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Improved broadband competition through functional separation

Statutory proposal for non-discrimination and openness in the local loop

Foreword

The National Post and Telecom Agency (PTS) presented the 'Broadband in Sweden 2006' report on 15 June 2006, almost exactly a year ago. At the same time, we shed light on a problem profile in the broadband sector which is two-fold – a substantial number of Swedes still lack access to a broadband network, while almost half of residential broadband customers have no freedom of choice.

We decided to look in more detail at the problems of accessibility and competition within the framework of a proposed broadband strategy for Sweden. The proposed broadband strategy was presented on 15 February and we observed in this report that one fundamental competition problem was that the buy-sell relationship was not functioning between TeliaSonera and the undertaking's wholesale customers. This situation impedes Sweden's potential as an IT nation, and has, for example, resulted in us falling behind our Nordic neighbours.

We then discussed a new model for the equal treatment of operators that require access to TeliaSonera's fixed local loop in order to offer broadband services. The model that we then viewed as being the most appropriate to resolve the problems involved, and which we described in the report, was a functional separation of TeliaSonera. At the same time, we concluded that PTS has no legal tools for implementing a functional separation. A statutory amendment was considered to be the quickest way in which to be able to compel functional separation. On 19 April, we were commissioned by the Government to, among other things, investigate the preconditions for and propose the formulation of legislation for the separation of a vertically integrated operator. Furthermore, we were directed to investigate the possibility of being able to accept voluntary commitments from an operator in order to ensure non-discrimination and transparency. The final report on this assignment was to be presented no later than 15 June.

This investigation was conducted in project form at the authority. Sara Andersson was the project manager. Others participating in the project and in the formulation of the report included Bo Andersson, Viktoria Arwinge, Lars-Erik Axelsson, Ola Bergström, Jenny Bohman, Peter Ekstedt, Martin Gynnerstedt, Christina Henryson, Katarina Kämpe, Jonny Nilsson, Eva Liljefors, Torsten Löfvenholm, David Troëng and Mattias Viklund.

The new tool for better broadband competition, which we propose in this report should supplement our toolbox, is a power to decide on an obligation for an operator to divide up operations within the company under certain conditions – a functional separation. This proposal means that the operator may become obliged to separate the production and sales of certain wholesale products based on the fixed network from other operations and partition off this separated operation.

A functional separation will resolve the problems related to discriminatory behaviour and create a functional marketplace for wholesale products in the broadband sector. It removes the vertically integrated operator's incentive and opportunities to exploit its position as a network owner to the benefit of its own retail organisation, but to the detriment of competition. In the long term, the winners will be the consumers and businesses demanding broadband services.

Better competition in the market results in greater freedom of choice for these end users.

Marianne Treschow

Director-General, National Post and Telecom Agency

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Summary in Swedish

PTS slutsats av denna rapport är att det finns strukturella konkurrensproblem som sedan länge existerat på marknaden. Varken den sektorsspecifika regleringen eller den generella konkurrensrätten har förmått åtgärda problemen. För att åtgärda dessa problem finns anledning att skapa ett nytt regleringsverktyg som ger myndigheten möjlighet att ställa krav på vertikal separation av en dominerande aktör. Ett nytt verktyg skulle, tillsammans med nuvarande möjligheter att ålägga skyldigheter på operatörer med betydande inflytande, reducera varaktiga konkurrensproblem på marknaden för elektronisk kommunikation.

Lösningen är proportionerlig och prövad
En vertikal separation kan genomföras på i huvudsak två olika sätt: strukturell eller funktionell separation. Myndigheten bedömer att en såväl en strukturell som en funktionell separation kan lösa de aktuella konkurrensproblemen. En strukturell separation är dock *inte möjlig att ålägga* som en särskild skyldighet under det nuvarande EG-regelverket. PTS drar även slutsatsen att en funktionell separation är *möjlig att ålägga* om befintliga skyldigheter inte räcker till för att lösa de aktuella problemen.

PTS har identifierat en rad egenskaper hos en funktionell separation som är positiva. En funktionell separation är till exempel *proportionerlig* eftersom den åtgärdar de problem med likabehandling som skall lösas, vilket gör det olämpligt att ta till en mer ingripande lösning. En funktionell separation är också *prövad* och har visat sig fungera i Storbritannien. Flera andra länder inför eller är på väg att införa funktionell separation av teleoperatörer.

Separationen skall minst omfatta reglerade produkter för bredbandstillträde
PTS anser att det med stöd av skyldighetsbeslut skall finnas möjlighet att skapa en funktionellt separerad enhet som åtminstone omfattar marknaden för LLUB och därtill hörande tillgångar. I dessa tillgångar ingår utbyggnad av fiber till kopplingsskåp (FTTC). Även bitström samt därtill tillhörande tillgångar bör omfattas av en separerad enhet.

Den dominerande operatören bör överväga att frivilligt organisera sig så att även andra delar av det fysiska lagret i accessnätet omfattas av den separerade enheten då en sådan modell sannolikt är mer effektiv och praktisk för en vertikalt integrerad operatör än en modell som exkluderar vissa oreglerade tillgångar ur den helhet som utgörs av accessnätet.

Organisatoriska åtgärder stärker separationen
Den funktionellt separerade enheten bör som huvudregel vara en egen juridisk person i form av ett aktiebolag.

Krav skall kunna ställas vad gäller styrelsens sammansättning, beslutsförhet och oberoende från den dominerande operatören. Det bör också ställas krav på att verkställande direktören är oberoende gentemot den dominerande operatören.

Ett revisionsutskott skall upprättas som i kontakt med bolagets revisorer utövar tillsyn över rutiner och processer för redovisning, intern kontroll avseende efterlevnaden av förpliktelsen. Det skall kunna ställas krav på redovisning med syfte att följa upp ålagda förpliktelser gentemot verkligt utfall och uppsatta nyckeltal. En sådan redovisning skall inges till PTS. En revisor skall dessutom årligen göra en särskild granskning av redovisningen av verksamheten och därefter i ett särskilt intyg avge ett utlåtande i frågan om efterlevnaden av förpliktelsen

Det kan också finnas anledning att ställa krav på den separerade enhetens eget kapital, soliditet och likviditet för att förhindra onormalt höga koncernbidrag, vinstutdelningar och andra värdeöverföringar från den separerade enheten.

Beteendemässiga regler bör också åläggas vid en funktionell separation genom att så kallade vattentäta skott upprättas mellan den separerade enheten och övriga delar av operatörens organisation. De områden som bör omfattas är regler för informationsutbyte, anställningsförhållanden och incitamentsprogram. Samtliga IT-system som avser den funktionellt separerade enheten bör också avskiljas från övriga delar av operatörens organisation.

Den föreslagna implementeringen är förutsebar och skapar stabilitet
Möjligheten att ålägga en funktionell separation som en skyldighet blir ett nytt verktyg i PTS kontinuerliga konkurrensfrämjande arbete. En sådan skyldighet skulle därmed kunna åläggas en operatör först efter en marknadsanalys av relevanta marknader och beslut om aktör med betydande inflytande. PTS föreslagna lösning harmoniserar därmed med det övergripande EG-rättsliga regelverket. En implementering av en funktionell separation skall ses som en långsiktig åtgärd, även om anpassningar kan komma att göras beroende på ändrade förutsättningar på marknaden. Förslaget att inlemma funktionell separation bland de övriga möjliga skyldigheter skapar därmed stabilitet och förutsebarhet på marknaden.

En förnyad marknadsanalys skulle kunna inledas under hösten 2007 och eventuella beslut om skyldigheter skulle kunna fattas under våren 2008, under förutsättning att den föreslagna lagändringen träder i kraft den 1 januari 2008.

Frivilliga åtaganden kan ersätta vissa skyldigheter
PTS föreslår även att det i LEK införs en möjlighet för PTS att godta frivilliga åtaganden från en operatör. Reglerna i LEK för frivilliga åtaganden bör bygga på de regler som finns inom den allmänna konkurrensrätten att godta frivilliga åtaganden, såväl inom EG-rätten som i konkurrenslagen. Åtaganden om att införa en funktionell separation skall syfta till att snabbare införa reglering på marknaden för LLUB och därtill näraliggande marknader.

Förslaget ger positiva konsekvenser för operatörer och slutkunder
PTS konsekvensanalys leder till bedömningen att de potentiella vinster som modellen medför överstiger de kostnader som kan komma att uppstå.

De kostnader som uppstår härrör huvudsakligen från de transaktionskostnader som uppstår för den reglerade operatören i samband med genomförandet och bildandet av den funktionellt separerade enheten. Det finns även potentiella

kostnader i form av effektivitetsförluster till följd av att de synergier som finns i den ursprungliga vertikala strukturen inte längre kan realiseras fullt ut.

På intäktssidan återfinns värdet av ökad transparens samt förutsägbarhet för marknadens aktörer. Värdet av att samtliga operatörer behandlas lika vid tillträden till accessnätet tar sig huvudsakligen uttryck i förbättrade konkurrensvillkor för operatörerna vilket leder till produktutveckling, ökad servicegrad och prispress för konsumenterna. Den ökade transparensen bidrar även till att minska antalet potentiella tvister och legala konflikter vilket frigör resurser från såväl operatörerna som PTS men även från rättsväsendet.

Summary in English

The National Post and Telecom Agency's (PTS) conclusion from this report is that there are structural competition problems that have existed in the market for a long time. Neither the sector-specific regulation nor general competition law has been able to remedy these problems. A new regulatory tool that provides the authority with powers to impose requirements for the vertical separation of a dominant stakeholder should be created in order to rectify this situation. A new tool, together with the current powers to impose obligations on operators with significant market power, would reduce persistent competition problems in the electronic communications market.

The solution is proportionate and tested
A vertical separation can be implemented in mainly two different ways; structural separation and functional separation. The authority considers that a structural separation as well as a functional separation will solve the current problems of competition in the market. PTS draws the conclusion that it is *impossible to impose* structural separation as a special obligation under the current EC regulation. PTS also draws the conclusion that it is *possible to impose* functional separation as a special obligation under the current EC regulation, provided that existing obligations are insufficient.

PTS has identified a number of positive qualities for functional separation. This solution is *proportionate*. It rectifies the problems of equality of access that need to be resolved, which makes it inappropriate to apply a more intrusive measure. Functional separation has also been *tested* and shown to function in the United Kingdom. Several other countries are introducing or are about to introduce the functional separation of telecom operators.

The separation should as a minimum include regulated products for broadband access
Supported by an obligation decision; PTS considers that it should be possible to create a functionally separate unit that comprises, as a minimum, the market for LLU and ancillary assets. These assets include the rollout of fibre to connection cabinets (FTTC). Bitstream and associated assets should also be covered by a separate unit.

The dominant operator should consider organising itself voluntarily so that other parts of the physical layer in the local loop are also covered by the separate unit, as such a model would probably be more efficient and practical for use by a vertically integrated operator than a model that excludes certain unregulated assets from the entirety that the local loop constitutes.

Organisational measures improve separation
As a rule, the functionally separate unit should be its own legal entity in the form of a limited company.

It should be possible to impose requirements as regards the composition of the board, its quorum and its independence from the dominant operator.

Requirements should also be imposed regarding the independence of the managing director in relation to the dominant operator.

An audit committee should be established to, in contact with the company's auditors, exercise supervision of its routines and processes for accounting, and also internal controls relating to compliance with the obligation. It should also be possible to impose requirements on reporting with the aim of following up the obligations imposed in relation to the actual outcome and key figures set. This report should be submitted to PTS. An auditor should also conduct a special annual review of the accounts of the operation and thereafter submit, by means of a special certificate, an opinion on the matter of compliance with the obligation.

There may also be cause to impose requirements on the separate unit's equity, solvency and liquidity in order to prevent abnormally high group contributions, profit distributions and other value transfers from the separate unit.

Rules of conduct should also be imposed in the event of functional separation by establishing 'Chinese walls' between the separate unit and other parts of the operator's organisation. The areas that should be covered are the rules on the exchange of information, employment conditions and incentive programmes. All of the IT systems that refer to the functionally separate unit should also be partitioned off from other parts of the operator's organisation.

The proposed implementation is predictable and creates stability

The opportunity to impose functional separation as an obligation will be a new tool in PTS's ongoing work to promote competition. Consequently, it is possible that such an obligation could be imposed on an operator after a market analysis of relevant markets and a decision regarding stakeholders with significant market power. PTS's proposed solution thus harmonises with the overall EC legal rules. Implementation of functional separation should be viewed as a long-term measure, even if adaptations may be made depending on changing circumstances in the market. The proposal to incorporate functional separation among the other possible obligations thereby creates stability and predictability in the market.

A renewed market analysis could possibly commence during the autumn of 2007 and any decisions on obligations may be made during the spring of 2008, subject to the precondition that the proposed statutory amendment enters into force on 1 January 2008.

Voluntary commitments can replace certain obligations

PTS also proposes that powers be introduced into the Electronic Communications Act (LEK) enabling PTS to accept voluntary commitments from an operator. The rules for voluntary commitments contained in LEK should also be based on the rules contained in general competition law to accept voluntary commitments, both within EC law and the Competition Act. The commitment to introduce functional separation should aim to expedite the introduction of regulation of the LLU market and its closely related markets.

The proposal yields positive consequences for operators and end users
PTS's impact analysis has led to the assessment that the potential gains that the model entails exceed any costs that might arise.

The costs that arise derive mainly from the transaction costs arising for the regulated operator in conjunction with the implementation and formation of the functionally separate unit. There are also potential costs in the form of loss of efficiency as a consequence of it no longer being possible to fully realise the synergies found in the original vertical structure.

On the income side, there is the value of greater transparency and predictability for market stakeholders. The value of all operators being treated equally in the event of local loop unbundling is mainly manifested through improved terms of competition for the operators, which results in product development, improved service and downward price pressure for the benefit of consumers. Greater transparency also contributes to reducing the number of potential disputes and legal conflicts, which releases resources, not only from the operators and PTS, but also from the legal system.

1 Statutory proposal

Proposed Act amending the Electronic Communications Act (2003:389)

Proposed wording

Chapter 4

Section 9 a

With the aim of ensuring non-discrimination and openness, an operator, upon whom an obligation has been imposed under Section 4 and Chapter 8, Section 6 regarding access to such a network as referred to in Section 9, may be put under an obligation to separate the operations and assets that are necessary to plan, run, maintain and provide those parts of the network to which the obligation refers.

If an obligation is imposed upon an operator concerning the provision of two-way high-speed transmission for reaching a number of end users within a geographical area from one connection point, the operator may also, if the provision is effected within a network as referred to in Section 9, be ordered to separate further resources to the extent that they are necessary for the provision.

Such an obligation under the first and second paragraphs may refer to requirements for an operator to separate

1. a network and network components,
2. associated facilities,
3. IT systems attributable to the operation,
4. personnel,
5. financial resources, and
6. other resources subject to the precondition that this separation is required to achieve non-discrimination and openness.

Section 9 b

An obligation as referred to in Section 9 a may be combined with a requirement that

1. the separated part shall be organised with a particular legal status,
2. a member of the board, managing director or authorised signatory may not simultaneously be a member of the board, managing director or authorised signatory of another company or another legal entity within the same group,
3. the composition of the board and quorum shall be restricted,
4. remuneration for a representative or personnel that is dependent on performance shall only be based on the financial circumstances of the separated part,
5. rules of conduct shall be drawn up for personnel ensuring non-discrimination,
6. value transfers and internal transactions to and from the separated operation and other operations or companies in the same group shall be limited,
7. an audit committee shall be established to, in contact with the company's auditors, exercise supervision of its routines and processes for accounting, and also internal controls relating to compliance with the obligation,
8. a special report shall be prepared stating how the obligation was complied with, and
9. an external auditor shall, in a special certificate, give an opinion annually on compliance with the obligation.

This obligation may be combined with further requirements that are necessary to ensure the independence of the separated part in relation to the other operations or companies in the same group.

Section 9 c

The authority appointed by the Government may decide to accept a voluntary commitment from such an operator referred to in Section 9 a to meet the requirements that may be imposed by Sections 9 a and b. Decisions made by the authority may cover a specified period. As long as the decision applies, the authority may not issue any decision regarding the same matter pursuant to Section 9 a.

The authority may revoke its decision under the first paragraph where

1. there has been a change in any of the facts that were material to the making of the decision,
2. a party commits a breach of any obligation attached to the decision, or
3. the decision is based on incomplete, incorrect or misleading information which the operator has submitted.

A decision concerning a voluntary commitment under the first paragraph may be combined with a default fine.

Current wording *Proposed wording*

Chapter 8

Section 12

Decisions in cases referred to in Section 11 may be made at the most one month after when notification has been given. If the date determined according to Section 10 falls later, the decision may be issued then at the earliest.

However, a decision may be made before two months following the expiry of the time limit referred to in the first paragraph, provided that the Commission of the European Communities, within that time, notified to the authority that it is deliberating on not accepting a proposal to a decision which

1. means that a market that is to be determined in accordance with Section 5 deviates from the Commission's recommendation,

2. relates to identification of undertakings in accordance with Section 6, second paragraph, or

3. relates to the introduction of an obligation or acceptance of a voluntary commitment in accordance with Chapter 4, Sections 9 a-c.

If the Commission, within the time referred to in the second paragraph, decides not to implement such a proposal as referred to there, the decision may not be made.

2 Introduction

2.1 The assignment

On 19 April 2007, the National Post and Telecom Agency (PTS) was assigned by the Swedish Government to investigate the preconditions and opportunities for introducing a remedy into the electronic communications legislation (LEK) to promote non-discrimination and transparency in access to the local loop (LLU). According to the Inquiry's assignment, this remedy should aim to establish organisational separation and independent decision-making (vertical separation) within a vertically integrated operator,[1] upon which LLU obligations are imposed, between, on the one hand, such operations that comprise the provision of networks and services at a wholesale level and, on the other hand, the operations that comprise the sale of services provided to end users through such networks.

It is stated in the assignment that an obligation to implement vertical separation should be linked to the obligations imposed under Chapter 8, Section 6 and Chapter 4, Section 4 of LEK, which include access on non-discriminatory terms to such a network as referred to in Chapter 4, Section 9 of the same Act. The function to be separated from other functions should concern the operation, maintenance and provision of primarily those parts of the network to which the obligations refer. It should be noted that the separated function may also be of significance to the provision of other wholesale services regulated under LEK; for example, access to wholesale line rental (WLR).

According to the assignment, PTS should also, besides reporting the matters referred to above, investigate the possibility of PTS accepting commitments including measures from a vertically integrated operator upon which LLU obligations aimed at ensuring non-discrimination and transparency have been imposed, and propose the regulation necessary for doing this. Other legal solutions may also be reported as alternatives.

The assignment includes PTS consulting with the Swedish Competition Authority on competition law issues.

It is stated that PTS shall report on this assignment no later than 15 June 2007 and that the proposed regulation should contain a draft of the statutory wording.

2.2 Conducting the Inquiry

The Inquiry has used the 'Proposed broadband strategy for Sweden' report presented by PTS on 15 February 2007 as a basis for the assignment. Analyses

[1] Vertical integration means that a stakeholder owns and controls all or parts of the value chain. Vertical integration may be directed either downstream or upstream. This depends upon who controls whom in the value chain. The vertical integration is downstream if a stakeholder, at an earlier phase in the value chain, integrates vertically with a later phase. In a corresponding way, a stakeholder at a later phase in the value chain may integrate with operations at earlier phases. This involves upstream vertical integration. Both forms of integration often occur together.

and conclusions from this report have been supplemented with further information and analyses following several meetings, consultations and study visits with various representatives in the electronic communications market.

On 11 May 2007, the Inquiry held an open meeting for all stakeholders in the electronic communications market. The aim of the meeting was to obtain the views and proposed solutions of stakeholders to the identified competition problems in the market. They were given the opportunity at the meeting, and later also in written form, to provide their points of view on how access in the local loop, and thereby related information and support systems, is currently working and what possible measures may need to be implemented in order to improve competition in the market. In addition to this, the Inquiry also held individual meetings with several operators.

In accordance with the assignment, the Inquiry has consulted the Swedish Competition Authority on competition law issues. Four meetings have been held in total, and there has been ongoing dialogue during the course of the Inquiry.

The assessment made in this Inquiry in respect of Total Defence issues and public undertakings has been drawn up in collaboration with the Swedish Armed Forces.

Study visits have been made to London, The Hague and Brussels. In London, the Inquiry met with representatives of the British regulatory authority, Ofcom, as well as with representatives of Openreach. In The Hague, the Inquiry met with representatives of the Dutch regulatory authority, Opta. In Brussels, the Inquiry met with representatives of the European Commission, Information Society and Media Directorate-General.

The Inquiry has commissioned the law offices of Bird & Bird to investigate the impact of introducing an obligation on functional separation with regard to the Swedish Companies Act. Bird & Bird reported on the assignment in a memorandum dated 5 June 2007.

The Inquiry has also consulted Professor Clas Bergström, Stockholm School of Economics, regarding parts of Chapter 7, 'Deliberations and proposals'.

The Inquiry has prepared those parts of the investigation involving the significance of the local loop from a Total Defence perspective in collaboration with the Swedish Armed Forces. The Swedish Armed Forces did not have any views on the deliberations made by PTS in these respects.

