulatory authorities for taking action.

Nevertheless, some questions have been left open by the draft texts of the EU Commission concerning separation (see chapter 5). One main aspect is the obligation of functional separation against voluntary structural separation. It seems to be an agreed policy consideration that only an obligation which has farther implications than a possible obligatory or enforced functional separation into the company structure is accepted as to be “voluntary”. Also important (and empirically unknown) is the relation between the separation obligation and other access obligations according to section 9-13 of the access directive.

5. Open questions concerning functional and other forms of separation

a) Why now?

With respect to separation the main question is why discussions start right now. The separation of former incumbents already has been subject of discussions at the time when liberalisation was implemented. The separation into one network provider (NetCo) and the utilisation of the network by a lot of service providers (in the competitive area) has already been discussed in the 1990s. Because of the planned privatisation of telecom operators in a lot of countries politicians refrained from separation. Now, this idea seems to be on the table again. This is surprising inasmuch the EU Commission does not miss a chance to cast a positive light on the obtained competition level, which it particularly relates to the measures contained in the EU framework and which are supposed to be the reason for effective competition (i.e. cost accounting obligations, tariff control, transparency and non-discrimination).

b) Enforceability

Looking at section 13 a and 13 b of the draft revised directive one may ask the question, whether functional separation is possible at all as an obligation imposed on an operator unwilling to implement such separation. While so far obligations (especially access, tariff control, non-discrimination) could be effectually implemented and enforced, this will be rather difficult with regard to functional separation. The regulatory authority would have to enter into bits and bytes on the operational level of the company and monitor continuously the compliance with obligations. With OpenReach there is now an example where this seems to work – although there are many different views on this. On the other hand one has to keep in mind that OpenReach actually has been a voluntary solution (although it was developed under pressure). An incumbent, strongly resisting separation, will use the information asymmetries it enjoys against the regulatory authority.

c) Costs of separation

The costs of separation are a further aspect. If this regulatory measure is enforced upon an operator, then significant, irreversible costs emerge. While tariff regulation can be easily changed and open access obligations can be modified with minimal effort (without causing market disruptions and as long as historical access rights and certain business models can be maintained), this is not the case with respect to separation. The implementation of separation, especially the maximum form of ownership separation, is no experiment which can be undone when unsuccessful or dissatisfying.³¹ The adjustment of operating procedures and ordering is economically complex – and these costs have to be borne by the operator or partially by customers of wholesale services. Hence, a comprehensive impact assessment is needed for the introduction of such a measure.

³¹ Experiences in UK show that the advantages and disadvantages of separation have carefully to be weighed. British Telecom named 70 million £ for separation of OpenReach.

d) Impact on investments

A further point of critique³² is that enforced separation maybe the reason for a suboptimal reconciliation of investments between network and service providers. The information gap, caused by separation, may lead to suboptimal investment strategies. However, the incumbent's access and wholesale areas have to plan their investments and, while doing so, consider the unknown retail activities of the competitors. Today, "structural separation" exists between the incumbent's access and retail areas and the competitors. This did not affect investment determination adversely. Also this must not be the case for the incumbent's retail area, but this opinion does not prevail in the literature.

„A final general argument, but one which is particularly relevant in a sector marked by profound technological change, raises the issue of adequate incentives for investment in the functionally separate networks, since such decisions are not made in isolation from the strategies of the players on the retail markets or, naturally, from the choices made by the operator on the parts of the network which have not been separated. A mechanism for coordinating the various players would probably be essential, but would be particularly complicated to organise, without necessarily being able to achieve a satisfactory balance between non-discrimination and efficiency.“³³

That separation leads to the reduction of the total investment, is also not common opinion in the relevant literature.³⁴

e) Efficiency of separated LoopCo

Although, the capital market has evaluated the separation within BT and the establishment of OpenReach positively, there are points of critique which in fact state OpenReach as though not being discriminatory, but nevertheless displays a worse performance than before. While the own retail area has been preferred formerly, now all market participants are treated equally "slowly" respectively everyone suffers from

³² See Cave/Doyle (2006), p. 23.

³³ Curien, N.: Functional Separation: pros and cons, in ARCEP (2007)

³⁴ "Risk of curbing the roll-out of FTTH? Just the opposite in fact. Such a solution allows the incumbent operator to enhance the value of its infrastructures by making them available to all under non-discriminatory conditions." Lalande, R.: So why are they so against it? In ARCEP (2007), p. 7.

decreasing quality of service. How can this side effect of separation be avoided? How can an efficient business operation of an incumbent be assured? This also means efficient investments. For the employees OpenReach created an incentive system which can be measured against the company's success on the market. This means an orientation on the fulfilment of customer requests – irrespective whether they come from BT or from its competitors. If there is a non-discriminatory, but bad order handling, then it must be stated that the instrument did not work, maybe because the profit-related part of the incentive is too small.

f) Experiences of the electricity industry

Power companies are facing a rather similar situation which deals with the separation of transmission and distribution on the one hand and, currently, the separation of production (generating plant construction and operation) and distribution on the other hand. The description would go beyond the scope of this article – therefore only this: the empirical data³⁵ are ambivalent.