Based on the above, the Inquiry has described the local loop market, laws in force in the electronic communications sector and experiences from current regulation, and has also conducted an international overview. The conclusions drawn from these areas form the basis of the Inquiry's deliberations and proposed supplements to the LEK legislation. Finally, the consequences of these proposals have been analysed.

2.3 Theoretical models for vertical separation

In the following section, a theoretical description will be made with regard to bottleneck problems and different forms of vertical separation. The aim of this is to provide an overview of the problem area that PTS has been assigned to investigate.

2.3.1 Bottleneck problems

Within most regulated sectors in the market, there is usually at least one segment or component where it is not possible to rely on traditional competition for the efficient production of a product or service. There are several explanations why a sector is unable to sustain competition, but the most common reason in network industries is the existence of economies of scale. This means that one vertically integrated, dominant company can satisfy the needs of the market more efficiently than any other combination of two or more undertakings. Other factors that may influence the establishment of competition are the occurrence of network effects or economies of scale in the retail market, i.e. the demand for a company's services increases with the consumption of the same.

In certain cases, it is possible to distinguish the part of production that is not exposed to competition; this is known as the 'bottleneck resource'. A bottleneck may be characterised by its use being restricted, i.e. the company controlling the bottleneck determines who can offer a certain product to consumers. If other companies in the value chain are dependent on the bottleneck in order to deliver goods or services to consumers, it is possible for the dominant company to impede the access of competitors to the bottleneck by charging monopoly profits of the same magnitude as if there were only one producer in the market. The reason for this is that everyone, both upstream and downstream, is dependent on the company controlling the bottleneck. In order to avoid monopoly profits, the bottleneck, which is providing these dominant companies with market power, must be regulated. Such measures may vary in extent but regulation covering both access and pricing is often introduced as a first step. A more extensive measure in order to reduce the potential market power of the company controlling a bottleneck is to impose vertical separation.

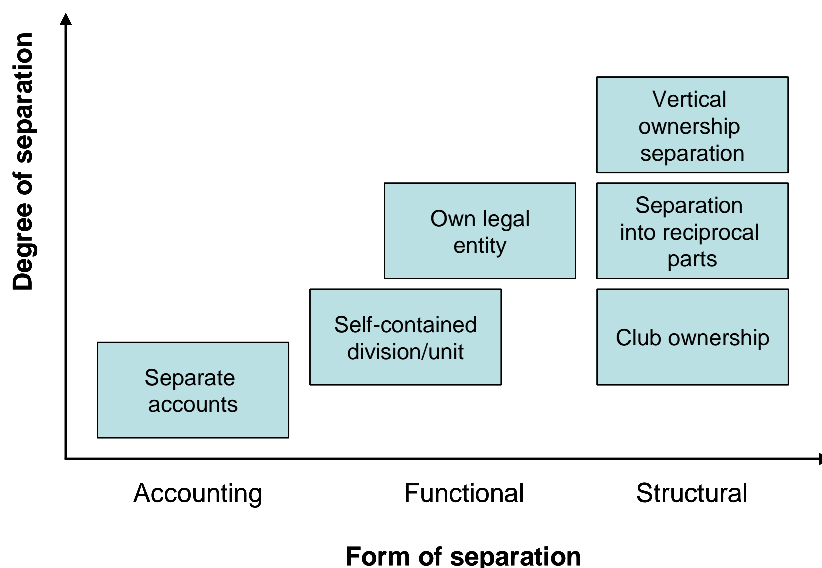
2.3.2 Different approaches to vertical separation

There are a number of different policy approaches that can be applied to protect and promote competition in a sector including segments characterised by inadequate competition. The starting point for a vertical separation is the dominant company's operations in a particular market. The objective is to separate the bottleneck resource, which could be either infrastructure or components, that is subject to access regulation, and where regulation does not function in a satisfactory manner.

A distinction is often made between weaker forms of vertical separation, such as accounting or functional separation, and stronger forms of vertical separation, such as separation in relation to ownership and separation between the ownership

and control of the company; see the diagram below. This section provides a description of the different forms of vertical separation.

Figure 2.1. Different possibilities for vertical separation



Accounting separation

Accounting separation means that a company is ordered to keep separate accounts for those parts of the operation constituting the bottleneck resource. The aim of introducing separate accounting is to facilitate an analysis of the information derived from the accounting records for this part of the operation. The intention is to reflect revenues, costs and results as if this part of the operation were managed as a separate unit. This consequently makes it possible to view inter-company transfer pricing and to monitor whether price discrimination or prohibited cross subsidies are occurring.

Functional separation

Functional separation means that the part of the operation identified as a bottleneck resource is separated from the rest of the company and put into a separate unit. This unit can be a business area, division or department and is then, in terms of operations, entirely separate from the other parts of the company. Another alternative is to set up a limited company on the basis of the separate unit and keep it as a wholly owned subsidiary.

The objective of the separation is to create a unit with a high degree of autonomy and independence. A key to success is to establish a unit with high confidence from the market and that interacts with all customers on an equal basis regardless of whether they are internal or external customers. In order to achieve this, it is necessary to define clear boundaries and implement 'walls' between the separate unit and other parts of the organisation. Another important issue to consider is

how the unit should be managed and controlled. There should be rules of conduct for the management and the board regarding the separate unit's independence in relation to other parts of the organisation. It is also important to implement rules of conduct for the employees within the separate unit so that they know how to act in relation to external and internal customers in terms of what information can be forwarded and how other parts of the organisation can influence the unit. Also, issues concerning transparency and openness in the separate unit must be taken into account.

The energy sector is one example of a sector where functional separation has been implemented. According to the Electricity Act (1997:857), it is stated that undertakings conducting network operations shall place this part of the operation into its own legal entity, which shall be separate from electricity generation and trade. There are also rules to ensure the board's and managing director's independence from the operations conducting electricity generation and trade. Network operations shall have separate financial accounting, which shall be audited annually by an external auditor who shall submit a certificate to the regulatory authority on whether the reporting was carried out under the applicable provisions.

The overall goal of the implementation of the electricity legislation was to achieve competition in the markets for electricity generation and trade and not primarily within the network operation, which was regarded as a natural monopoly.[2] With the organisational structure described above, the legislator wished to reduce the risk of cross subsidy and costs being passed on between the network operation and other operations.

Measures to supplement functional separation

A regulatory authority can accept an agreement on voluntary commitments as a supplement, or alternative, to functional separation. This means that the party that has been ordered, or may the subject of, such an obligation can submit a proposal on what commitments could be implemented with regard to the separation on a voluntary basis and in discussion with the regulatory authority. This makes it possible to achieve a more flexible and effective solution that can satisfy the interests and practical needs of stakeholders, as well as the need to achieve competition in the market. The voluntary commitments can be equated to a contract and are, following acceptance by the regulatory authority, legally binding.

Structural separation

In the case of a structural separation, there are different variants available depending on the company's current form of ownership and organisation and also on which type of bottleneck resource is involved. *Vertical ownership separation* means that the bottleneck resource is separated from a vertically integrated

[2] A natural monopoly exists if the production of a product has decreasing average costs for volumes up to or equal to overall market demand. One company can then produce all of the quantity of the product demanded by a market at a lower cost than two or more companies can.

undertaking, which has a monopoly-like position in the market, and is placed into a limited company. This company is also separated from the vertically integrated company with regard to ownership. The company can, for example, be sold to a separate private owner or several owners, distributed to the vertically integrated undertaking's shareholders or listed on the stock exchange. This form of structural separation means that the incentive to discriminate against companies operating in the retail market is eliminated. Examples of this form of separation in Sweden are the railway sector, where the infrastructure management function was separated from Swedish State Railways through the formation of the Swedish National Rail Administration, and within the energy sector, where the national grid was separated from the Statens vattenfallsverk (now Vattenfall AB) through the formation of the public utility business, Svenska kraftnät.

Separation into reciprocal parts means that an undertaking with a bottleneck resource is divided into smaller reciprocal parts which contain both the part of the operation that is subject to competition and the part of the operation that is non-competitive. This division into smaller entities can be made on the basis of, for instance, a geographical dimension or a product/service dimension. Another alternative is to divide the total bottleneck capacity between those companies competing in the retail market. This makes it possible for all undertakings to negotiate on mutual access to each other's non-competitive operation and thereby stimulate competition. An example of this is in the air-traffic sector, where the allocation of take-off and landing times (slots) is made for different airlines.

Club ownership means that the bottleneck resource is owned jointly by several companies operating in the part of the market that is subject to competition. This means that the incentive to discriminate against competing stakeholders is basically eliminated. Such a solution, for example, has been applied in the banking market as regards payment systems, and in the mobile telephony market where Telia and Tele 2, and also Hi3G (3) and Telenor, have established collaboration on the joint construction and ownership of a UMTS infrastructure.

3 The local loop market

Summary: The fixed telecommunications network has been developed over a long period of time predominantly to be able to relay traditional telephony. However, over time it has also been adapted to be able to carry several other services. TeliaSonera is currently the owner of the largest fixed telecommunications network in Sweden. The metallic loop basically covers every household and business in Sweden and approximately 98 per cent of these households and businesses have the opportunity to receive broadband via xDSL. There are alternative access networks, such as the cable television network, fibre LAN and fixed radio access, in certain parts of the country. These are replicated by the metallic loop and are primarily found in geographical areas where it has been considered that making such an investment is commercially justifiable.

Connection via xDSL is the most common form of access in the retail broadband market for households and businesses; this share amounted to 65 per cent in 2006. TeliaSonera is the dominant stakeholder in the xDSL market and had a market share of 58 per cent in 2006.

Under the current regulation, operators that do not have access to their own infrastructure in the local loop can gain access to TeliaSonera's fixed telecommunications network. The operator can choose between the various products for access depending on the level of control that is required for the access line and the propensity to invest in its own equipment. The regulated input products currently offered in the wholesale market for the production of broadband are LLU and, to a small extent, bitstream access.

The fixed telecommunications network is currently being developed as a result of the implementation of new services and changed patterns of behaviour. This has resulted in an increased demand for higher connection rates. The metallic loop will be upgraded in order to be able to supply higher capacity in the network, and the new generation access network will probably comprise copper as well as fibre and wireless alternatives.

The infrastructure in the fixed telecommunications network has been developed by TeliaSonera, previously the public utility company Televerket, over a very long period of time. The network was originally developed to satisfy the national need for traditional fixed telephony and has thereafter been adapted over time to carry several other services.

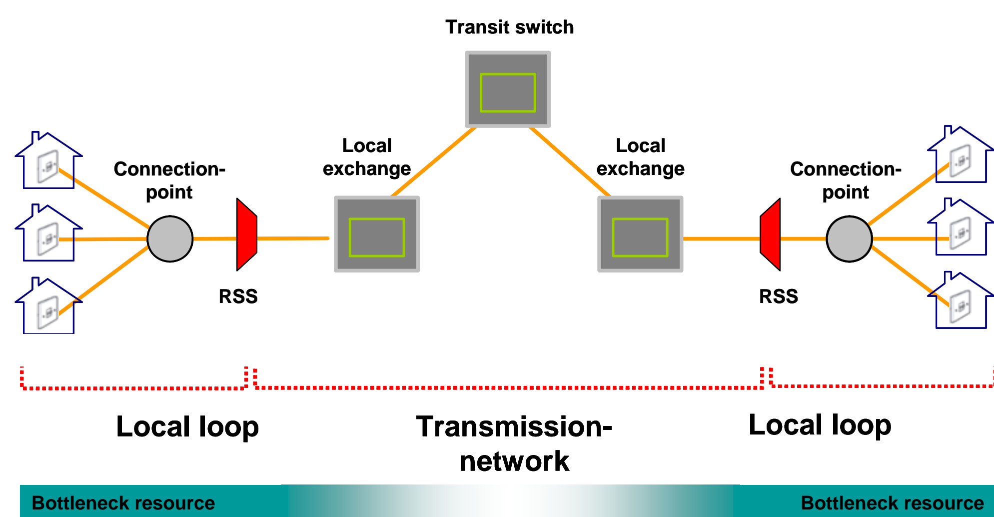
Today, many undertakings compete for end users connected to the fixed telecommunications network. Developments in the electronic communications sector mean that the fixed telecommunications network has also become more important for access to broadband services throughout the country. The fixed telecommunications network in the local loop is so extensively developed that other operators will be unable to roll out an equally extensive alternative infrastructure in the foreseeable future. It is consequently of the greatest

importance that all operators providing broadband services gain access to this local loop on equivalent terms. In its decision[3] on the definition of the Swedish market for LLU, PTS analysed the local loop market and found that TeliaSonera's share of this market exceeds 99 per cent.

3.1 Components in the fixed telecommunications network

The fixed telecommunications network comprises a number of components that together create a network structure; see the diagram below for an overall description.

Figure 3.1. Outline of the fixed telecommunications network



The *local loop* originates from the telecommunications exchange (local exchange, RSS[4]) that is usually located closest to the end user. The local loop is that part of the fixed telecommunications network that links network termination points at the end user's home or workplace to a telecommunications exchange via one or more connection points[5] in the local loop. The local loop provides each end user with a permanent customer-unique line. In the telecommunications exchange, the outgoing traffic is then directed via the transmission network, where traffic to and from different customers shares the same line.

The *transmission network* is that part of the network that links the different telecommunications exchanges (or nodes) in a geographical area (city areas, districts) to one another. There are different hierarchies within the network where the telecommunications exchanges are allocated specific tasks. The task of the transit switch is to transmit traffic to other transit switches and other underlying local exchanges. The task of a local exchange is to connect the local loop and direct traffic, and also to connect the underlying telecommunications exchanges, i.e. RSSs. An *RSS* is a telecommunications exchange where the functions for

[3] File ref. 04-6948/23 a
[4] Remote Subscriber Stage. May also be called a concentrator.
[5] Primary and secondary distribution points

connecting the local loop have been removed from the local exchange, but are dependent on functions in the local exchange in order to be able to direct traffic. The local loop can thus connect both a local exchange and an RSS.

The central active equipment that looks after communication with the underlying network and other *transit switches* at a higher level in a network hierarchy is located at a *local exchange*. Full redundancy applies between the transit switches, i.e. a station is connected to another via at least two physically separate routes.

3.2 Technologies in the local loop

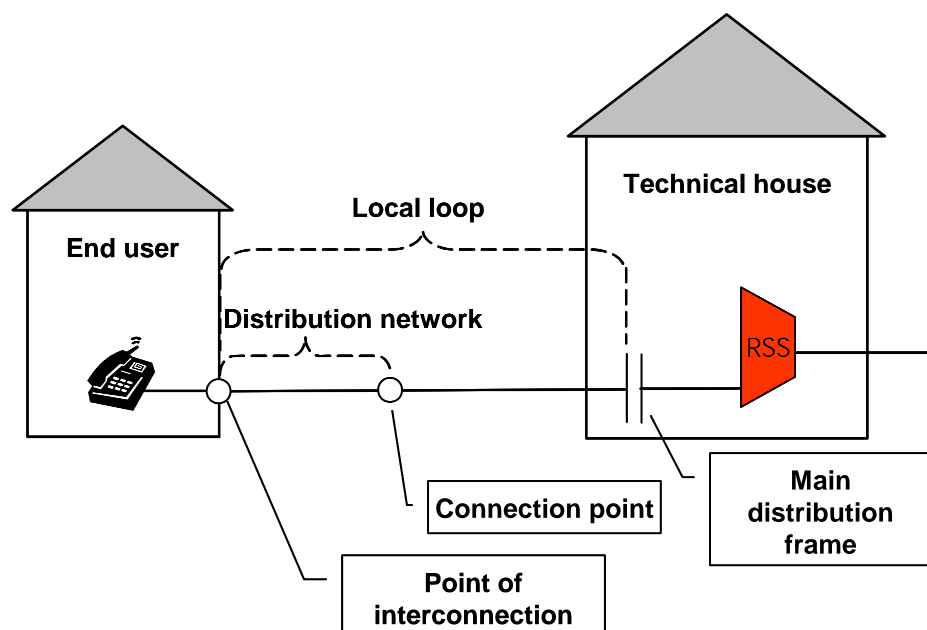
The local loop in the fixed telecommunications network is ordinarily metallic and comprises a twisted copper pair. This report focuses on the metallic loop, although alternative access network technologies will also be briefly described in Section 3.3 in order to outline the local loop market.

3.2.1 The metallic loop

TeliaSonera's local loop comprises the line from an individual customer, which is usually a twin cable divided into a number of sections. There is a network termination point at the end user's premises, which normally comprises the first telephone socket in dwellings and a connection plinth somewhere in the property in business premises. On the route from the end user to the telecommunications exchange, the twin cables from many end users in several districts are gathered together into more substantial cabling, which is connected to a connection point in the local loop, in what is known as a 'connection cabinet'. The section of the line between the connection point and the end user is called the 'distribution network'.[6]

[6] May also be called a secondary network.

Figure 3.2. Parts of TeliaSonera's metallic loop



TeliaSonera's fixed telephony network is connected to all permanent dwellings and permanent places of work in Sweden. Subsequently, there are a large number of telecommunications exchanges for fixed telephony. In total, there are just over 7 000 telecommunications exchanges throughout Sweden. However, the number of subscriber lines that are connected to each telecommunications exchange varies greatly. Some telecommunications exchanges only have a couple of subscriber lines connected and some have over 35 000 subscriber lines. Large telecommunications exchanges are, for obvious reasons, found in metropolitan areas, while small telecommunications exchanges are found both in sparsely populated areas and major towns.

A necessary first step is that the subscriber lines are connected to modem equipment, DSLAMs,[7] so that TeliaSonera and other operators can use the fixed telephone network to offer broadband services to end users. These are placed in or directly adjacent to the telecommunications exchange where the subscriber line terminates. A filter is required (a 'splitter') which separates data traffic from telephony, as both telephony and data traffic are transferred via subscriber lines. Different kinds of xDSL access lines are produced depending on the kind of modem that is used, and the most common technology is ADSL. The DSLAM needs to be connected to a transmission network in order to be able to supply broadband services; for example, via own fibre or a leased line.

[7] A DSLAM (Digital Subscriber Line Access Multiplexer) is equipment that is normally located at a telecommunications exchange, which is connected to a number of end users via the metallic loop. The equipment brings together digital signals from a number of DSL connections through multiplexing, and subsequently further transmits the signals brought together in the transmission network.

Metallic loops have a number of physical properties that affect data rates. However, the primary factor affecting data rates is the length of the local loop from the telecommunications exchange to the individual subscriber. One precondition for having access to xDSL is that the subscriber is connected to a copper access line that is less than nine kilometres long. The access line should also be of a sufficiently good quality and may not be shared with other subscribers.

Around 50 000 (approximately one per cent) of Sweden's telephony subscribers have subscriber lines longer than nine kilometres and subsequently cannot be offered broadband via xDSL. These subscribers are predominantly located in sparsely populated areas. In total, around 130 000 subscribers are adversely affected by technical impediments that render it impossible for them to obtain broadband access lines via xDSL. This corresponds to 2.5 per cent of all subscribers in the fixed network.

3.2.2 Other local loops

The cable television network

Cable television networks are an alternative network for broadband and telephony. These networks were not originally developed for communication in both directions, but were intended for the distribution of television signals. These only require communication from the main distribution point to the household. The network needs to be return-activated in order for it to offer two-way communication and broadband access lines in the cable television network. This requires some reconstruction work in a property, as new amplification equipment must be fitted and a multimedia socket needs to be installed in the home. The connection is then made via a cable modem. The network is normally set up as a cascade network, which means that the customer shares a common physical access line.

Just over 2.5 million Swedish households had access to cable television reception at home in 2006, corresponding to just over half of all households in Sweden. Just under 1.5 million of these residential connections were upgraded for broadband. It has been observed that cable television networks are primarily found in areas where xDSL is also offered and that the network consequently does not add any coverage beyond the coverage already provided by the metallic loop.

Comhem is the largest stakeholder in the cable television market in Sweden and covers approximately 60 per cent of households.

Fibre LANs

A LAN (Local Area Network) is a fixed form of access that completely or partially uses optical fibre. At the present time, fibre is the technologically superior solution as light signals in optical glass fibre can transmit greater quantities of data per unit of time at a lower cost than any other medium today. Today, fibre is already being used along the entire route up to the customer in order to connect customers demanding high capacity; for example, large companies. Fibre To The

Home (FTTH) is still available for dwellings to a limited extent. Fibre LAN is often fitted in apartment blocks and in residential areas where fibre is laid to a connection point (router) located in the immediate vicinity of the property and thereafter to a socket in the home via what are referred to as 'TP cables' (twisted copper pair). The network is constructed as a star structure in every building, which means that all apartments receive their own cable connected to the router. The router is then connected to the operator's transmission network by optical fibre; for example, an urban network which is available in many municipalities. The communication protocol, Ethernet, is the dominant technology for fibre LAN. In January 2006, 940 000 dwellings were connected, corresponding to 21 per cent of the total number of dwellings.[8] By the end of 2006, 357 000 customers had bought an Internet access line via a fibre LAN connection.[9]

In relation to the metallic loop, there are many owners of local fibre infrastructure. For example, there are more than 150 urban networks.

Bredbandsbolaget and TeliaSonera are examples of stakeholders within fibre LAN.

Fixed radio access

Currently, fixed radio access is mainly offered to businesses and self-contained houses by means of an operator setting up a central base station to which the end users connect. In most cases, this service requires the erection of a wireless modem outside on the roof or on a mast, which involves a relatively complicated installation procedure. The new generation of systems that are now coming onto the market support the use of a wireless modem placed indoors to a greater extent, which means that it is easier to install the modem oneself. At the present time, fixed radio access has a very low distribution in Sweden and its market share amounts to less than 1 per cent of all available access technologies.

3.3 The importance of the fixed telecommunications network from a Total Defence perspective

Due to the scope and structure of the fixed telecommunications network, this telecommunications network may be deemed to be of greater importance than other networks from a Total Defence and security perspective.

There are central functions in the telecommunications network's central nodes that manage large parts of the telecommunications traffic of Swedish society and other nations. These nodes contain equipment that affects many services and functions at a national level, affects international traffic to and from and also through Sweden, functions and services that are to be reached from throughout Sweden and functions and services that are to be reached from other parts of the world.

[8] Broadband in Sweden 2006, PTS-ER-2006:22
[9] The Swedish Telecommunications Market 2006, PTS-ER-2007:15

The transmission networks that link central nodes are a precondition for functioning national and international traffic. The transmission network linking the central nodes to the local telecommunications exchanges is important for subscribers who are connected to the local telecommunications exchange. However, neither the central nodes nor the transmission networks constitute any part of what is usually defined as the 'fixed local loop'.

3.3.1 PTS's robustness work

Under Section 5 of the Terms of Reference of the National Post and Telecom Agency Ordinance (1997:401), PTS shall, through public procurement, satisfy the Total Defence needs for post and electronic communications services during, for example, times of national alert and reinforce the preparedness of society in relation to serious disruptions to electronic communications and postal services during peacetime.

Under PTS's Terms of Reference for 2007, the authority shall, within the framework of the policy areas 'Protection and preparedness for accidents and times of crisis' and 'Total Defence', conduct operations to enhance robustness within the electronic communications sector. This work largely comprises PTS procuring functions to enhance the robustness of the fixed telecommunications network. PTS's robustness work is conducted in what is termed a 'public-private partnership'. The measures that should be implemented are determined by a continually ongoing process in pace with the development of technology within the networks. What needs to be done to maintain or enhance the robustness of the networks and the systems for electronic communications is determined in dialogue with stakeholders within the sector. PTS can finance the entire measure in those cases where there is considered to be no commercial interest. In the event that there is commercial interest, costs will be shared between PTS and the affected stakeholders.

All of the measures implemented and procured within the framework of the PTS and TeliaSonera public-private partnership are the responsibility of TeliaSonera. However, in certain cases, agreements for an obligation to apply for a fixed term are concluded between the parties. There are also cases where PTS orders certain development projects from TeliaSonera. In such cases, provision is usually made for TeliaSonera, following the completion of a trial, to inform other operators of the experience gained. The measures to enhance robustness that are implemented within TeliaSonera's networks will also benefit other operators.

3.4 The wholesale market for broadband

3.4.1 Range of products

Operators wishing to offer broadband services in the retail market, and that do not have access to their own infrastructure in the local loop, have the opportunity of receiving access to the metallic loop under the applicable access regulation. TeliaSonera has been identified as a stakeholder with significant market power and is obliged to provide access to other operators. The operators can choose between different access products, depending on the degree of control the

operator wishes to have over the retail product and how willing it is to invest in its own equipment.

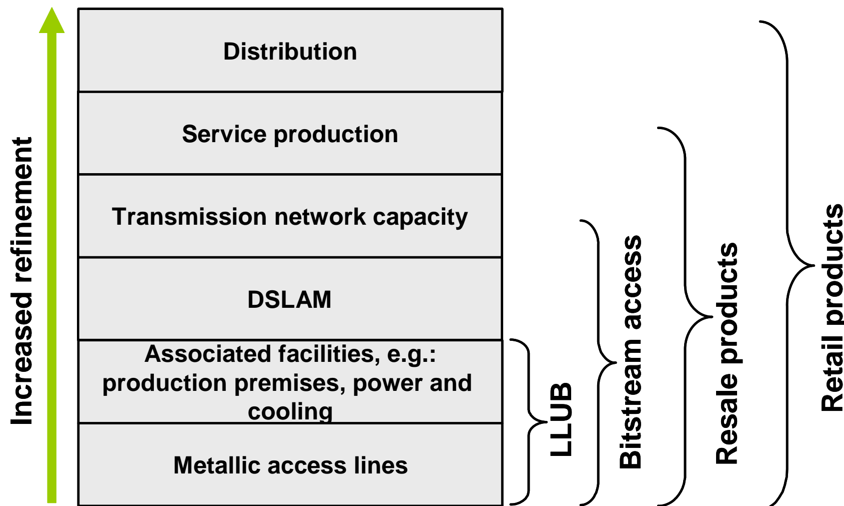
As a higher risk is involved when investing in one's own infrastructure, with a consequential large proportion of non-recoverable costs, a remedy needs to be designed so that the operators are given incentives to increase their own investment in infrastructure so that infrastructure competition is achieved in the long term. Access to TeliaSonera's infrastructure on reasonable terms makes it easier for other operators to enter the market and develop a customer base. An established customer base significantly reduces uncertainty and the operators may then be prepared to implement further investments in infrastructure. This procedure is normally called the 'ladder of investment'. The theory of the ladder of investment is currently an important component in the regulatory work of European regulatory authorities and has, for example, been recommended by ERG as the method that should be used to achieve long-term sustainable infrastructure competition where replication is feasible.[10]

The ladder of investment is thus based on an alternative operator initially being able to lease large parts of the infrastructure and gradually increase investments in its own infrastructure. The incentive for alternative operators to invest in infrastructure changes over time in pace with the preconditions to do so. By imposing an obligation on the dominant undertaking to offer access products at different levels of the value chain, competition can gradually be moved from being pure service competition to being based on parallel infrastructure.

The value chain for broadband access via TeliaSonera's metallic loop can be divided into a number of stages of refinement. Seen from a technical perspective, the value chain comprises the levels shown in the figure below.

[10] For a detailed account relating to the ladder of investment, see in particular Cave, Martin, 'Making the ladder of investment operational' and ERG's 'Common standpoint on choice and application of regulatory measures under the new regulatory framework'.

Figure 3.3. The value chain for broadband access lines and corresponding wholesale products



As regards the different stages of refinement in the value chain, it should be noted that:

- Like transmission network capacity, the input products' metallic access lines and production premises can be used for retail products other than broadband access lines
- The 'service production' stage of refinement varies in scope depending upon which service is to be offered to the end user. Examples of retail products that require different content at the 'service production' stage of refinement include broadband access lines to the Internet, corporate network IP VPN, leased lines, IP telephony and IPTV. When producing broadband access lines for the Internet, national and international IP capacity, e-mail, web space and security solutions will now normally only be added in addition to the access connection.
- The 'distribution of products' stage of refinement comprises, for instance, sales, customer service and invoicing.

At a wholesale level, there are three main levels of refinement that also correspond to the different levels on the ladder of investment: resale products, bitstream access and LLU (local loop unbundling). The latter two products are regulated according to applicable access regulation, while the resale products are unregulated. The various levels of refinement in the value chain are described in more detail in the following section.

Resale products

A resale product for ADSL is a package solution for operators that wish to rapidly offer their services on the market without making investments themselves. The operator normally needs to invest in a server to generate user accounts and authenticate customers when logging in.

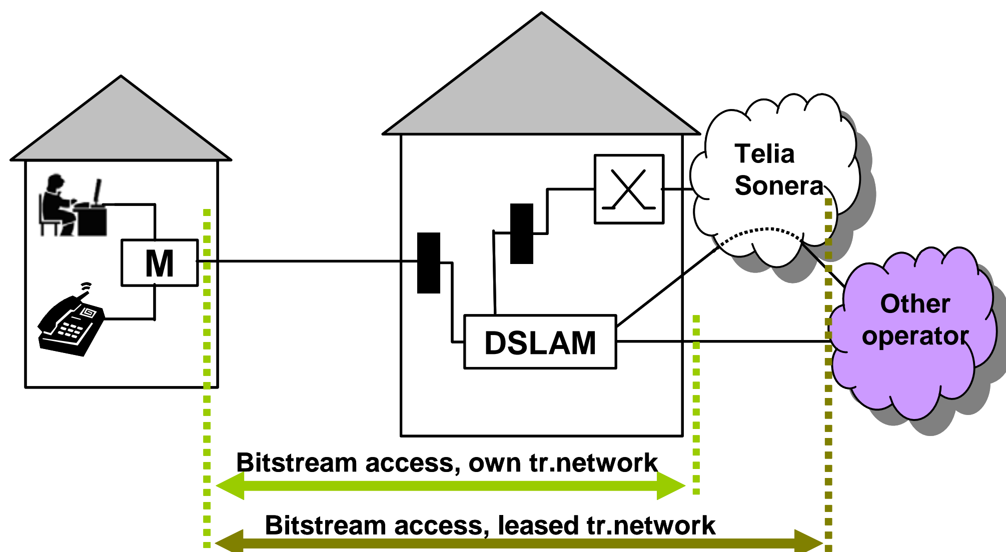
This means that TeliaSonera controls the technical parameters of the product and the leasing operator offers a retail product similar to that of the network owner. Such a wholesale product has the nature of a pure resale product and there is less opportunity for operators to refine and differentiate their products themselves for end users.

Bitstream access

Bitstream is a regulated market, but the product is not yet available commercially on a large scale. For bitstream access, the operator leases a service for a connection with a higher transmission capacity between the telecommunications exchange and the end user, usually in the form of an xDSL connection. This includes the digital equipment, DSLAM, in the connection to the main distribution frame. The leasing operator thereby gains access to a line in the form of a digital connection and does not have to invest in its own xDSL equipment. With bitstream access, other operators have the opportunity to gain access to TeliaSonera's economies of scale.

When an operator makes use of bitstream access, it has the opportunity to change the technical parameters so that the retail product differs from the product offered by TeliaSonera. This means that the leasing operator has a higher degree of control over the retail product, compared with a pure resale product, and partially uses its own equipment higher up in the network hierarchy in order to offer a complete retail product.

Figure 3.4. Bitstream access

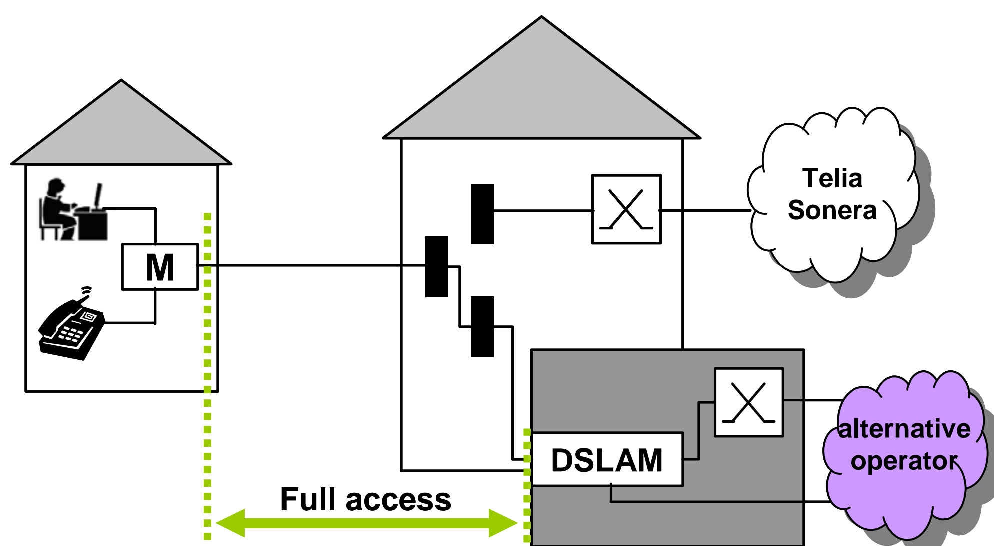


LLU

LLU means that the operator leases the copper line that links the telecommunications exchange to the customer and leases space for its equipment, for example, modem equipment, at the telecommunications exchange or at the connection to the telecommunications exchange. The operator is personally responsible for the operation, maintenance and equipment of the service offered to the end user. According to the operators themselves, a large number of customers need to be connected to the telecommunications exchange in order for LLU to represent a profitable alternative. Access to LLU is regulated and can be effected in two different ways: either via full access or shared access.

Full access means that the operator leases a full copper pair in a line between the telephone exchange and the end user. It receives unrestricted use of the pair within its specified frequency spectrum and can offer telephony, Internet connection or another service. The leasing operator itself can decide to place the equipment needed at the connection to the main distribution frame, DSLAM or other equipment either at the telecommunications exchange or in its vicinity.

Figure 3.5. Full access according to LLU



Shared access means that, as regards frequency, the operator shares a copper pair with TeliaSonera in a line between the telephone exchange and the end user. The leasing operator leases the upper part of the frequency spectrum and can then offer, for instance, Internet connection. TeliaSonera transmits telephony in the lower part of the frequency spectrum, which is intended for this purpose. Separation between the operator's connections is effected via a filter (a splitter) which is usually integrated in the broadband transmission equipment (DSLAM).

Since 2004, interest in LLU has really taken off and an increasing proportion of the alternative operators' xDSL customers are connected through LLU. Today,

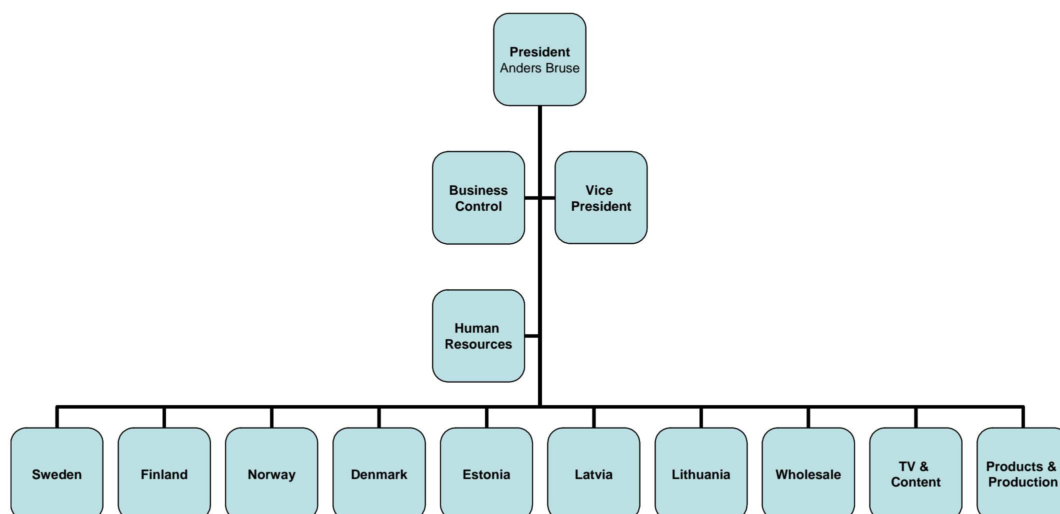
the proportion of customers connected via LLU is greater than those connected through TeliaSonera's resale product. In 2006, LLU's share of the total growth within DSL was just over 45 per cent. This development is positive, as it means that the alternative operators themselves have an opportunity to develop and design the xDSL products that they offer their customers.

3.4.2 Sellers of wholesale products

TeliaSonera Network Sales is the largest seller of wholesale products in the Swedish broadband products market. TeliaSonera owns the largest fixed telecommunications network, including the metallic loop built for traditional telephony. These offer a combined product portfolio including both regulated and unregulated products under the Skanova brand. The regulated products comprise, among others, the following products: *Skanova Kopparaccess och samlokalisering* (LLU) and *Skanova Bitström* (bitstream), which is in the course of implementation. The unregulated products comprise, among others, Skanova Bredband ADSL, Skanova Bredband ADSL+ and Internet Transit.

In the organisation, the wholesale products are placed within the business area Broadband Services and within the Wholesale unit. As well as being responsible for the Group's wholesale business, the Broadband Services business area is, among other things, responsible within the group for mass market services for the connection of dwellings and offices to the Internet and for home communications. The Broadband Services business area offers, among other things, services such as broadband via copper, fibre and cable, IPTV, broadband telephony, leased lines and traditional fixed telephony. This business area includes sales both in the retail market and the wholesale market as well as the operation of the fixed telecommunications network.

Figure 3.6. Organisational structure of the Broadband Services unit within TeliaSonera



Source: TeliaSonera May 2007

Wholesale trade in the different countries is included within the Wholesale unit. This unit has business, product and sales responsibility for the wholesale market and develops new products to meet the needs of this market.

The Product & Production unit is the overall 'factory', which is responsible for the network production of products and services in the fixed telecommunications network. This unit delivers input products both to the retail units and wholesale units, which thereafter refine the products further. The aim of this form of organisation is to achieve the cost-efficient and market-adapted development and operation of the fixed telecommunications network. The infrastructure for the metallic loop is found within Product & Production, where investments in rollout and upgrades are made. However, the Wholesale unit or corresponding national business area is responsible for commercial decisions related to investments.

Besides the commercial organisation, there is also a legal structure, which in Sweden comprises four limited companies: the parent company TeliaSonera AB and the three wholly owned subsidiaries TeliaSonera Sverige AB, TeliaSonera Mobile Networks AB and TeliaSonera Network Sales AB. TeliaSonera Network Sales is the company that mainly conducts the national wholesale sales of broadband products.

The board of TeliaSonera Network Sales has had an external independent member approved by the European Commission ever since the merger with Sonera. The company's annual report, including balance sheet and income statement, is examined by an external auditor and, in line with what applies to other Swedish limited companies, is available at the Swedish Companies Registration Office. There is a Networks unit within TeliaSonera AB which conducts production operations for the fixed telecommunications network in Sweden. The fixed assets within the fixed telecommunications network can be found here and it is here that land agreements with municipalities, private landowners, etc., are dealt with. The Networks unit has its own general ledger with balance sheet and income statement.

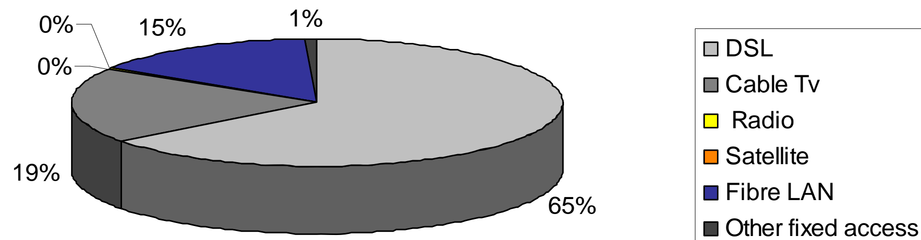
The financial reporting of TeliaSonera's operation, which is made available to the public, is reported by business area and also outlined by territorial market within Broadband Services. Currently, there is no official reporting of the wholesale operation in Sweden. The retail unit and Wholesale unit comprise two separate units in the internal accounting, with separate responsibility for revenues and results. The Product & Production unit is a cost centre that allocates its costs to the retail units and Wholesale unit based on volume and an estimated unit cost.[11]

3.4.3 Purchasers of wholesale products

In the retail broadband market, connection via xDSL is the most common form of access among households and businesses, and its share amounts to around 65 per cent. Connection via the cable television network amounts to 19 per cent and connection via fibre LAN amounts to 15 per cent. See the figure below.

[11] Meeting with TeliaSonera on 23 May 2007.

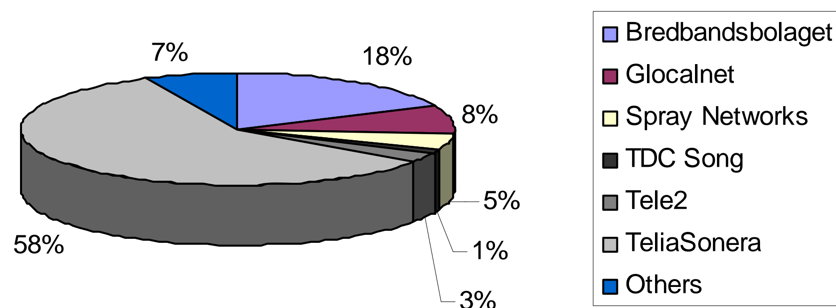
Figure 3.7. Market shares in 2006 for all forms of access (household and business)



Source: The Swedish Telecommunications Market 2006

The market shares for stakeholders offering broadband via xDSL are shown in the figure below. The largest stakeholder in the market is TeliaSonera, with a share of 58 per cent, and the next largest stakeholder is Bredbandsbolaget with 18 per cent. Glocalnet is a substantial stakeholder in the market with a share of 8 per cent. Both Bredbandsbolaget and Glocalnet are wholly owned subsidiaries of Telenor. The remaining market shares are distributed across several broadband providers.