6. Conclusion

The indisputable advantages of separation are to be seen in contrast to the disadvantages i.e. unwanted or suspected negative effects of separation³⁶:

“Indeed, it has several advantages. Functional separation increases the transparency of the relationship between the divisions managing the parts of the network subject to the non-discrimination obligation and the other services offered by the incumbent, making discriminatory behaviour easier to detect and, where appropriate, to sanction it. (...) It also allows responsibility for non-discrimination to be devolved from the regulator to the management of the newly created business. (...) Where functional separation is considered insufficient to guarantee total non-discrimination, legal (or structural) separation of the operator may be recommended. (...) The final stage is complete separation of ownership, i.e. the sale of the new subsidiary to different shareholders. (...) It should be noted that when evaluating the first results of the Openreach undertaking, Ofcom identified a reduction in quality of

³⁵ See Hattori, T., Tsuitsui (2004) / Michaels, R.J. (2006) / Steiner, F. (2000) / Michaels, R.J. (2004).

³⁶ See Nicolas Curien: Functional Separation: pros and cons, in ARCEP (2007), p. 1-5.

certain products which could be interpreted as achieving equivalence of inputs by means of a general levelling down.”

This can be contrasted with the following disadvantages

“In other words, it does not do away with the need to regulate other aspects of the newly created business unit such as its tariffs, quality of service, investment management of even the range of services it markets. Even if it is a functionally separate business unit, the network access division of a particular operator will not always, as a matter of course, offer the range of services necessary for the growth of the retail market.”³⁷

as well as:

Secondly, separation presents a major risk of under-investment in the new access infrastructures, because of the lack of incentives for the access network operator, which, as a virtual monopoly removed from competitive pressure, has no interest in the development of offers in the retail market. Moreover, chronic under-investment is a constant characteristic of cases of separation observed in network industries in the past.³⁸

In this paper we have described the intentions of separation as well as the different implementation methods.

Separation primarily is meant as an instrument (also in the revised regulatory framework of the EU Commission) to inhibit discriminatory behaviour of vertically integrated operators. This argument is based on the presumption that the regulation of company behaviour is principally limited, whereas the regulation of incentives is more effective.

The applicability of separation is also discussed in connection with the bottleneck characteristic of the access network. De Bijl argues that structural separation only makes sense, if one draws the conclusion, that the access network is a permanent bottleneck.

Amongst others, separation deals with the incentive structure of a company. How can regulation of incentives be implemented? Are all forms of separation applicable? In the author’s opinion only one form of separation meets the requirements of incentive regulation which is the ownership separation (meaning the sale of the access

³⁷ See footnote 33.

³⁸ See Champeaux, J. in ARCEP (2007), S. 6.

network). Every other form of separation leads to a conflict of interest at a specific level of the company. Any other form of separation will lead to conflicts on higher levels within the company hierarchy. As long as both company parts have the same owner, essential company decisions will be made with respect to both areas/business units (this surely includes investments to the access network). This means that the business case always will be the centre of the decision. But the decision making process concerning the business case will take into account the expected revenues of the retail area, while the internal transaction costs won't be considered adequately. The company shareholders are interested in return on investment. If there are investments into an access network, then first mover advantages or a monopoly position will be claimed. Without such "ensured exclusivity", investments into access networks are risky and will not be carried out (by all means not nationwide).

On the one hand there are fundamental doubts concerning the effectiveness of regulating the incumbent's behaviour, on the other hand, it is not clear whether the fixed access network will remain a permanent bottleneck. In both cases separation as a regulatory instrument can be useful, firstly to influence the operator's incentives, secondly to avoid discrimination effectively and, last but not least, to separate monopolistic areas from those segments competing with each other.

On the technological level there are signs that in the future access won't be a bottleneck any more, at least not on all geographic markets, but specifically in certain regions and regionally differentiated. Separation won't be necessary, where access has no bottleneck-characteristic. Economic theory suggests, that the transformation towards horizontal structures will emerge in any case. Despite, the trend points to a market consolidation/re-monopolisation in conjunction with NGN. Here, the existing regulation concerning transparency, non-discrimination, access and tariff regulation can be effective.

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