Figure 3.8. Market shares for xDSL in 2006 (household and business)



Source: The Swedish Telecommunications Market 2006

The Internet access market has been undergoing great changes for some years now, which are clearly linked to the transition from dial-up connections (modem connection) to fixed connections via broadband. The importance of having control of the access networks has increased in pace with customers transferring to fixed connections. This need for control is important for all forms of local loops, but has a particularly significant impact on the market when the connection is made via TeliaSonera's metallic loops; that is, the connection to the Internet is made via xDSL. This is due to the fact that a large number of end users only have the potential to connect to broadband via TeliaSonera's metallic loop and because infrastructure competition is insufficient. On the other hand, end users who are able to connect to broadband via the cable television network or the fibre LAN network also largely have the potential to connect via xDSL. Consequently, the unbundled access of other operators to the traditional local loop will be decisive for maintaining functioning competition throughout the entire broadband market.

3.5 Future development of the metallic loop

3.5.1 Network conversion

We are now facing a significant network conversion within and outside Europe which is aimed at achieving convergence between the telecommunications and data communications sectors. Different technologies will be brought together and the formerly separate networks will be used by operators and service producers more efficiently in the future. This will result in increased economies of scale and thereby lower costs. This is something that provides an opportunity to take into account criteria other than technical ones when operators and service producers are to decide on network strategies. The convergence means that formerly established telecommunications technologies are increasingly transferring to solutions based on IP (Internet Protocol).

The transfer of information via the Internet has been relatively one-way until the 2000s. The vast majority of users have sent small quantities of data from computers at the same time as receiving relatively large quantities of data. This traffic pattern has changed and we can now see increased traffic volumes both to and from end users' computers. As a consequence of this, users will probably demand connection rates that are sufficiently high in both directions. Together with the general increase in traffic, this imposes a constantly increasing load on the entire network infrastructure, including the local loop and associated network components.[12]

There are several kinds of communication networks today; for instance, the fixed telephone network (PSTN), the integrated services digital network (ISDN) and mobile networks (PLMN), which are based on various systems, such as NMT, GSM and UMTS/IMT-2000. The telephone networks and the GSM-based mobile networks are primarily circuit-switched, which means that there is a line between the calling parties through the entire call. This can be compared with IP-

[12] *Att förstå en konvergerande telekomvärld* [Understanding a converging telecom world], Anders Olsson, 2005

based networks, which are packet-switched, which means that the calls/content of the communication is transmitted in packets that are forwarded through the network via various routes. The trend is for circuit-switched communication networks to transfer over to becoming completely or partly IP-based. The result of this development is usually called the Next Generation Network (NGN).[13]

3.5.2 The Next Generation Network

The International Telecommunication Union, ITU, defines the new generation network (NGN) as a packet-based network that can provide services, including the transmission of integrated services with support for service quality. The network's service-related functions are independent of underlying transmission-related technologies. NGN provides users with unlimited access to different service providers. The network supports general mobility, enabling a reliable service supply to users wherever they are located.[14] However, studies from European countries show that the new network infrastructure will vary from country to country, depending on national conditions. The intention of NGN is to create a new structure where several different kinds of service (speech, data, video, TV, etc.) can be supplied to several different types of terminal through a common network comprising several different interconnected 'sub-networks'. The development of technology within NGN can be described as a development where the telecom world is converging with, and possibly will also be incorporated into, the Internet world and vice versa. Many different networks are converging and forming a common composite network that can provide several different services.[15] At the present time, PTS does not have any opinion on whether the networks of the future will be designed in accordance with the standard produced by ITU or in accordance with the other standardisation initiatives. The abbreviation 'NGN' is used below for the technology change that is underway and it is not decisive, for the purpose of the following description, whether the technology is designed in accordance with the ITU standardisation proposal.

Applications of NGN and broadband access lines can also be expected to facilitate greater interactivity, which also contributes to more traffic being sent from users. As a consequence of this, users will probably demand connection rates that are just as fast in both directions. This will, together with the general increase in traffic, impose constantly increasing loads on the entire network infrastructure, including the local loop, and associated network components. This means that NGN operators must ensure that capacity and quality can be maintained for all the services provided by them and connected customers.

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[13] http://www.itu.int/ITU-T/ngn/definition.html

[14] *Att förstå en konvergerande telekomvärld* [Understanding a converging telecom world], Anders Olsson, 2005

[15] Ibid.

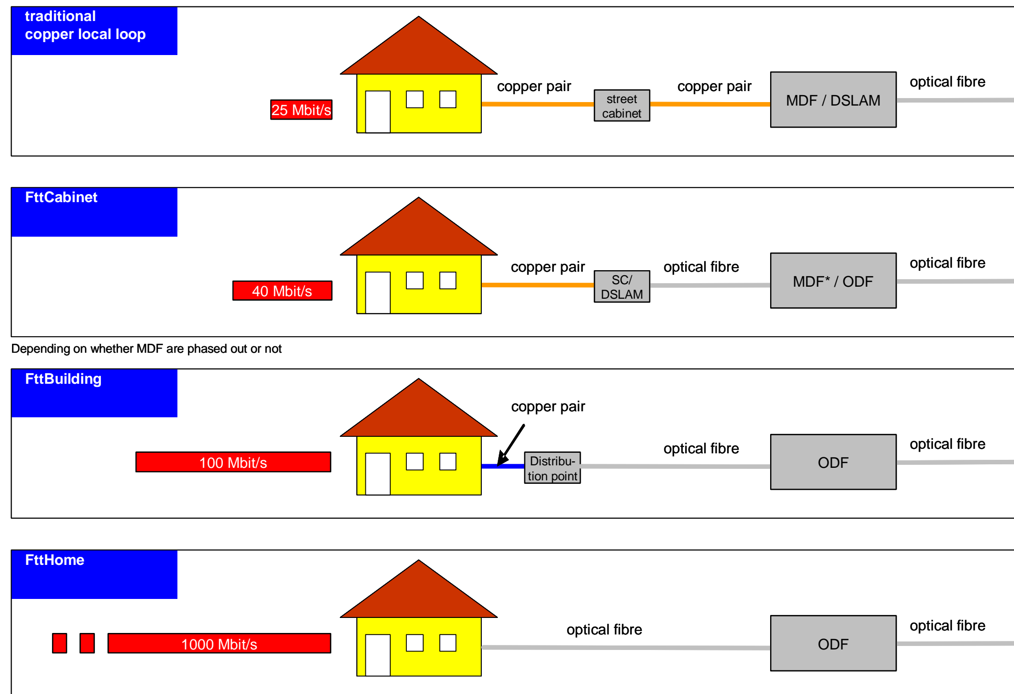
NGN and development of the local loop

It is unclear as to which parts of the metallic loops will be replaced by other infrastructure in NGN, as several countries are in the planning phase as regards future investments in the local loop. However, what is known is that the owners of local loops are continually developing them in order to be able to satisfy the new needs. Development is also being powered by new technologies, the increased use of IP, commercial aspects and greater independence between services and access lines. Operators are considering different local loop solutions (NGA, Next Generation Access) when making the transition to NGN. The current and future development of LLU involves substantial investment in infrastructure. This investment will probably occur in various access technologies from the access node to the end user, depending on regional differences such as subscriber density, etc. within Sweden. Such NGA networks can be made from fibre, copper, using xDSL technologies, wireless technologies and hybrids of these technologies.[16] However, the description below is orientated towards fibre and copper, as studies from other countries show that the development of NGA basically involves upgrading the metallic loop and laying fibre.

Increased demands from the retail market as regards capacity for the transmission of data mean that today's local loop infrastructure will not be sufficient to supply the services that it is expected will be required by undertakings and end users. Operators in several countries are planning to lay fibre in order to satisfy tomorrow's demand. A number of scenarios regarding fibre infrastructure may be of immediate interest in the Swedish market, as in other European countries such as the Netherlands and the United Kingdom. These scenarios comprise: Fibre To The Cabinet (FTTC), with VDSL technology close to the end user, and use of the copper local loop for the last stretch up to the end user. Alternatively, certain case studies from countries in Europe show that operators are also considering laying fibre along the entire route to the end user's building or directly to the home (FTTB/H). Upgrading in these respects is referred to as NGA.[17] The scenarios mentioned, which PTS also considers likely for the Swedish telecommunications market, are described in more detail below.

[16] ERG Consultation Document on Regulatory Principles of NGA, ERG (07) 16
[17] Ibid.

Figure 3.9. Illustration of scenarios for the rollout of fibre



Source: ERG 2007

3.5.3 Fibre To The Cabinet (FTTC)

FTTC means that there is a fibre connection to a connection cabinet that is located closer to the end user than the telecommunications exchange. Advanced VDSL or other xDSL technologies will be used for the last section of the copper wire running between the connection cabinet and the end user. This means that there must be enough room for active equipment for VDSL in the connection cabinet. The advantage of installing VDSL, according to the principles of FTTC, is that greater bandwidth can be achieved, as the distance to the end user is shortened. By drawing fibre along the entire route to the connection cabinet, operators can significantly increase the proportion of customers that can be offered high transmission capacity.

VDSL technology, which is based on the concept of FTTC, has begun to be realised in both the Netherlands and Germany. In 2005, KPN in the Netherlands and Deutsche Telekom in Germany publicised their plans to transfer to VDSL technology and that the majority of telecommunications exchanges would subsequently be phased out. The high transmission capacity that operators wish to deliver to end users through VDSL can only be realised with a distance of a few hundred metres between the connection cabinet and the end user. Consequently, it is reasonable to assume that the former telecommunications exchanges will be

phased out in pace with fibre connection being made to connection cabinets.[18] A phasing out of telecommunications exchanges will affect collocated operators.

FTTB means that fibre is laid along the entire route to the building. The fibre is normally connected to a distribution point in the building's basement, i.e. very close to each individual end user – normally apartment blocks. On the last stretch from the basement to each apartment, the fibre is linked together via a property network.[19]

FTTH means that fibre is laid along the entire route from the interconnection point in the local loop to the end user. In this scenario, the copper wire is completely replaced by optical fibre. This development will mean that the need for telecommunications exchanges and connection cabinets, which are used to connect the operators' networks to the local loop, will reduce in scope. Sweden, France, the Netherlands, Japan and Germany, among others, have started to invest in FTTB and FTTH.[20]

3.5.4 Wavelength

Wavelength is another likely access technology that is often mentioned in the context of NGA, and which can be used to increase the level of use of the fibre infrastructure. This product means that the operator divides a fibre access line into wavelengths. The optical light is divided into wavelengths and each wavelength functions as its own channel, which means that the fibre can be used for several applications and by several operators in parallel.[21]

3.5.5 Impact of NGA on future regulation

LLU (Local Loop Unbundling) is one of PTS's regulated wholesale products that must be provided to other operators by TeliaSonera on a reasonable request for unbundled access to the copper loop.[22] The scenarios referred to above also mean that, should they be realised, LLU will be changed as a consequence of NGA. It is likely that the telecommunications exchanges, in which the operators have installed their equipment in order to supply LLU, will be phased out or at least that their catchment areas will reduce. Instead, it is conceivable that TeliaSonera will establish small connection cabinets closer to end users in order to replace the telecommunications exchanges. The opportunities for supplying higher broadband capacity to end users via copper wires, known as 'sub-loop unbundling' (SUB), increase as the distance reduces between the operators, broadband equipment and the terminals of their end users. Furthermore, it is reasonable to assume, on the basis of the description of the conceivable fibre scenarios provided above, that local loop owners plan to eventually replace the copper local loop with fibre. It is also realistic to assume that the copper local

[18] Ibid.
[19] Ibid.
[20] Ibid.
[21] Ibid.
[22] http://www.pts.se/Archive/Documents/SE/Tilltrade_konventionella_abonledningar-LLUB_skyldigheter.pdf

loop will remain as a complement to the fibre local loop for the foreseeable future. This means that we will probably have different access networks developed on the basis of different technologies.[23]

3.5.6 Sub-loops and the importance of capacity products such as bitstream

Access to LLU in Sweden mainly occurs at TeliaSonera's telecommunications exchanges. If the scenario with sub-loops becomes a reality, such access will occur at the connection cabinet, which has a smaller catchment area. Operators can then choose between further investments to facilitate access to the connection cabinet or to remain at the telecommunications exchange during a transition period. Being collocated at a telecommunications exchange, when the local loop owner itself moves its equipment for supplying broadband to end users closer to these end users, obviously entails a competitive disadvantage. A greater distance between the operator's equipment and end users means lower rates and poorer quality in respect of data transfer for end users. Moreover, connection cabinets will be significantly smaller in size than telecommunications exchanges and this is expected to constitute a practical restriction on access to collocation. In addition to the practical preconditions for collocation, breaking telecommunications exchanges up into smaller catchment areas for connection cabinets entails a reduction in the number of end users that can be reached from one point. This means that fewer operators have the capacity to achieve the economies of scale that are necessary for implementing an investment. One conceivable scenario for operators is that the establishment of sub-loops will mean that the operator moves one rung down on the ladder of investment and instead leases a capacity product such as bitstream. In order to retain the advantages of competition based on LLU, it is important to develop capacity products that can comprise an alternative to LLU.[24]

3.5.7 The development of metallic loops towards fibre loops

In contrast to countries such as the USA, Japan and the Netherlands, Sweden has not yet noted any large investments in NGA aimed at replacing metallic loops. However, strategic planning in respect of the local loop infrastructure is underway among operators in the Swedish telecom market and of course at TeliaSonera as well.

Analyses from countries that have started to invest in NGA show that the current metallic loops will be insufficient to supply the services that businesses and customers will require in the future. Fibre is assessed to be the replacement product with which the next generation access network will largely be built. Investments that are necessary when converting to NGA are significant and are associated with long depreciation periods. This involves, among other things, investments in technical equipment, the construction of small connection cabinets to replace telecommunications exchanges and ducting for laying fibre. FTTB and

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[23] ERG Consultation Document on Regulatory Principles of NGA , ERG (07) 16

[24] Ibid.

FTTH require fibre to be laid along the entire or virtually the entire route up to the end user's home.

The owner of the local loop has greater prospects of implementing these investments compared to other operators. The market power that the owner of the local loop has comprises, among other things, ownership of the utility easements and ducting. This means that other operators have fewer prospects of being able to invest in fibre connections in the local loop themselves.

3.5.8 ERG's view on a regulatory challenge regarding NGA

ERG (the European Regulators Group for electronic communications networks and services) was set up by the Commission to provide suitable mechanisms for encouraging cooperation and coordination between national regulatory authorities and the Commission. ERG works to achieve harmonisation of the regulatory framework for the electronic communications market.[25]

Regulatory authorities are already finding themselves in a situation where rapid technological developments are imposing new demands on regulation. The upgrading of the copper network and the installation of fibre in the local loop are now presenting great challenges and may entail the need to redefine, among other things, the LLU market, where fibre may be attributed increased importance. Despite the diversification of various technologies, ERG considers that optical fibre will be the key component in future IP-based networks. In this context, ERG emphasises the importance of taking the principle of technology-neutral regulation into account when conducting market analyses, as NGA is based on diversified local loop technologies. Diversification may entail a variation from time to time in the components of the network infrastructure constituting 'bottlenecks'.[26]

ERG also emphasises the importance of regulatory authorities advocating infrastructure competition for NGA in the future in those cases where infrastructure-based competition may be deemed to be practical and economically feasible. In other cases, service competition is to be considered as a reasonable alternative. ERG also considers it necessary that the regulatory authorities balance the local loop operators' need for commercial freedom in order to develop the network with the goal of competition in the telecom market, not least considering the fact that the technology shift in the network infrastructure, which is now occurring around the world as regards NGN and NGA, requires substantial investments combined with significant financial risks for those investing.[27]

As regards future regulation, ERG is of the view that Market 11, i.e. LLU, may come to include both FTTB and FTTH. The regulation should be designed so that it allows access for operators regardless of whether the local loop comprises copper wires or optical fibre. The problem of bottlenecks in terms of FTTC

[25] http://www.erg.eu.int/documents/index_en.htm
[26] ERG Consultation Document on Regulatory Principles of NGA , ERG (07) 16
[27] Ibid.

primarily relates to operators being granted access to connection cabinets and to the fact that operators should gain access to the line that connects the operator's network with a connection cabinet (backhaul). The latter may be deemed to form part of both the market for LLU and the market for terminating segments of leased lines, or should constitute its own market. Access to ducting may also be subject to regulation in Market 11, i.e. LLU.[28]

3.5.9 ECTA's view on a regulatory challenge regarding NGA

ECTA (the European Competitive Telecommunications Association) constitutes an association of approximately 150 telecommunications undertakings in the EU. ECTA aims to monitor regulatory and commercial interests for the benefit of the operators, ISPs (Internet service providers) and providers of products and services within the communications industry.[29] It is considered that the local loop will continue to be a long-term bottleneck, regardless of the fact that the copper local loop will probably be replaced by fibre in the foreseeable future. On this basis, it is of great importance in the opinion of ECTA that regulation is technology neutral when dealing with the transition to NGA. Such regulation encourages investment on the part of operators, which can increase competition higher up the ladder of investment. ECTA also emphasises the importance of regulations having to be clear and not having an impeding effect on the propensity to invest. Furthermore, it is stated that regulation regarding NGA is important in order to avoid a new monopoly situation as regards new access technologies, which would reduce the freedom of choice in the retail market and impede the development of technologies and products. Inadequate regulation may entail a risk that investments that have already been made by competitors are lost and that investments are postponed. For example, it may be the case that, in order to provide broadband, the network owner moves its equipment out of the telecommunications exchanges to connection cabinets, which are located closer to end users. Connection cabinets are significantly smaller than the telecommunications exchanges and there is a risk that other operators wishing to compete with the network owner are not allowed access to the respective cabinet.[30]

3.5.10 Conclusions on NGA development

Investments in NGA will affect current regulation. As there are already several owners of fibre infrastructure for FTTH/FTTB, there are opportunities for greater diversity in relation to the dominance exercised by TeliaSonera in the metallic loop. However, for large parts of the market, dependence on the metallic loop will prevail for a long time, which means that existing and future competition in the metallic loop must be safeguarded. PTS's conclusion, as with ERG and ECTA, is that the regulation must be adapted in pace with the development of NGA.

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[28] Ibid.
[29] http://www.ectaportal.com/en/basic717.html
[30] ECTA comments on NGN public policy

4 Applicable law

Summary: Regulation of the electronic communications market proceeds on the basis of two EC Directives: the Framework Directive and the Access Directive. This is in addition to the Commission guidelines on market analysis and assessment of significant market power. Markets that may be susceptible to *ex ante* regulation are specified in the Commission Recommendation on relevant product and service markets. The EC regulatory framework has been implemented in Swedish law through the Electronic Communications Act (LEK).

PTS shall continually analyse the recommended markets and, in the event of competition problems, shall make a decision on measures to promote competition in the form of obligations for those stakeholders with significant market power (SMP). The Commission has the right of veto over PTS's decisions on relevant markets and SMP operators.

LEK entered into force in 2003. During 2005, a special Inquiry was appointed to investigate the opportunities to streamline the decision-making process under LEK. One of the reasons for this was that the Commission had observed problems in respect of drawn-out proceedings in courts that were delaying the implementation of the regulatory framework in Sweden. The Government Bill *En effektivare lag om elektronisk kommunikation*, [A more effective Electronic Communications Act] presented measures that proposed to reduce processing time and streamline the procedure in general administrative courts for cases under LEK. It is proposed that the new provisions enter into force on 1 January 2008.

4.1 EC Directives in the electronic communications sector

The provision of networks and services for electronic communications are ultimately regulated by the directives adopted by the European Union in this sector. The directives of particular significance for vertical integration are Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (the Framework Directive) and Directive 2002/19/EC of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (the Access Directive).

4.1.1 The Framework Directive

The Framework Directive contains fundamental, formal provisions for the application of other current directives. Among other things, this Directive stipulates the new regulatory framework's overall objective to establish a harmonised framework for electronic communications networks, electronic communications services and associated facilities and associated services (Article 1). It also clarifies the objectives and principles that the EC regulatory framework should achieve, i.e. to promote firstly competition, secondly the internal European market and thirdly the interests of end-users (Article 8).

As part of the harmonisation efforts, the Directive orders the Member States to observe a consultation procedure when certain measures are to be taken. This should then be an issue of measures that have a significant impact on a relevant market (Article 6). In certain issues of particular importance concerning harmonisation, the consultation procedure also encompasses the Commission and relevant authorities in the other Member States (Article 7). This means that all decisions concerning competition-promoting measures in different sub-markets should be referred to the Commission for approval. In certain cases, the Commission is entitled to prohibit a measure and, in that case, the national regulatory authority must withdraw its proposed decision and adapt it to the requirements of the Commission.

The Framework Directive also specifies the procedural rules for market definition. According to this, the national regulatory authorities identify the markets to which it is deemed justifiable to introduce sector-specific obligations (Article 15) and analyse these to determine whether or not effective competition prevails in the market (Article 16). Furthermore, a definition is provided of when an undertaking should be deemed to have significant market power, 'SMP status', and consequently could have such obligations imposed (Article 14). If a national regulatory authority determines that effective competition does not prevail in a relevant market, it should identify the undertaking with significant power in the market and impose appropriate sector-specific obligations on this undertaking. It should be possible to appeal against the decision of a national regulatory authority to an independent appeal body (Article 4).

4.1.2 The Access Directive

The Access Directive shall, in the spirit of the Framework Directive, harmonise the way in which Member States regulate access to, and interconnection of, electronic communications networks and associated facilities. The aim is to establish a regulatory framework, in accordance with internal market principles, for the relationships between suppliers of networks and services that will result in sustainable competition, interoperability of electronic communications services and consumer benefits (Article 1).

Some of the provisions of the Directive are only directed at undertakings with significant power in the market for electronic communications. The Directive includes a list of the types of obligations that the regulatory authorities can impose (Articles 9–13). These obligations shall guarantee transparency, non-discrimination, accounting separation, access to other operators' networks and facilities, and price control, including cost-orientated pricing and a requirement for cost recovery.

Furthermore, the Directive stipulates restrictions on obligations as regards interconnection and other forms of access. The Directive also secures the market stakeholders' need for legal security by stipulating the criteria for, and limitations of, regulatory interventions. This can be seen from the detailed conditions for rights and obligations (Articles 3 and 4) and regulatory interventions (Articles 5, 6 and 8). The obligations that may be imposed to ensure the aim of the Directive shall be applied to specific product and service markets in certain geographical

areas in order to resolve market problems between operators, i.e. such sub-markets as determined when applying the Commission Recommendation on relevant markets.

4.1.3 Guidelines on market analysis and assessment of significant market power

The Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services entered into force on 11 July 2002.

The Commission guidelines set out the principles that national regulatory authorities should apply when defining markets and determining whether an undertaking has significant market power. The foremost aim of the guidelines is for the regulatory authorities among themselves to put into practice certain provisions in the new regulatory framework in a uniform way, particularly when identifying an undertaking as having significant market power. Furthermore, the aim is to increase transparency and improve clarity from a legal aspect as far as possible when applying the new regulatory framework.

In order to achieve uniformity of approach between Members States, the definition of relevant markets and the criteria for assessing significant market power is based on EC case law (Sections 2 and 3). The guidelines describe relevant case law from the Court of First Instance and the Court of Justice. The guidelines also shed light on a special decision that was made within the telecom sector under Council Regulation (EEC) No 4064/89 of 21 December 1989 on the control of concentrations between undertakings, amended by Council Regulation (EC) No 1310/97 of 30 June 1997.

The Commission guidelines also provide guidance concerning the imposition, maintenance, amendment or withdrawal of obligations on operators with significant market power (Section 4). In this connection, the guidelines emphasise the importance of observing the principle of proportionality. The guidelines also describe the national regulatory authorities' powers of investigation and the cooperation procedures between national regulatory authorities, between national regulatory authorities and the national competition authorities in conjunction with market analyses, and between the national regulatory authorities and the Commission (Section 5). Finally, the guidelines also describe the procedures for public consultation and the publication of proposed national regulatory authority decisions (Section 6).

It follows from the Framework Directive and Chapter 8, Section 5 of LEK that the national regulatory authorities observe these guidelines to the greatest possible extent when defining the relevant markets, taking into consideration national conditions, in accordance with the principles of competition legislation.

4.1.4 Recommendation on relevant product and service markets

The Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in

accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services entered into force on 11 February 2003.

The Commission Recommendation determines the product and service markets within the electronic communications sector that have such characteristics that may justify the introduction of regulatory obligations in accordance with the procedure in Articles 15 and 16 of the Framework Directive. Unlike previously, the markets in the new regulatory framework shall be determined according to the principles of competition law. In this connection, the following three criteria should be observed according to preamble item 9: the presence of high and non-transitory entry barriers; the possibility of overcoming barriers within a relevant time horizon; and the possibility that the application of competition law alone would not adequately address the market failure(s) concerned.

Preamble item 10 states that, as far as entry barriers are concerned, two types of entry barrier are particularly relevant: structural barriers (i.e. that asymmetric conditions prevail between incumbents and new entrants) and legal or regulatory barriers.

Even when a market is characterised by high barriers to entry, other structural factors in that market may mean that the market tends towards an effectively competitive outcome (preamble item 14). This may, for instance, be the case in markets with a limited, but sufficient, number of undertakings with diverging cost structures and facing price-elastic market demand. The Recommendation also states that new and emerging markets should not be subject to *ex ante* regulation (preamble item 15).

The following three criteria are stipulated as being decisive when assessing whether a market will be included in subsequent versions of the Recommendation (preamble item 16):

– the persistence of high entry barriers,

– the dynamic state of competitiveness, and

– the sufficiency of competition law (absent *ex ante* regulation) to address persistent market failures.

The Recommendation identifies eighteen product and service markets; for instance, the market for access to the public telephone network via a fixed location for residential customers and the market for wholesale broadband access.

It follows from the Framework Directive and Chapter 8, Section 5 of LEK that the national regulatory authorities observe these guidelines to the greatest possible extent when defining the relevant markets, taking into consideration national conditions, in accordance with the principles of competition legislation.

4.1.5 Review of the EC regulatory framework in the electronic communications sector

Work is currently underway to review the EC regulatory framework behind legislation in the electronic communications sector. The Commission presented its fundamental proposals in June 2006.

4.2 The Electronic Communications Act

The EC regulatory framework has been implemented in Swedish law through the Electronic Communications Act (LEK) (2003:389). This Act applies to electronic communications networks and communications services with associated facilities and services, together with other radio use.

Under Chapter 1, Section 3 of LEK and the Electronic Communications Ordinance (FEK) (2003:396), PTS shall receive reports, consider applications, decide on obligations and otherwise consider issues and deal with matters and also exercise supervision under this Act or under regulations issued in accordance with the Act. Under the Terms of Reference of the National Post and Telecom Agency Ordinance (1997:401), PTS is the central administrative authority with an overall responsibility (sector responsibility) within the electronic communications sector.

Within the electronic communications sector, PTS shall, according to the Terms of Reference, among other things promote access to secure and efficient electronic communications, according to the goals stipulated in LEK, and promote effective competition.

Under Chapter 8, Section 5 of LEK, PTS shall continuously determine product and service markets and analyse these according to Chapter 8, Section 6, first paragraph, of the same Act. Under Chapter 8, Section 6 of LEK, PTS shall identify undertakings with significant power in a determined market and decide on obligations under Chapter 4, Section 4 and Chapter 5, Sections 13 and 14 of the same Act. The Commission Recommendation and guidelines should be observed when determining this and carrying out market analyses. In this context, PTS shall obtain a written statement of views from the Swedish Competition Authority on issues concerning the determination of product and service markets and the analysis of these, and as regards the identification of an undertaking with significant power in a determined market. All decisions that have a significant impact on a determined market shall be preceded by consultation with the parties affected.

As regards a decision concerning the determination of the product and service markets, where it may be justified to introduce competition-promoting obligations under LEK, to identify undertakings with significant power on a determined market and to impose or revoke obligations, special consultation shall also take place with the EC Commission as well as the national regulatory authorities in other Member States, if the decision may affect trade between the Member States in the European Economic Area (EEA); these are known as 'intra-community cases'.

Furthermore, the Commission has the right of veto when PTS intends to make a decision about defining a relevant product and service market which deviates from the EC Commission Recommendation on relevant product and service markets and in the event of a decision about identifying undertakings that are deemed to have significant market power. The Commission also has the right of veto for obligations that are not found in the catalogue of obligations in Articles 9-13 of the Access Directive.

The *travaux préparatoires*[31] include a clear and explicit requirement that the regulatory authority should show that the obligations chosen are the most appropriate and least interventional that the authority, having considered proportionality and carried out a needs analysis based on the conflicting individual and public interests, considers could lead to the desired result. In order to be able to determine the most appropriate measure, the authority must carry out a thorough impact analysis and report the outcome of the consideration given by the authority in a reasoned decision.

Specific amendments to LEK of significance to the assignment

A special investigator was summoned by a Government decision of 17 February 2005 to investigate the need for amended rules for the shared use of masts, etc. forming part of the public communications network for electronic communications. The Inquiry was initiated after it had been observed, not least by the Commission, that there were significant problems with drawn-out proceedings in courts that delayed the implementation of the regulatory framework in Sweden. On 6 October 2005, the Inquiry was commissioned through a supplementary directive to review the decision-making process under LEK and to review the organisation of the authority in the electronic communications sector. On 16 October 2006, the inquiry presented its final report, *Effektivare LEK* [A more effective LEK]. The amendments to LEK proposed by the Inquiry mainly aimed at streamlining the work at PTS and were particularly directed at problems which were delaying the implementation of the regulation.

The Government Bill 2006/07:119, *En effektivare lag om elektronisk kommunikation*, [A more effective Electronic Communications Act], presented measures that proposed reducing processing time and streamlining the procedure for LEK cases in general administrative courts. It is proposed that the new provisions enter into force on 1 January 2008.

Among other things, the Administrative Court of Appeal will be the court of final instance for adjudicating LEK cases. Special members in the form of financial experts shall participate when the County Administrative Court and Administrative Court of Appeal determine LEK cases involving competition-promoting measures under the Act with the aim of strengthening competence in the general administrative courts. Such cases should be handled promptly. Opportunities to refer new circumstances and evidence to the County Administrative Court are limited after a certain period of time in order to enable

[31] Government Bill 2002/03:110, p.185

prompt handling and to create order during the process. New circumstances or evidence shall only be referred to in the Administrative Court of Appeal if there are special reasons to do so. Furthermore, when considering provisional suspension matters as regards an LEK decision, a provision is introduced that administrative courts should take special account of the aim of the Act. Also, an obligation to pay damages is proposed for those operators with significant power in a market that do not comply with an obligation imposed by an LEK decision. Finally, the supervisory authority shall be entitled to order a party to supply the information and documents required in order to try a dispute under Chapter 7, Section 10 of LEK.

4.3 Damages

In the Government Bill 2006/07:119 *En effektivare lag om elektronisk kommunikation* [A more effective Electronic Communications Act], it has been proposed that if an undertaking with significant power in a market intentionally or negligently takes a measure that is contrary to, or neglects to take a measure that is necessary to comply with, an obligation determined in accordance with Chapter 4, Section 4 or Chapter 5, Sections 13 or 14 of LEK or which follows from Chapter 5, Section 12 of the same Act, the undertaking shall pay compensation for any damage that thereby arises. The right to such compensation lapses if no action is brought within ten years from when the damage arose.

Sector-specific obligations, such as vertical separation, that are imposed on an operator may form the basis for damages. An operator that intentionally or negligently takes a measure that is contrary to, or neglects to take a measure that is necessary to comply with, an obligation, shall pay compensation for any damage that thereby arises. A precondition for the responsibility for damage having an impact is that there is a sufficiently clear and specific obligation with which the dominant operator should comply. At the same time, it is difficult for a competing operator to prove the damage that has arisen.

4.4 Undertakings

LEK does not provide PTS with any opportunity to accept undertakings from an operator and make these undertakings binding by means of fines or penalties. Such an opportunity exists within general competition legislation, and the undertakings there constitute an effective tool when monitoring competition.

5 Experience from current regulation

Summary: Experience from PTS's supervisory work shows that the market for access to TeliaSonera's metallic loops is characterised by significant competition problems despite there being *ex ante* regulation in the sector. The problems manifest themselves in, among other things, the form of discriminatory behaviour. The problems that could be observed in the LLU market comprise the following areas: (1) collocation of other operators in TeliaSonera's telecommunications exchanges; (2) other operators' access to information from TeliaSonera; (3) ordering procedures; and (4) delivery routines.

PTS has also observed competition problems in the bitstream access market. PTS decided in the autumn of 2004 that TeliaSonera should provide other operators with bitstream access, but a decision only entered into force in January 2007 following protracted appeal proceedings. PTS has subsequently informed TeliaSonera on several occasions when the company was not deemed to satisfy the obligations ensuing from the decision in the published reference offer.

The conclusion that may be drawn is that access to TeliaSonera's metallic loops is not a functional marketplace as it lacks both sufficient transparency and equal treatment.

Several attempts have been made to rectify these access-related problems by means of sector regulation and competition legislation, but without achieving any satisfactory result.

During the spring of 2007, PTS took the initiative to have voluntary dialogue between TeliaSonera and the largest wholesale customers with the aim of discussing substantive problems primarily in the LLU market. This is a step in the right direction, but it does not resolve the existing structural problems in the wholesale market.

5.1 The current situation

An important objective of the sector-specific regulatory framework that PTS has to apply is that households and businesses should have access to broadband services. Households and businesses should also have the greatest possible benefit regarding the range of broadband services (and other electronic communications services) and their price and quality. The primary means of achieving this is to create conditions for effective competition without distortions and restrictions.

The broadband network which has by far the most end users is broadband via xDSL technology in the metallic loop (see Section 3.4.3). Consequently, it is particularly important that operators gain access to this local loop on equivalent terms in order to be able to achieve long-term sustainable competition in the

broadband market.[32] It is particularly important that TeliaSonera's own retail organisation is not favoured in an inappropriate way as a result of the undertaking's role as network owner. One interesting question is whether the applicable sector-specific *ex ante* regulation is sufficient to be able to rectify the competition problems that prevail in the market.

5.1.1 Current regulation of unbundled access to the local loop

In order to rectify the structural problems effectively, it is necessary in many cases for access to the necessary infrastructure or service to be created for existing or potential competitors and that the conditions for this access are designed so that competitors are provided with predictable rules of the game while not distorting competition. Sector-specific regulation offers tools for achieving this. A fundamental principle within the sector-specific regulatory framework is that *ex ante* regulation should only be applied if a market is characterised by high and non-transitory entry barriers, has such characteristics that it does not over time tend towards effective competition, and if the competition law is not in itself adequate to overcome the identified competition problems.[33]

The current model for ensuring effective access as prescribed by LEK and the directives is, as stated in Chapter 4, designed in such a way that PTS determines which product and service markets have such characteristic features to justify the imposition of obligations. As indicated by the Act, the Commission Recommendation constitutes the starting point for this assessment and PTS should also take into account the Commission guidelines on the assessment of market analysis and assessment of an undertaking's significant market power. Following this, PTS must adopt a position on whether there are any operators with significant market power. PTS should observe the Commission guidelines even in the case of such an assessment. If PTS considers that such an operator exists, obligations should be imposed on this operator. The most fundamental obligation comprises providing other operators with access to the network. Such an access obligation may be combined with, for example, obligations regarding non-discrimination and obligations that the price for access should be cost-orientated or regulated in another way. The obligation for non-discrimination should ensure competition-neutral access; that is to say, no stakeholder is to be given an unfair advantage in relation to its competitors.

On the basis of the EU regulatory framework and harmonised application, PTS has drawn up a regulatory policy for access regulation of the local loop.[34] The policy establishes a number of principally important issues regarding PTS's work on measures to promote competition including that "PTS is working to promote

[32] For a description of the market and the importance of the local loop, see, among other things, the decisions concerning LLU and the bitsteam market (04-6948 and 04-6949 respectively) and the following reports: Preconditions for sustainable competition in the broadband sector (PTS-ER-2005:39); Broadband prices in the Nordic countries in 2006 (PTS-ER-2007:1); Barriers to the establishment of broadband (PTS-ER-2007:3); and the Swedish Telecommunications Market 2006 (PTS-ER-2007:15).

[33] See Commission Recommendation on relevant markets, p.8 ff.

[34] PTS-ER-2006:26

the development of sustainable competition by formulating regulations that eliminate barriers for market entry and gradually promote self establishment of replicable network elements and network parts". Another important principle expressed in the policy is that "PTS is only introducing regulation to promote competition in markets that have such characteristic features to justify *ex ante* regulation, i.e. where competition problems prevail that the market typically cannot resolve itself". The policy also maintains that regulation should aim to promote innovation and development.

The EU regulatory framework points out two typical problem areas (relevant markets) in the broadband sector where there is some urgency to introduce *ex ante* regulation if dominance prevails. The first type of area is access to the metallic loop (lease of complete and shared lines; LLU) for own further refinement of xDSL services. The second type of area is the supply of broadband access via 'bitstream access' (or similar access) at a wholesale level (see Section 3.4.1 for a comprehensive description of what these terms mean).

PTS has found that there is a need to regulate both LLU access and bitstream access within the framework of the current sector-specific regulatory framework. In both cases, PTS has, in addition to the access obligation, also imposed a number of other obligations that PTS considered were necessary to rectify the structural competition problems prevailing in the market. These obligations include, among other things, price regulation, a requirement for non-discrimination, separate accounts, openness, and publication of a reference offer.

However, experience gained from PTS's supervisory work shows that these markets are still characterised by significant competition problems, despite the *ex ante* regulation imposed. These problems may manifest themselves in the form of discriminatory behaviour. One particular difficulty is that the problems to a large extent shift in such a way that, as access to a key resource is guaranteed through supervisory measures on the part of PTS, difficulties concerning another resource (which had previously been provided without problems) arise instead.

A short review is provided below of the problems that PTS has experienced in the markets in conjunction with the implementation of the regulation.

5.1.2 Experiences from LLU supervision

PTS has conducted extensive supervisory work within the LLU sector. This work focused on four areas, namely:

1. collocation of other operators in TeliaSonera's telecommunications exchanges;
2. other operators' access to information from TeliaSonera;
3. ordering procedures; and
4. delivery routines.

The questions that PTS posed to purchasers of LLU-based products during the spring of 2005 were an important component of its supervision.[35] The aim of these questions was to establish a better understanding of the operators' perceptions and experiences of the competitive situation. A recurring theme in the responses provided by the operators was that the conditions under which they were operating in the market were poorer than was the case for TeliaSonera's own retail organisation. It was also apparent that this was regarded as a consequence of TeliaSonera having the opportunities and incentives to give its own retail organisation preferential treatment.

It was established that the operators reported several shortcomings as regards the collocation processes:

- TeliaSonera denies other operators access in order to subsequently establish its own xDSL operation

- TeliaSonera's retail services are offered with shorter lead times than the lead times that TeliaSonera offers other operators

- Plans for the rollout of complete telecommunications exchanges are made on the basis of TeliaSonera's needs without regard to whether competing operators have requested access

Similarly, shortcomings were reported in the part concerning information that TeliaSonera provides to purchasing operators. The main problems were considered to comprise operators not having access to all essential information and TeliaSonera having internal access to information from which the operators are excluded.

The following can be mentioned as regards the problems reported in conjunction with the placing of orders. A number of operators stated that the waiting period (without broadband) for end users when they move is substantially longer for other operators compared with TeliaSonera. Another asymmetry was said to prevail when pair gain was available on a subscriber line. TeliaSonera must be asked whether pair gain can be removed in order for end users to gain access to broadband. If the answer is in the affirmative, an order can be made for the removal of pair gain, but several operators stated that the time taken to remove the equipment is very lengthy and that the price of ordering such removal is much higher than the actual cost. The conclusion appeared to be that TeliaSonera is able to offer its customers the free removal of pair gain, whereas other operators found it difficult to achieve the same thing.

Finally, the following can be mentioned as regards deliveries. Several operators stated that TeliaSonera applies a longer delivery period (10 working days) for a copper access line ordered by an operator's customer than the period that applies when TeliaSonera provides its own services to end users (5 to 7 working days).

[35] The information compiled, including questions and a summary of responses, is dealt with under PTS matter no. 05-4126.

Furthermore, it was stated that TeliaSonera's internal delivery periods (or interruption times) are considerably shorter in certain special cases compared with the possibilities that TeliaSonera offers to customers of other operators. Examples include when a customer wanted to move their broadband subscription (and telephone number) from one address to another and when an ISDN customer wanted to change to an xDSL service. Operators also reported that they experienced a lack of willingness by TeliaSonera to coordinate fault rectification work; for example, joint visits by technicians at a telecommunications exchange.

Information collected by PTS, namely, complaints on a wide spectrum of issues from a large number of operators, nevertheless indicates that the LLU market is not a functioning marketplace and that it is still characterised by considerable competition problems, including problems related to discrimination. This situation was confirmed by PTS's experiences from the supervision that ensued during the period thereafter. Many of the problems are still linked to the issue of access to information. One case that can be mentioned as an example is where PTS issued a statement in February 2006 concerning its perception of what TeliaSonera's obligation encompasses in terms of access to information systems for individual copper access lines and what may be deemed to be a reasonable request.[36] The issue of the provision of bulk information[37] is another example of a complicated matter relating to equal access to information. There is another case,[38] from the autumn of 2006, where operators from several quarters referred to substantial inadequacies in the ordering system for complete lines. Fifty per cent of all orders placed were not accepted. TeliaSonera itself does not place orders internally using this system and operators feel that they have little influence on the design and functionality of the system. In February 2007, PTS notified TeliaSonera that, owing to these shortcomings, the company was not considered to be satisfying its obligations.

As regards the results of the supervision, PTS's supervisory measures led in many cases to TeliaSonera changing its behaviour. Matters relating to problems that occurred when end users moved[39] and when changing from ISDN to xDSL[40] were dealt with by PTS issuing information and subsequently orders to TeliaSonera after the authority had observed that the company's actions in the relevant case were in contravention of the non-discriminatory obligation. This led to TeliaSonera complying with the order and undertaking the measures demanded by PTS. A matter relating to the reservation of space in a telecommunications exchange[41] was also dealt with in this manner. TeliaSonera has appealed against a large number of the orders relating to LLU that have been issued by PTS. In a couple of cases where the orders were appealed against, the courts revoked or provisionally suspended the decisions, for which reason these problems still persist. The court processing time for these types of case is also very long, which creates uncertainty in the market.

[36] File ref. 04-9717
[37] File ref. 04-16264
[38] File ref. 06-16362
[39] File ref. 04-16057
[40] File ref. 04-13230
[41] File ref. 04-14965

An important experience from the work on LLU supervision is that a clear informational asymmetry prevails in this sector, which means that guaranteeing equal treatment and non-discrimination is made difficult. The number of questions that may be raised is vast and difficult to manage. The reason why this area is particularly complicated and of particular interest in terms of ensuring equal treatment is that there are a large number of support systems in respect of the provision of retail and corresponding wholesale products, and these systems differ between external and internal operations.[42] It is difficult for both the supervisory authority and the purchasing operator to get a grasp of these systems, and operators have stated that they perceive that they do not have access to systems with the same information and performance as utilised internally by TeliaSonera. TeliaSonera has a very clear advantage compared with other operators and even compared with the supervisory authority, which often needs to examine issues concerning support systems in individual cases. The issues that arise, for example, include the frequency of updates and the cost of using different support systems.

As regards prices for access, experience from supervisory work shows that competition problems mainly involve prices that exceed the regulated prices; for instance the current prices for the lease of complete and shared lines are not cost-oriented, and there is only limited reason to suspect that pricing could possibly be discriminatory or involve cases of unlawful cross subsidy. Discrimination problems are consequently mainly of a non-financial nature, whose characteristics are more difficult to deal with within the framework of the obligation to apply non-discriminatory terms when compared with potential problems with discriminatory pricing.

As referred to in Section 5.1.1, certain obligations regarding openness and separate accounts have also been imposed on TeliaSonera within the framework of the LLU regulation. As regards the application of the latter obligation, particular attention should be attached to the fact that the purpose of separate accounts is to facilitate an analysis of financial information and should, as far as possible, reflect different operations as if they had been separated from each other and provide an opportunity to view inter-company transfers. Separate accounts make it easier to monitor whether non-discriminatory terms are being applied when pricing and facilitate checking whether unlawful cross subsidy has occurred through transfers from one operation to another operation within the undertaking subject to competition. The obligations for separate accounts are consequently not intended to rectify the kind of competition problem that PTS encounters in the markets in question. PTS's experience from its supervisory work is thus that these tools are not sufficient for the authority to establish an overall picture of, above all else, the access to and exchange of information within TeliaSonera, and this has made it difficult for the authority to ensure that TeliaSonera is complying with the requirement for non-discrimination prescribed by the obligation decision.

[42] Here, it may be noted that issues concerning support systems are not limited to broadband products, but are also brought to the fore in connection with, for example, the provision of WLR, Wholesale Line Rental.

5.1.3 Experience from bitstream supervision

PTS's decision that TeliaSonera should provide bitstream access was made on 24 November 2004 but, owing to the protracted appeal procedure, it only entered into force following a decision by the Supreme Administrative Court on 31 January 2007. PTS has thereafter, on five different occasions, notified TeliaSonera that the authority does not consider that the company has satisfied the obligations prescribed by the decision. Among other things, PTS notified TeliaSonera on 27 April 2007[43] that the authority considers that there are significant inadequacies in the published reference offer for bitstream and that several changes must be made if the company is to be deemed to satisfy its obligations. According to this notification, TeliaSonera must supplement the reference offer with details about the interface and handing over, traffic separation, traffic prioritisation and transparency, technical quality parameters and service level. TeliaSonera was also notified, among other things, that the company may not reserve port capacity, either for itself or on behalf of another party, and that, as regards operator access lines, the company must apply a delivery time based on verified, objective reasons. On 16 May 2007,[44] TeliaSonera was also notified that the published reference offer contains unreasonable conditions, which makes it difficult for operators to sell the services on to other operators. TeliaSonera was therefore notified that the company may not apply conditions whereby an operator is entitled to transfer a product to a party other than the end user only after special agreement and for payment of a special charge.

On 1 June 2007, PTS received a written communication from a number of operators, in which they explained that the prices that TeliaSonera had previously published were unacceptable and that the absence of adjusted prices makes it commercially impossible for any operator to order bitstream. The operators claimed that if they do not gain immediate access to bitstream, this will significantly impair the effects of current and any future regulatory action.

Overall, it can thus be concluded that there are a number of problems regarding the provision of bitstream access, which in many respects resemble the problems that have arisen in conjunction with the provision of LLU access.

5.1.4 Summary of existing competition problems that impede efficient and competition-neutral access

The supervisory measures pending at PTS testify to there being several incidents that together form a clear pattern of inadequate equal treatment in the market. Overall, PTS refers in particular to empirical evidence in two important problem areas in connection with the application of the current regulatory model. These involve both the information advantage that TeliaSonera has, especially as regards the complicated information and support systems that constitute a decisive component of the buy-sell relationship between TeliaSonera and other operators, and also the extensive and protracted legal proceedings that ensue from the current regulatory model.

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[43] File ref. 07-1697
[44] Ibid.

As indicated above, the problem with legal proceedings relates to both the introduction and application of regulations. This results in significant uncertainty in the market and market stakeholders do not get the measure of predictability which is so crucial for dealing with risks when making decisions about investing in and entering new markets. The current regulatory model also demands great resources – for all parties – and in the current situation also results in an inertia that is particularly serious for a rapidly moving and expanding market such as the broadband market.

Current regulation includes a prohibition on TeliaSonera discriminating against other operators, but there are significant difficulties when trying to ensure that this nevertheless does not occur. When PTS examined certain individual and very specific situations in detail, the authority was able to observe that TeliaSonera's action in most cases did not correspond with the requirements ensuing from PTS's obligation decision, which suggests that structural problems are linked to discriminatory behaviour. The information advantage described above, together with the fact that the company is vertically integrated, creates both opportunities and incentives for the company to favour its own retail organisation and discriminate against other operators to the detriment of competition. In order to be able to adopt a position on how TeliaSonera complies with its obligations, it is necessary for PTS to have good insight into the company, which has resulted in the authority also imposing obligations on TeliaSonera regarding, among other things, openness and separate accounts. However, experience from the LLU supervisory work shows that these orders have not been sufficient. PTS has acted using supervisory measures in the individual cases, but these have had a limited impact as new problems have continuously arisen.

PTS has drawn the conclusion that the market that currently deals predominantly with access to TeliaSonera's metallic loop is not a functioning marketplace. In the light of the problem profile presented by PTS above, the authority can conclude that there is neither sufficient transparency nor equal treatment in the market. The current situation falls far short of the goals of effective and competition-neutral access, nor does it establish adequate conditions to gradually loosen the regulation to promote competition on the route to more sustainable competition. From a socioeconomic perspective, this also creates poor conditions for investment, innovation and growth in the broadband sector; a sector that is very important to the economy.

5.2 Description of possible measures

In the preceding section, a description was given of the experience that PTS has gained by applying existing regulation to the access network markets in question. In this connection, a number of competition problems were observed in the market, notwithstanding the imposition of specific obligations concerning access on non-discriminatory terms. A natural question involves the extent to which existing regulatory tools are sufficient to rectify the problems identified.

5.2.1 General competition legislation

By way of introduction, it can be concluded that general competition legislation is of interest, as this legislation is the method primarily nominated to rectify any competition problems identified in a market within the electronic communications sector.

In Sweden, general competition legislation primarily comprises the Swedish Competition Act (KL) (1993:20). The aim of this Act is to eliminate and counteract obstacles to effective competition when it comes to the production of and trade in goods, services and other products. The Act is basically founded on the same principles as apply within the EU. In parallel with Swedish competition legislation, the Swedish Competition Authority applies Articles 81 (prohibition against agreements restricting competition) and 82 (prohibition against abuse of a dominant position) contained in the EU Treaty. EU rules apply if trade between EU Member States is affected (intra-Community trade criteria). However, agreements that only affect the Swedish market may be considered under the EU's competition rules if, for instance, they impede imports.

In contrast to sector-specific regulation, general competition legislation is not aimed at imposing rules in advance for undertakings with a dominant position. It is instead intended to be used when businesses with a dominant position act in such a way that they may be deemed to have abused their market power to the detriment of competition. Being dominant is thus not prohibited as such, but it is prohibited to abuse one's market power. This means that two criteria must be satisfied if the Swedish Competition Authority is to be able to take action against the behaviour of an undertaking. Firstly, it must be concluded that the undertaking in question has a dominant position in the market relevant in the context, and secondly, the action of the undertaking must constitute an abuse of the market power observed. The sanctions that can be imposed on an undertaking violating the prohibition of abuse of a dominant position are an order to cease the action (may be combined with a default fine) and a competition impairment penalty.

As regards the access problems described above relating to the metallic loop, PTS has drawn the conclusion that it would probably be difficult to make use of competition law to rectify these problems by intervention, which the authority has also explained in the decisions forming the basis of the regulation. The Swedish Competition Authority has considered the opportunities for general competition law in a way that the authority regards as optimal, but in spite of this it has not been possible to use competition law to deal with the access-related problems as reported to both the Swedish Competition Authority and PTS. [45]

Even if it were possible in individual cases to utilise KL to rectify an individual access-related problem of the kind described above (however, in such a case there would normally probably be a limitation to private organisations for limited periods of time), it is unlikely that competition legislation at the present time

[45] A summary shows that the Swedish Competition Authority intervened under KL three times during the 2000s within the entire electronic communications sector.

could rectify more systematic problems based on certain structural conditions, in accordance with the problem profile presented in this report. In order to create competition, measures often need to be taken to rectify the problems arising from an undertaking exercising control over the infrastructure or service that is necessary to realise the relevant product; a factor which in its turn means that sector-specific *ex ante* regulation is a precondition to enable many of the markets to function efficiently. The competition law rules on prohibition against abuse of a dominant position, which are aimed at taking measures against certain established, undesirable behaviour, cannot be applied effectively with the aim of removing such structural dominance and at the same time actively promote the occurrence of competition, and are consequently not sufficient on their own to achieve the desired results.

Operators conducting operations in the market are also generally of the view that competition law is not sufficient to rectify the problem profile described in, among other places, Section 3.3 of this report.[46]

5.2.2 Sector-specific *ex ante* regulation

PTS has used the opportunities available as regards the imposition of obligations in the broadband sector and nonetheless considers that it is very difficult to rectify the problem profile that was described earlier in this report. It may be noted in this context that, before the authority made an obligation decision on bitstream access in November 2004, PTS had already presented a proposed statutory amendment in 1999 in order that an obligation would be incorporated into the Telecommunications Act (1993:597) regarding the provision of, among other things, bitstream access. The Government chose to wait with a statutory amendment, referring to the fact that a conflict was considered to exist between the right of establishment under Chapter 3, Section 1 of the Fundamental Law on Freedom of Expression (YGL), and the obligation to, among other things, provide bitstream access. PTS proposed once again in 2002 that a statutory amendment should be made with the aim of making it obligatory for operators with significant power to provide bitstream access.

PTS explained above that the dominant operator has the ability and incentive to discriminate against other operators to the benefit of its own retail operation but to the detriment of competition. On the basis of the obligations imposed on the dominant operator, PTS has also, within the framework of its supervisory operation, endeavoured by various actions to rectify the problems arising as a consequence of the market situation. However, the limitations of these measures have become clear; for example, the information disadvantage that supervisory authorities (and other operators) often have in relation to the dominant operator may be mentioned. Another difficulty is of course that supervision on the basis of the non-discrimination obligation must often be conducted on a case-by-case basis. It has even been difficult for sector-specific regulation to completely rectify all of the competition problems using the existing obligations.

[46] See, among other things, the statements received within the framework of the present Government assignment (http://www.pts.se).

The fact that TeliaSonera has an obligation not to discriminate against other operators is unequivocally indicated by the regulation. The issue is rather whether, with the aid of the existing tools in the form of the obligations that may be imposed within the framework of the current regulatory system, it is possible to improve PTS's powers to impede this from happening; for example, by formulating the obligations on openness and separate accounts differently. To start with, PTS considers that the authority has formulated rather extensive obligations regarding this in the existing regulation of the markets concerned. It is doubtful whether differently formulated obligations could provide PTS with sufficient insight into the operation. However, the fundamental problem is TeliaSonera's incentive and ability to discriminate in its capacity as a vertically integrated operator with control of a significant bottleneck resource. Meticulous regulation and supervision can indeed circumvent TeliaSonera's opportunities to discriminate, but never the company's incentive to do so. PTS's practical experience of such supervisory work in the market shows, as described in Sections 5.1.2 and 5.1.3, that it is extremely difficult to gain an insight into the relatively complicated internal circumstances within TeliaSonera, and that there are an exceedingly large number of matters in conjunction with access where problems of discriminatory behaviour can arise and that, when a violation has been observed, it often takes a long time for any sanctions to enter into force. This is a strong indication that it is impossible to completely rectify these problems as long as TeliaSonera still has a very strong incentive to discriminate.

5.2.3 Voluntary dialogue

In PTS's proposed broadband strategy, the authority emphasised three ways of achieving a new model for equal treatment: by amending the EC Directive which provides Member States with the opportunity to compel functional separation, by a statutory amendment at national level, or through a voluntary solution. PTS also concluded that the authority currently does not have the tools required to compel functional separation. In the report, PTS proposed that the Government should investigate the possibility of enabling the implementation of functional separation by amending LEK.

However, PTS identified – very much as a consequence of the existing system of rules not being sufficient to rectify the major problems in the market – that there was also reason to use the tool that the authority currently has at its disposal in the form of voluntary dialogue. Therefore, in conjunction with the presentation of the report, PTS invited a number of market stakeholders to take part in a dialogue on a new model for equal treatment. During the spring of 2007, PTS had a dialogue with TeliaSonera and the undertaking's major wholesale customers, Telenor, Tele2 and TDC Song.

In a statement dated 29 March 2007, PTS concluded that the conditions did not prevail at that time for sector dialogue that, using a voluntary route as a point of departure, would be able to establish the functional separation of TeliaSonera. However, the authority has taken an active role as regards the conditions for dialogue, which has been conducted as a series of meetings with the above-mentioned operators. These meetings have been directed at rectifying a large number of substantive competition problems in the wholesale market.

By the end of May 2007, the status of this dialogue is that the understanding between TeliaSonera and the wholesale customers has increased regarding the problems that need to be resolved. Trust has increased between the parties, even if some suspicion still prevails. It can also be concluded that the problems of equal treatment are not only related to regulated products. A relatively large part of the meetings conducted was devoted to discussions about TeliaSonera's changed product offer for optical fibre and the undertaking's new wavelength product, Skanova Access Kapacitet.

A number of substantive problems have been identified, which relate in the first instance to LLU, and TeliaSonera has presented action plans regarding these problems. Examples of measures include: change of operator for full access; change of port; and information about cable length. PTS considers that a number of PTS's ongoing supervisory activities can be discontinued when these problems have been rectified. TeliaSonera has initiated an internal survey to identify the differences between products and processes. TeliaSonera has also, with the aim of identifying any disparities in the provision of LLU, initiated an external audit which, in the first instance, relates to the processes of selling, supplying and collocation. The aim is to regularly examine these areas in order to identify any inadequacies and ascertain whether previous problems have been rectified.

As regards equal treatment, the parties have not been able to agree on a definition, which also means that the parties have not agreed on what needs to be implemented to achieve equal treatment. In summary, the position of wholesale customers is that equal treatment is achieved through, among other things, the conditions, processes and support systems being the same for both external customers and internal provision. TeliaSonera's position is that equal treatment can be achieved if the conditions regarding pricing, delivery times, fault rectification times and access to information are the same.

Even if the parties failed to achieve a joint view on the issue of equal treatment within the framework of this voluntary dialogue, the wholesale customers, TeliaSonera and PTS plan to continue this dialogue in order to, if nothing else, enhance understanding and try to resolve a number of substantive problems.

6 An international overview

Summary: Separating a vertically integrated operator in order to overcome problems related to equal treatment for the access of operators to the local loop is also of relevance internationally. Several countries have concluded that more interventionist measures are justified, as current regulatory frameworks are not sufficient to rectify the problems.

There are several examples of countries that have introduced the functional separation of a dominant market stakeholder. The United Kingdom has chosen to introduce a model for vertical separation based on a voluntary agreement between BT and Ofcom, which has subsequently been made legally binding. In New Zealand, a model for functional separation, which resembles the British model, but which is based on legislation, was recently presented. In Italy at the present time, a proposed supplement to the existing law on functional separation is being discussed as an obligation in the telecommunications market. This will enable the regulatory authority to decide on a non-typical obligation for an SMP operator. Australia recently implemented the functional separation of the operator Telstra, where Telstra is obliged to implement and retain separate resale, wholesale and network divisions, including a separation of personnel and premises.

In addition to the functional separation models that have been considered in the telecommunications market, there are other forms of vertical separation that may be of some interest. However, in many cases, account must be taken of the fact that the impetus behind vertical separation is different from that in the telecommunications market where the impetus is the equal treatment of competing operators. For example, within competition law, the impetus is often to counteract market dominance and, when AT&T was separated in the USA, the impetus was to break up a monopoly, not to secure the right of horizontally competing operators to equal treatment and unbundled access to the local loop.

Vertical separation or the separation of a vertically integrated undertaking has been discussed in several countries as a solution to the problem of inadequate equal treatment between a company's own retail organisation and competing external customers.[47] As discussed previously, there are a number of forms of vertical separation. Even if the solutions were different, the impetus behind vertical separation was often the equal treatment of competing operators.

Vertical separation has been implemented, or at least discussed, in relation to network markets where there has often been a former state monopoly, such as the electricity, aviation or telecommunications markets. It has then almost exclusively been a matter of functional separation with a requirement for separate accounts or non-discrimination, often with some form of organisational separation, where the

[47] A large part of the report and selection below is based on the OECD's report entitled 'Report to the Council on Experiences on the Implementation of the Recommendation Concerning Structural Separation in Regulated Industries' (C(2006)65).

aim has been equal treatment. This is particularly the case in the telecommunications market.

The functional separation model that is of particular interest here is the model implemented in the United Kingdom following voluntary commitments by BT, particularly taking into account the fact that it was actually implemented and applied during a certain time period. Other models of interest include the model implemented through legislation in New Zealand.

The Chapter also describes other vertical separation solutions: firstly in markets other than telecommunications markets, principally the electricity market, and secondly the structural measures that competition authorities apply during inquiries into concentrations between undertakings and in the event of infringements of competition regulations.

6.1 Functional separation in the United Kingdom

The United Kingdom has chosen to introduce a model for vertical separation based on a voluntary agreement between BT and Ofcom. The commitments are legally binding and constitute a supplement to existing sector regulation and competition legislation.

In December 2003, Ofcom began a strategic review of the telecom market entitled 'The Strategic Review of Telecommunications',[48] a review aimed at evaluating the authority's regulatory method.[49] Ofcom's strategic analysis has been particularly focussed on evaluating the opportunities to maintain or develop effective competition within the sector while taking investments and innovation into consideration. In turn, the analysis was to serve as the basis for Ofcom's strategy for how competition should be stimulated or how other regulatory measures should be implemented to support the interests of consumers. The main outcome of the review was a definition of Ofcom's method for regulation within the sector: a strategic framework.

The project consisted of three different phases, with consultation at the end of Phases One and Two and a separate report at the end of each phase. During the first phase, the current position and plan for the telecom sector are described, the second phase discusses alternatives for Ofcom's strategic action plan for telecommunications regulation, and the third phase deals with Ofcom's chosen action plan for telecommunications regulation.

The first phase included assessments of competition at all levels, such as fixed telephony, mobile telephony and broadband, how competition or regulation has led to lower prices, higher quality and a wider range, and an assessment of developments in the sector in relation to consumer behaviour, technology and competition.

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[48] http://www.ofcom.org.uk

[49] For this work, Ofcom drew up the prerequisites for Ofcom's strategic analysis of the telecommunications market, which is described in the terms of reference document, http://www.ofcom.org.uk/static/telecoms_review/tor.htm.

The second phase was an assessment of the scope for effective competition at all levels and the extent to which it was sustainable in the long term. In the light of that assessment, the aim was to identify alternative methods for regulating the markets, including the strengths and weaknesses of these methods. On the basis of this, potential methods for Ofcom's action plan for regulation could subsequently be identified, including both retaining and abolishing regulations.

In connection with this, Ofcom identified two main problems in the telecommunications market: BT still dominated an unstable market and, in spite of its level of detail, the existing *ex ante* regulation could not rectify this dominance or the problems resulting from BT's control of the national local loop. In order to rectify these problems, Ofcom proposed three possible solutions – complete deregulation, an Enterprise Act Investigation[50] or BT being ordered to provide equal access with, among other things, behavioural and structural changes within BT.[51]

The third phase dealt with the production of a final report, in which important policy issues and challenges were examined together with assessments of how these should be dealt with within a regulatory framework.

Ofcom identified a number of competition problems in the process described above relating to BT's position in the market. The most important conclusion from the investigation was that BT had the incentives and potential, in a number of markets, to discriminate in an anti-competitive way. Ofcom also had proof of such behaviour. The incentives arose from BT's market power through the provision of fixed infrastructure and BT's vertical integration. Ofcom was of the view that, with the current regulation, the authority lacked the potential to deal with these problems, and proposed a functional separation and enhanced rules on non-discrimination.

At a product level, the main goals for regulating BT were that the same or a similar range of regulated wholesale products as provided within BT should also be provided to other wholesale customers and that these products should be provided at the same price and by using the same or similar processes. This was Ofcom's definition of equal treatment: 'equivalence'.

Ofcom considered that equal treatment ('equality of access'), alongside changes at a product level, required substantial changes to behaviour and incentives on the part of BT which should underpin equal treatment at a product level, changed management structures, incentive schemes and business processes, changed information flows, and transparency. Ofcom observed that the existing system was neither sufficiently transparent nor reliable for competing operators.

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[50] Through an examination of the market in accordance with the Enterprise Act 2002 with the possibility of referring the matter to the Competition Commission, which could result in the assessment by the Competition Commission that the market imperfections (market failures) were such that a formal separation by function of BT could be considered.
[51] Around 90 of the 100 or so stakeholders that took part in the consultation, including BT, advocated this alternative. BT also called for an increase in the pace of the deregulation promised by Ofcom as a consequence of a new model for equal treatment.

Instead of referring the case to the Competition Commission, Ofcom decided on 22 September 2005 to accept the undertakings from BT to rectify the competition problems that had been identified in the telecommunications market. These undertakings were directed at competition problems related to BT's potential to discriminate against competitors at an end-user level in relation to BT's own retail operation. The commitments include an enhanced non-discriminatory undertaking, designated as 'Equivalence of Input' (EoI), and a form of functional separation.

Equivalence of Input

'Equivalence of Input' (EOI) means that BT shall provide a number of wholesale products to all operators (including its own retail operation) on the same terms, at the same price and with the same delivery times, level of service, IT systems and processes. All operators shall also have access to the same information about products, services, systems and processes, etc.

Functional separation

Alongside 'Equivalence of Input', there is a set of commitments to ensure that this principle is actually implemented and that incentives among the management of the functionally separate division (that provides wholesale products) focus on this. The objective of the undertakings is to limit BT's capacity to discriminate. Greater transparency in transactions and processes within BT increases the potential for competitors in the retail markets to discover such behaviour. For this reason, parts of BT's network were separated by function, which means that all of the assets in the physical network, including personnel, were placed in a specially separate division within BT: Openreach (OR). OR shall provide the most important access line products, such as LLU. The commitments largely deal with organisation and control, product range, exchange of information and influence on commercial policy.[52]

6.2 Functional separation in New Zealand

Alongside the model introduced in the United Kingdom, the model recently presented in New Zealand is perhaps of most interest, since it was introduced after the British model, and since, unlike the British model, it was introduced through legislation. However, one similarity with the British model is its high level of detail; it is in many respects as complex and comprehensive as the British model.

Separate accounts were implemented for operators with SMP status (in principle only in the telecommunications market) in New Zealand from the year 2000 onwards. The separate accounts will be examined annually by independent auditors.

[52] See Appendix 1.

New Zealand had already introduced a new regulation[53] by 2001 whereby the opportunity was given to resolve disputes between operators in terms of access to the access lines of certain network services. According to the regulation, fixed network operators may not utilise income from telecommunications services in markets where these operators have SMP status aimed at cross-subsidising other telecommunications services. Such operators must organise their accounts so that operational results related to telecommunications services for which the operator has SMP status are kept separate from the results of other telecommunications services. In order to comply with this requirement, a number of accounting principles must be applied in order to identify activities in the accounts,[54] including at least the transmission network, local access lines, resale activities, such as the provision of voice telephony and leased lines, and other telecommunications activities.

At the beginning of December 2006, an Act[55] concerning the regulation of electronic communications in the country was adopted by Parliament, following a proposal by the Finance and Expenditure Committee. This Act contains, among other things, a separation of the operator, Telecom, which should be implemented by mid-2007.[56] The New Zealand regulatory authority, the Commerce Commission, shall monitor compliance of the separation.

The model under consideration[57] does not involve structural separation, but a functional separation into three separate components comprising a retail component, a wholesale component and a network component.

6.3 Functional separation in Italy

In Italy, the issue of separation in the telecommunications market was initiated based on the principle of equivalent treatment and non-discrimination. An investigation focussing on the ability to ensure compliance with this principle was launched in 2000 and the separation was implemented in 2002 following a decision by the regulatory authority, Agcom.[58] Through this decision, all operators using Telecom Italia's wholesale services are to be treated equally. The business divisions dealing with end-user services shall be separated from the divisions working with network operations, both for access lines and transmission. Business divisions dealing with end-user services shall also be separated from divisions where the operation focuses on the provision of network and wholesale services. A separation between the information systems of the network and commercial divisions shall also be implemented, and this separation shall be examined annually by an independent examiner. Finally, internal procedures shall be introduced, reviewed by an independent examiner, which will prevent any

[53] 108 The Act of 1991
[54] The Royal Decree of 4 October 1999
[55] Telecommunications Amendment Bill, http://www.parliament.nz
[56] The Ministry of Transport and the Ministry of Economic Development is to deal with the separation of Telecom.
[57] Development of requirements for the operational separation of Telecom, consultation document, April 2007
[58] Resolution no. 152/02/CONS

confidential information (concerning competing operators), which is being used by the network divisions, from being utilised by the business divisions.

On 2 May 2007, the Italian regulatory authority, AGCOM, published a public consultation document[59] regarding functional separation as an obligation for the telecommunications market and NGN.

The proposed supplement to the existing law on functional separation as an obligation on the telecommunications market enables AGCOM to impose a non-typical obligation on an SMP operator, i.e. an obligation that is not contained in Articles 9 to 13 of the Access Directive and currently reflected in Articles 46 to 50 of the Italian legislation on electronic communications. According to the Directive, the regulatory authorities may impose such non-typical obligations under exceptional circumstances. The regulatory authority shall present a request for this to the Commission, which will make a decision permitting or preventing (vetoing) the national regulatory authority from taking such measures.

According to the wording of the proposed obligation, which it is proposed should be added to the Act[60] as a new Article 45 3-bis, it will be possible for AGCOM to define regulations expressly aimed at ensuring that the administration and operation of all parts of the local loop and associated resources, including the components necessary for the provision of broadband services, are provided by a system according to the criteria of independence, neutrality and functional separation of other activities at the undertaking, with a full guarantee of equal treatment (external and internal) for all operators that wish to have access. This system shall contain the most appropriate organisational measures, which are to be determined by AGCOM.

The exact extent of a functional separation can be established either as an obligation on functional separation, following a unilateral decision by AGCOM, or after AGCOM has accepted a voluntary commitment or has concluded an agreement with SMP operators. Irrespective of the procedure, the outcome shall be accounted for in a decision by AGCOM and such a decision will contain the obligations determined by AGCOM. This is already feasible through the procedure found in Article 14 of Act 223 from 2006, changed to Act 248 from 2006.

6.4 Deliberations on functional separation in the Netherlands

In a report[61] dated 22 May 2006, the Dutch regulatory authority, OPTA, discussed functional separation according to the model implemented in the United Kingdom. It was considered that this model played an important role in the regulatory contract between Ofcom and BT in relation to alternative regulatory

[59] Delibera 208/07/CONS
[60] In order to make these new powers more readily accessible to AGCOM, it has been proposed that the incorporation of a new Article 45 3-bis in the Codice may be achieved by adding a section to the proposed act currently being considered by the Italian parliament (proposed bill 2272).
[61] Issue paper on All-IP, OPTA/BO/2006/201599, 22 May 2006

models for the transition to NGN. In a report dated 3 October 2006,[62] OPTA communicated that a study should be initiated on this issue. In this report, OPTA stated that if KPN (the dominant telecommunications undertaking in the Netherlands) wished to implement such a model on a permanent basis, this would be included in the market analysis. OPTA's reasons for this were that such a model may have an effect on the occurrence of potential competition problems and consequently also implications for the obligations that it may be appropriate to introduce.

In a report dated 2 March 2007, OPTA presented its preliminary positions adopted on functional separation in accordance with the model implemented in the United Kingdom and on the possibility of introducing a similar model in the Netherlands. At the same time, OPTA published a study[63] by the NERA consultancy firm.

In its report, NERA stated that there are major differences between the United Kingdom and the Netherlands. The Netherlands has, among other things, a parallel, second local loop infrastructure in the form of cable television networks, which affects the assessment of proportionality prior to functional separation. NERA also stated the significance of the fact that there was a threat of structural separation in the United Kingdom.

OPTA's preliminary assessment is that functional separation, similar to that implemented in the United Kingdom, appears to be disproportionate and may result in undesired effects as regards infrastructure competition in the Dutch market. Set against the background of the situation in the Netherlands, there is currently a lack of reasons for applying a measure that assumes that there are no permanent and effective alternative forms of infrastructure competition or that none can arise. In this respect, account must be taken of the fact that an obligation to implement functional separation represents a relatively interventionist measure, as such an intervention directly affects not only the behaviour of an undertaking, but also its structure.

OPTA draws the conclusion that the imposition of functional separation on an undertaking with SMP status is not a measure that the authority is currently able to make a decision on under the national regulatory framework. In this respect, functional separation similar to that implemented in the United Kingdom is not relevant to the situation in the Netherlands. Furthermore, OPTA is unable to make a decision on structural separation and cannot use this as a threat.

OPTA considers that an investigation should be carried out into whether it would be proportionate, within the framework of a market analysis under Section 6a 11 of the national telecommunications act (*Telecommunicatiewet*), to impose functional separation on KPN as a supplementary obligation. A government decision must first be prepared with a view to imposing such an obligation.

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[62] Position paper on All-IP, OPTA/BO/2006/202771, 3 October 2006

[63] NERA; Ofcom's Strategic Review of Telecommunications and BT's Undertakings. Produced on the assignment of OPTA, 15 February 2007

OPTA is aware of the advantages of functional separation, but, set against the background of the above, considers that there are fewer advantages than disadvantages. The authority considers that most of the effects of functional separation can be achieved with the existing obligations, such as requirements for transparency and non-discrimination.

However, OPTA states that its preliminary assessment does not mean that a voluntary commitment from KPN, similar to the one made by BT, as part of a defined set of obligations, would be without significance to the authority. In such a case, OPTA would expand the market analysis to include such a measure.

6.5 Vertical separation in other countries, in other markets and within general competition law

In addition to the models on functional separation considered in the telecommunications market, there are other forms of vertical separation that may be of some interest. However, account must be taken of the fact that, in many cases, the impetus behind vertical separation is different from that in the telecommunications market where the impetus is the equal treatment of competing operators. For example, within competition law, the impetus is often to counteract market dominance and, when AT&T was separated in the USA, the impetus was to break up a monopoly, not to secure the right of horizontally competing operators to equal treatment and unbundled access to the local loop.

6.5.1 Vertical separation in the telecom market in other countries

Australia recently implemented a functional separation of the operator Telstra. This separation aims to promote equal treatment and transparency for Telstra's wholesale customers, and supplements current regulation. Under this obligation, Telstra is required to retain separate resale, wholesale and network divisions, including a separation of personnel and premises.

The separation was ultimately decided[64] by the Australian regulatory authority, AAAC, in 2005. The implementation of the separation of Telstra was primarily the responsibility of the Australian government, which had already initiated the separation through legislation[65] in 1997. The legislation stipulated that Telstra was required to draw up and provide the government with a draft proposal for operational separation, with the requirement that the proposal was to be directed at achieving the objective of implementing operational separation. The government specified in particular that one of the fundamental objectives of separation was to establish a transparent model that ensured that Telstra did not favour its own retail activities at the expense of wholesale customers while allowing Telstra to gain legitimate benefits from vertical integration.[66] This is

[64] Telecommunications Legislation Amendment Bill (Competition and Consumer Issues) 2005
[65] The Telecommunications Act 1997
[66] Explanatory Memorandum to the Telecommunications Legislation Amendment Bill (Competition and Consumer Issues) 2005, p.82

expressed as the concept of equivalence.[67] The national competition authority will be responsible for ensuring that Telstra complies with its undertakings.

In the USA, the operator AT&T used to have a monopoly on telephony. The break-up of AT&T was initiated in 1974 when the US Department of Justice filed suit against the American telephony monopoly. On 8 January 1982, the owner of AT&T agreed to dispose of the company's 'local exchange service operating companies'. AT&T's regional operating companies were divided up into seven independent, separate companies ('Baby Bells'). This break-up led to clearly improved competition in the market for long-distance telephony with companies such as Sprint, MCI, AT&T, BellSouth, Verizon and Qwest. The regional markets nevertheless remained monopolies in principle. Since then, the US has moved away from strict structural separation between vertically integrated operators. The above-mentioned regional Bell operators (RBOCs, Baby Bells) now provide long-distance telephony in all States, subject to requirements for a certain level of structural separation and separate accounts, etc. in terms of the separation of activities in regional markets and the market for long-distance calls.

Other countries, such as South Korea, Hungary and Turkey, have discussed or implemented various forms of vertical separation in the telecommunications market.

6.5.2 Vertical separation in markets other than the telecom market

The Commission's electricity and gas market inquiry

In its final report on the Inquiry into the competition situation[68] within the energy sectors, the Commission stated that consumers and businesses are losing out as the gas and electricity markets are expensive and inefficient. One particular problem pointed out by the Inquiry is the vertical integration between supply undertakings, energy-producing undertakings and infrastructure undertakings, resulting in different access to market information and insufficient investment in infrastructure. One fundamental inadequacy in the competition structure of the existing electricity and gas markets is that there are structural conflicts of interest; a permanent conflict of interest owing to an insufficient distinction of networks from those parts of the sector exposed to competition.

The Inquiry considers it necessary to resolve the permanent conflict of interest that is inbuilt into the vertical integration of supply and network operations, resulting in discrimination and an inadequate investment in infrastructure. It is important to ensure that network owners and/or operators do not have incentives that are distorted by supply interests at associated businesses. This is particularly important during a time when there is a significant need for investment to guarantee continuity of supply and to establish integrated and competitive markets.

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[67] 'Operational separation - Retail pricing protocol - An ACCC information paper, August 2006
[68] Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors, COM(2006)851

The existing and insufficient level of distinction will need to be enhanced in order to achieve this. This should also in its turn facilitate cooperation between network operators. The Inquiry is of the opinion that there is financial evidence that dividing up ownership is the most effective way of ensuring that energy users have freedom of choice and of encouraging investment. The reason for this is that separate network undertakings are not affected by overlapping interests as regards production or supply when investment decisions are made. Furthermore, it also prevents overly detailed legislation and unreasonable administrative burdens.

Public consultation has also not revealed any important synergy effects linked to vertical integration. Experience actually shows that when the division of ownership has been realised, both network operations and (production and) supply operations continue to flourish following separation.

The airport market in the United Kingdom

In June 2006, the British competition authority, OFT, initiated a market investigation regarding British airport provider, BAA's, airports in the United Kingdom (Heathrow, Gatwick, Stansted, Glasgow, Edinburgh, Aberdeen and Southampton). BAA's airports have a market share of over 60 per cent of all air passenger traffic in the United Kingdom. OFT published the results of the investigation on 12 December with the preliminary conclusion that there was reason to refer BAA's provision of airport services to the Competition Commission.[69]

OFT's preliminary position confirmed that the competition problems identified by the authority remained and that a referral to the Competition Commission was necessary.

On 30 March 2007, OFT communicated that the authority intended to refer BAA's airports to the Competition Commission, as Ofcom had done regarding BT. This referral entails a market investigation under Section 131 of the Enterprise Act in respect of the provision of airport services by BAA in the United Kingdom. OFT has still not published the reason for this referral.

OFT proposed a number of measures, but has not taken a final position on this issue. Two of the measures for dealing with the competition problems predominantly involve structural separation: firstly, the sale of airports to facilitate better competition between airports and secondly the sale of terminals.

6.5.3 Vertical separation within general competition law

The competition authorities have different opportunities to establish vertical separation aimed at resolving competition problems. The most common is in the event of concentration inquiries, where the competition authorities test the effects of a concentration on competition. The competition authorities then have the opportunity to impose a measure or accept a voluntary commitment. The

[69] Legal update, OFT consults on proposal to refer BAA airports to the Competition Commission.

competition authorities also have the opportunity to utilise vertical separation in the event of infringements of the competition regulations.

When competition authorities test an acquisition within network industries that may give rise to competition problems, disposal, a form of structural separation, is a typical measure. This is often combined with a measure directed at behaviour, such as equal treatment for access to a network (e.g. MCI/Worldcom, Bertelsmann/AOL, Telia/Sonera).

In Commission matter M.2803 Telia/Sonera, concerning Telia AB's acquisition of the Sonera Group, the Commission considered that the proposed acquisition would lead to reduced competition to the detriment of consumers in Finland and Sweden. There was particular concern in respect of the strong vertical connections. This vertical integration was to provide the merged unit with the incentives and opportunities to prevent competitors from entering the markets for end-user services in both countries.

Telia consequently made commitments so that the Commission would deem the acquisition consistent with Community legislation (EEC 4064/89): among other things to sell Telia's mobile operation in Finland and Telia's cable television network in Sweden, and to create separate legal entities for both companies' fixed and mobile networks and services in Finland and Sweden. They also undertook to grant access to their network without discrimination and to implement a legal separation between their wholesale and retail operations. An important undertaking was that Telia within a certain period of time would dispose of its cable television network in Sweden which was run under the Com Hem trademark. This included, for example, disposing of licences, assets and personnel.

Under Article 7 of 1/2003 EC,[70] the competition authorities also have, at least in theory, the opportunity of utilising vertical separation in the event of infringements of competition regulations. The Commission has the authority to impose all measures, both those referring to the action of an undertaking (behavioural measures) and structural measures, which are necessary to bring the infringement effectively to an end, while observing the principle of proportionality. Structural measures should only be imposed where there is no equally effective behavioural measure, or where any equally effective behavioural measure would be more burdensome for the undertaking concerned than a structural measure. Changes to the structure of an undertaking existing prior to the infringement would only be proportionate if there was a significant risk of continued or repeated infringements arising from the very structure of the undertaking. In practice, this has meant that structural measures are never used.

The cases in the US and in Europe concerning Microsoft are an important example of when vertical separation has been considered. The US Department of Justice investigated Microsoft's actions during the period 1996 to 1998. After two

[70] Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty

years of court proceedings, the court of first instance found in 2000[71] that Microsoft had breached competition regulations in three main ways. It had attempted to unlawfully maintain its monopoly in the operating systems market (Windows), had attempted to unlawfully monopolise the web browser market, and had unlawfully 'tied' its Web browser, Internet Explorer, to Windows, with the aim of cutting its competitor, Netscape, out of the market. Judges ordered that Microsoft be divided up, but provisionally suspended the actual execution of the decision.

The Court of Appeal found that Microsoft had breached competition laws by unlawfully attempting to maintain its monopoly in the operating systems market, but that the company had otherwise not violated the competition regulations. The court rejected a splitting up of the company and called upon the Department of Justice and Microsoft to agree to a settlement, which subsequently took place in November.

A similar case was considered in Europe by the Commission.[72] It concluded that Microsoft had breached competition regulations, namely, Article 82 of the EC Treaty.

The Commission decided on a number of structural measures, but not separation of the company. This decision has been appealed by Microsoft.

In summary, it can be concluded that there has only been limited use of structural measures under general competition law, with the exception of the measures taken by an undertaking so that the competition authority can approve a concentration between undertakings. Besides this, the opportunities to implement a vertical separation under general competition law are virtually non-existent.

[71] Consolidated actions *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C.) and *State of New York, et al. v. Microsoft Corp.*, No. 98-1233 (D.D.C.).
[72] COMP/C-3/37.792 *Microsoft*

7 Deliberations and proposals

7.1 Summary and points of departure

So far, the result of the Inquiry can be summarised by a number of conclusions that also constitute starting points for our deliberations and proposals.

The fixed telecommunications network (previously the public utility company, Televerket) has been developed by TeliaSonera over a very long period of time. The network was originally developed to satisfy the national need for traditional fixed telephony and has subsequently been adapted over time to carry several other services. The metallic loops basically cover every household and business in Sweden and approximately 98 per cent of these households and businesses have the opportunity of receiving broadband via xDSL. In some parts of the country, there are alternative access networks, such as the cable television network, fibre LAN and fixed radio access. These are replicated by the metallic loop and are primarily found in geographical areas where it has been considered commercially justifiable to make such an investment.

In the retail broadband market, connection via xDSL is the most common form of access among household and business users and in 2006 its share amounted to 65 per cent. Connection via the cable television network amounted to 19 per cent and connection via fibre LAN to 15 per cent. TeliaSonera is the dominant stakeholder in the xDSL market with a market share of 58 per cent in 2006. The second largest stakeholder is Telenor (Bredbandsbolaget and Glocalnet) with a share of approximately 26 per cent.

Operators without access to their own infrastructure in the local loop can get access to TeliaSonera's fixed telecommunications network under current regulations. The operator can choose between the different access products depending on the level of control required for the access line and the propensity to invest in its own equipment. LLU and bitstream access lines are the regulated broadband products currently on offer in the wholesale market.

The fixed telecommunications networks are undergoing development around the world in pace with new services and changed patterns of behaviour, which has resulted in an increased demand for higher connection rates. The metallic loop will be upgraded to enable it to deliver higher capacity in the network, and the new generation access network is likely to consist of several networks comprising copper, fibre and wireless alternatives. Network owners in several countries have already started to invest in the fibre access network in order to meet tomorrow's demand. The rollout of fibre in the local loop has also started in Sweden, principally as regards Fibre To The Building, but also as regards Fibre To The Home.

Experience from PTS's supervisory work shows that the market for access to TeliaSonera's network is characterised by significant competition problems, despite *ex ante* regulation being in place. These problems take the form of, for example, discriminatory behaviour, and it has been observed that TeliaSonera has

an information advantage in relation both to other operators and PTS. The problems observed in the LLU market encompass the following areas: (1) collocation of other operators in TeliaSonera's telecommunications exchanges; (2) other operators' access to information from TeliaSonera; (3) ordering procedures; and (4) delivery routines. In addition to discriminatory behaviour and a lack of transparency, competition-related problems were also observed in terms of bitstream access, which is undergoing implementation. PTS has observed that the reference offer, which is available, contains significant shortcomings and unreasonable terms. The conclusion that may be drawn is that access to TeliaSonera's metallic loop does not represent a functioning marketplace, as there is a lack both of sufficient openness and equal treatment in this market.

Several attempts have been made, both through LEK and KL, to rectify the problems related to access. However, using competition law to resolve these problems in an effective manner has proved to be difficult. Only a few interventions have been made under KL during the years that access to the metallic loop aimed at providing broadband and/or telephony services has been available. One possible interpretation of this situation is that KL is not sufficient to resolve the access-related problems of the type discussed in this report.

It has also been difficult for sector-specific regulation to fully resolve all of the competition problems by using the existing obligations. It has been apparent that the dominant operator has had the opportunities and incentives to discriminate against other operators to the benefit of its own retail operation, but to the detriment of competition. Within the framework of its supervisory work, PTS has also, on the basis of the obligations imposed on the dominant operator, used various measures to attempt to resolve the problems arising as a result of the market situation. However, there are limitations to these measures; for example, the information disadvantage that the supervisory authority (and other operators) often has in relation to the dominant operator. Another difficulty is that the supervision, due to the non-discriminatory obligation, must often be carried out on an individual case basis, which on their own does not contravene the obligation.

In an attempt to resolve the practical problems in the market, PTS initiated a voluntary dialogue between TeliaSonera and wholesale customers during the spring of 2007 with the aim of discussing the problems that exist in the LLU market. Confidence between the parties has grown, although distrust still prevails vis-à-vis the actions of other operators. This is a step in the right direction, but it does not resolve the basic problems in the market.

The competition problems related to access obligations have also been observed internationally. In several countries, it has been concluded that the current regulatory frameworks are not sufficient to resolve the problems and that other measures are required. There are several examples of countries that have imposed the functional separation of the dominant stakeholder in the market. In the United Kingdom, a model for functional separation has been implemented based on a voluntary agreement between BT and Ofcom. A model for functional separation was recently presented in New Zealand, which is similar to the British model but is based on legislation. In Italy, a proposal is currently being considered

for functional separation as an obligation that the regulatory authority will be able to impose on an SMP operator. Australia recently implemented the functional separation of the operator, Telstra, where Telstra is required to implement and retain separate resale, wholesale and network divisions, including a separation of personnel and premises.

According to this government assignment, PTS shall investigate the prerequisites for and opportunities to implement regulation in LEK in order to promote non-discrimination and openness as regards accessibility to the local loop. This regulation shall aim to create organisational separation and independent decision-making within a vertically integrated operator on which LLU obligations have been imposed between, on the one hand, such operations comprising the provision of networks and services at a wholesale level and, on the other hand, operations comprising retail sales of services provided over such networks (vertical separation).

Furthermore, PTS shall investigate the opportunities for the public authority to accept obligations, including measures from such a vertically integrated operator on which LLU obligations have been imposed, with the aim of ensuring non-discrimination and transparency, and propose the regulation required for this.

Further deliberations and proposals are presented in the following section in respect of the following categories:

- Vertical separation (7.2)
- Material delimitations (7.3)
- Organisational delimitations (7.4)
- Voluntary agreements (7.5)

7.2 Vertical separation

PTS's proposal: PTS considers that the ability of the public authority to impose functional separation on a dominant stakeholder should be introduced, meaning that the parts of the operation representing bottleneck resources should be separated from the rest of the organisation.

Functional separation would, together with the current opportunities to impose obligations on operators with significant power, reduce permanent competition problems in the electronic communications market.

Current regulation has been formulated with the aim of resolving the competition problems in the electronic communications market, and ultimately aims to fulfil the objectives for the electronic communications sector proposed by the Swedish Parliament in the LEK bill:[73]

> Private individuals, companies and authorities shall have access to effective and secure electronic communications. These electronic communications shall provide the greatest possible benefit as regards the range of transmission services, their price and quality. In an international perspective, Sweden shall be at the cutting edge in these respects. The electronic communications shall be sustainable, of practical use and satisfy future needs.
>
> The best way of achieving this is to create the conditions for effective competition without distortions and restrictions and to promote international harmonisation […]

However, empirical evidence from PTS's supervisory work shows that the markets for unbundled access to TeliaSonera's local loop are still characterised by significant competition problems despite the existence of *ex ante* regulation. Experience from such supervisory work shows that there has been no reduction in the need for supervision as regards access to the fixed access network and that, during the supervisory work, similar problems have often recurred. The problems that emerged can be categorised as follows:

- Information advantage
- Discriminatory behaviour
- Lack of incentives to comply with regulation

A constant or increasing need to monitor compliance with the law, in addition to the fact that the same kinds of infringement of the regulatory framework are recurring, is very serious as this indicates that the lack of compliance with current

[73] Government Bill 2002/03:110

regulation has become systematic. There does not appear to be sufficient regulatory tools to create incentives to comply with the legislation.

From a more theoretical perspective, it has been observed that there are several factors underpinning the opportunities and incentives to exercise discriminatory behaviour in a market. Having reviewed the literature, Reiffen och Ward[74] stated that the incentive to discriminate within a vertical market structure increases in the event of:

- Strict price regulation in the wholesale market together with low competitive pressure on the retail market
- Potential opportunities for large profits in the retail market
- A high degree of substitutability between products of the vertically integrated undertakings and competitors
- Clear economies of scale in the retail market

These circumstances are very apparent as regards TeliaSonera's metallic loop. It has been observed that access to TeliaSonera's metallic loop does not represent a functioning marketplace between buyers and sellers. This situation is compounded by the fact that discriminatory behaviour from a dominant stakeholder perhaps does not satisfy the requirements for an infringement of the regulatory framework in each individual case or the possibility of proving that such an infringement has taken place. Overall, this behaviour generates long-term competition problems. Consequently, the current market situation results in the distortion of competition and is not in line with what is needed to fulfil the objectives for effective and competition-neutral access, as stipulated by LEK. An additional effect is that the prevailing market situation does not provide sufficient preconditions to gradually relax the regulation to promote competition on the way toward sustainable competition. From a socioeconomic perspective, this also leads to poor preconditions for investment, innovation and growth in the economically vital electronic communications sector.

PTS has observed that the regulatory tools available in current legislation are not sufficient to resolve the competitive situation that the regulatory framework was intended to establish. A regulatory tool is required to improve the conditions for effective competition and reduce the risk of competition being distorted. This tool should aim to eliminate the problems that the existing regulation has not succeeded in resolving as regards the information advantage for the dominant stakeholder, discriminatory behaviour in relation to external wholesale customers, and the creation of incentives for the dominant stakeholder to comply with the regulatory framework so that the objectives for the electronic communications sector can be satisfied.

[74] Reiffen, D. & Ward, M.R. (2002), 'Recent empirical evidence on discrimination by regulated firms', Review of Network Economics

On the basis of the competition problems that currently characterise the market, PTS concludes that there is reason to create a new regulatory tool giving the public authority the ability to impose requirements for the vertical separation of a dominant stakeholder. Such a tool would, together with the current opportunities to impose obligations on operators with significant power, reduce long-term competition problems in the electronic communications market.

7.2.1 Deliberation on vertical separation

As described in Section 2.3, vertical separation can mainly be implemented in two different ways: structural or functional separation. It has been observed that the different forms of separation have their respective advantages and disadvantages, and the impact can vary depending on the form of separation involved. The OECD[75] states in its report that a separation generally has the following potential advantages:

- Separation limits the need for regulation that is difficult, costly and only partially effective
- Separation can stimulate innovation and efficiency in production and the provision of competitive services
- Separation helps to eliminate cross subsidy[76]
- Separation provides end users with a number of alternatives, enhances product differentiation and better meets end users' needs

The objective of vertical separation is to create an independent and autonomous unit that interacts with all customers on an equal basis regardless of whether they are internal or external customers. Separation means that the competition problems that we have identified in the current market, in the form of an information advantage and discriminatory behaviour, will disappear, as will the previous incentives for non-compliance with the regulatory framework.

As described in Section 2.3, structural separation means that ownership is separated. This means that the separation becomes clear and has an immediate effect, but at the same time is definitive and basically irreversible.

As described in Section 2.3, functional separation means that the part of the operation identified as a bottleneck resource is separated from the rest of the company and put into a separate unit, which increases adaptability but means that clear delimitations need to be defined and that the unit is partitioned off from the

[75] OECD, Restructuring Public Utilities for Competition, 2001

[76] 'Cross subsidy' means that a company acting in a market with low competitive pressure (e.g. a monopoly market) uses its privileged position in this market to gain advantages in another market (with a higher competitive pressure). For example, the undertaking has an incentive to transfer costs from the market subject to competition to the protected operation with a view to being able to justify higher access prices.

other parts of the organisation. This unit can be a business area or department and is then, in terms of operations, entirely separate from the other parts of the company. This unit can also be a wholly owned subsidiary.

7.2.2 The legal preconditions for vertical separation

EC Directives

Article 8 of the Access Directive concludes that Member States shall ensure that national regulatory authorities are empowered to impose the obligations identified in Articles 9 to 13 of the same Directive, i.e. typical obligations such as a requirement for access, price regulation and non-discrimination, etc. If an operator is deemed to have significant power in a certain market following a market analysis, the national regulatory authorities shall introduce one or a number of obligations as stipulated by Articles 9 to 13, based on an assessment of appropriateness and proportionality. However, the obligations in Articles 9 to 13 do not currently include an obligation regarding the separation of an undertaking.

However, in exceptional circumstances, if a national regulatory authority views it necessary to impose obligations concerning access or interconnection other than those stated in Articles 9 to 13 of the Access Directive on operators with significant market power, it may submit a request for this to the Commission. Under Article 14.2 of the same Directive, the Commission shall make a decision either permitting or preventing the national regulatory authority from taking such measures. Such a measure may include the vertical separation of an undertaking.

There is thus no definitive impediment preventing the regulatory authority from submitting a request to the Commission stating why an operator with significant power in a determined market should have obligations other than those stated in Articles 9 to 13 of the Access Directive imposed on it. However, if a regulatory authority should do this, the Commission has the ability to prevent it, whereby the regulatory authority is obliged to retract its proposal.

Owing to the fact that the Commission is able to prevent a national regulatory authority from taking a measure under Article 8.3 of the Access Directive, PTS considers that a provision in LEK is necessary so that the same rules should apply when taking such a measure when a market determined under Chapter 8, Section 5 deviates from the Commission Recommendation or when identifying an undertaking under Chapter 8, Section 6, second paragraph. PTS proposes that such a provision be introduced as item 3 in Chapter 8, Section 12 of LEK.

To date, no regulatory authority has submitted a proposal to the Commission under Article 8 of the Access Directive concerning the separation of an undertaking with significant power. The model introduced in the United Kingdom was not implemented under the provisions of the Directive but is, as mentioned above, the result of voluntary commitments on the part of British Telecom where the initial investigation was carried out under special national legislation, namely, the Enterprise Act.

A regulatory authority may impose an obligation other than those stated in Articles 9 to 13 of the Access Directive. The regulatory authority must then prove that this is necessary, with reference to the fact that the problems observed cannot be resolved by existing obligations and that the proposed obligation is proportionate. The degree and design of vertical separation may be of importance for such an assessment of proportionality.

Structural separation is a very interventionist regulatory measure and the Commission has expressly stated that such a measure is not encompassed by the current EC regulatory framework.[77] Functional separation within an existing group structure is less extensive than structural separation and better suits the structure present in existing regulation. There are also clear indications that the Commission, during the forthcoming revision of the EC regulatory framework, will accept the idea of the regulatory authorities being entitled to impose obligations regarding functional separation within the framework of the sector-specific regulatory framework. In a speech to the ECTA organisation, Commissioner Viviane Reding stated, among other things, that the Commission's opinion is that functional separation "may be a useful remedy in specific cases".” Here, she was referring to Openreach in the United Kingdom. At the same time, she stated that functional separation is not a universal solution, but that an analysis of the advantages and disadvantages is required in each individual case. Reding also indicated that such an obligation was likely to be encompassed by the 'two pairs of eyes' principle, meaning that not only the regulatory authorities but also the Commission should exert major influence on the issue.

During its communication of proposed amendments to directives concerning the regulatory framework for electronic communications, the Commission mentioned the opportunity to impose a regulatory model with structural separation,[78] but drew the conclusion from a preliminary assessment that complete structural separation was not desirable. During a speech at a broadband conference in Athens in May/June 2007, Commissioner Viviane Reding talked about functional separation once again and stated that it was a strong candidate for inclusion in proposed future amendments to directives,[79] which is thus a change from a previous standpoint. IRG/ERG raised this issue in a statement ensuing from the Commission's discussion, and stated that separation need not necessarily entail complete structural separation, but that there are reasons to consider a solution that is aimed more at functional separation.[80] In a statement, the Swedish

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[77] Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee of the Regions on the Review of the EU Regulatory Framework for electronic communications networks and services, Impact Assessment, COM(2006) 334, p.11
[78] Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on the Review of the EU Regulatory Framework for electronic communication networks and services (COM(2006) 334 final). Impact Assessment.
[79] Cullen International, Flash Message 6/2007, Review of the EU regulatory framework: some early indications
[80] "I/ERG would welcome the ability of NRAs to impose a remedy of ‘functional separation’ on SMP operators, where appropriate." (IRG/ERG Response to the Review of the EU Regulatory Framework for electronic communications networks and services, p.3).

Government also raised the possibility of considering a model for separation in order to ensure equal access to the local loop.[81]

The conclusion from the above is that there is no scope for a structural separation within the current regulatory framework, while it is possible to impose functional separation as a sector-specific obligation, assuming that existing obligations do not resolve the problems observed and that the obligation on functional separation is proportionate.

Electronic Communications Act

As stated above, there are no legal grounds under current EC directives to introduce an obligation as extensive as structural separation. No amendments to the directives are expected as regards this issue. This means that there is no possibility of introducing into LEK an obligation on structural separation that may be imposed on operators with significant market power. If this is viewed as desirable at a national level, it is nevertheless possible for the Swedish government to implement structural separation through ownership influence.

Summary of the legal aspects of vertical separation

From the discussion above, it can be concluded that there is no opportunity to impose requirements for a structural separation under the regulatory framework and LEK, whereas it is possible to order functional separation as a sector-specific obligation, assuming that existing obligations do not resolve the problems observed and that the functional separation obligation is proportionate.

Furthermore, it is also apparent that, under certain circumstances, there are opportunities for central government to utilise its ownership influence to implement structural separation. Such a decision, for example, presupposes that the rules of the Swedish Companies Act (ABL) (2005:551) on compensation for possible losses in value for minority shareholders have been complied with. However, structural separation is an ownership issue and for this reason is not encompassed by this assignment, as the assignment's starting point is the existing preconditions and opportunities within the regulatory framework for electronic communications.

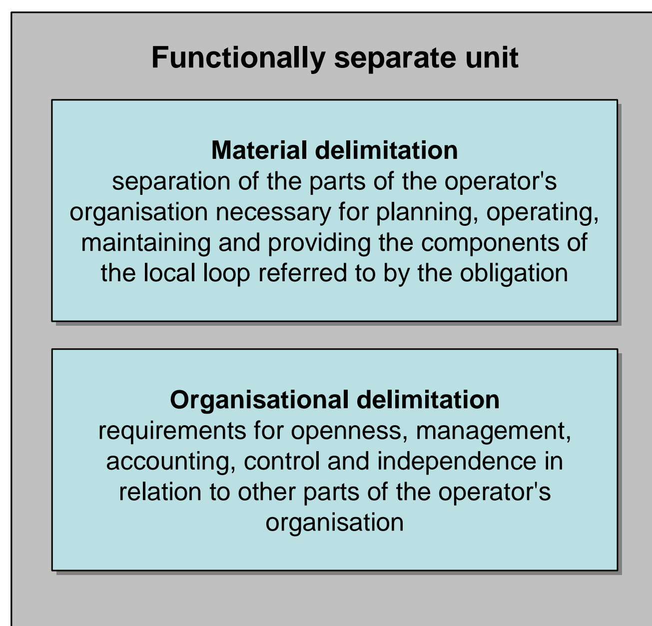
7.2.3 Proposed formulation of functional separation

Functional separation means that the stakeholder on which obligations have been imposed in the LLU market and which owns a metallic loop may be ordered to separate its assets and operations. The parts to be separated are the operations and assets necessary for planning, operating, maintaining and providing the network components referred to by the obligation. The functionally separate unit will consist of a material delimitation and an organisational delimitation (see

[81] Swedish Reply to Public Consultation on the Review of EU Regulatory Framework for Electronic Communications Networks and Services, launched by the European Commission

Sections 7.3 and 7.4 for a more comprehensive account).

Figure 7.1. Model for a functionally separate unit.



The parts that may be encompassed by the separation include networks and network components, associated facilities, IT systems attributable to the operation, personnel, financial resources and anything else necessary to comply with the obligation. Requirements regarding the legal status, management, control, accounting, auditing and rules of conduct shall be included to ensure non-discrimination and openness, as well to establish independence in relation to other parts of the operator's group.

There are several effects and results that can be achieved in the event of the functional separation of a vertically integrated dominant stakeholder. Several of these effects contribute to resolving the competition problems identified. A selection of these characteristics is described below.

Proportionality

Functional separation removes the opportunity and incentive for the dominant stakeholder to discriminate against its competitors. It aims to resolve competition problems while preserving the strengths present in a vertically integrated organisation, such as, for example, technological innovations and positive economies of scale.

Adaptability

Functional separation may resolve the competition problems identified in the market and may also be adapted to the circumstances. The opportunity to impose

an obligation on functional separation will be included as part of PTS's ongoing work to promote competition. This also makes it possible to deal with any new competition problems that may arise as a result of rapid technological progress in the market. Recurrent adaptation has not been assessed as necessary, but the model opens the door to this possibility when an obvious need exists.

Tested method

The functional separation of an operator is a relatively new phenomenon, at least in the form now being discussed. However, some other countries have implemented functional separation or are discussing it. The most well-known example is the United Kingdom, where functional separation based on a voluntary agreement between the regulatory authority and BT has been implemented. A model for functional separation, which is similar to the British model but is based on legislation, was recently presented in New Zealand. A proposal is now being considered in Italy for a supplement to existing legislation on functional separation as an obligation in the telecommunications market. Australia recently implemented the functional separation of the operator, Telstra.

Long-term

The implementation of functional separation may be viewed as a long-term measure, even if certain adaptations that are dependent on changed market conditions may be made. The extent of functional separation is examined in the regular market analyses, and proposed adjustments are subsequently made. This creates opportunities for a more stable market, as the rules of the game become clear both to the dominant stakeholder and to other operators in the market.

Conducive to investment

Functional separation may be viewed as conducive to investment in that the existing infrastructure will be used more efficiently as the competitive situation in the wholesale market improves. Also, investments will increasingly be driven by the demand of wholesale customers, leading to investments being made at the right point in time.

Ownership neutrality

Functional separation is ownership neutral. This means that the rules for equal treatment apply regardless of which stakeholder(s) own(s) the dominant operator. The point of departure for functional separation is that the separate unit remains within the dominant stakeholder's organisation.

A neutral security policy

One argument against the functional separation of the dominant stakeholder, if this party is TeliaSonera, has been that there is a Total Defence interest in this network and it is important to protect it from a security policy perspective. As PTS observed previously, functional separation only has a limited impact on this

discussion as it encompasses the local loop. From a Total Defence perspective, it is the central and not primarily the peripheral parts of the network that are worth protecting. However, there will be no reduction in the requirements placed on the rest of the network and TeliaSonera must also in the future satisfy the security requirements stipulated in order to be an approved supplier of products and services that are worth special protection in Sweden. These are, however, not affected by functional separation.

After having carried out an overall assessment of functional separation and the effects that this can achieve, PTS considers that functional separation should rectify the competition problems identified in the market.

Introduction of functional separation as an obligation

According to the proposal, functional separation shall be introduced as an obligation in LEK. Functional separation will be an obligation that, with the aim of ensuring non-discrimination and openness, may be imposed on an operator on which an obligation has been imposed under Chapter 4, Section 4 and Chapter 8, Section 6 on access to such a network as referred to in Chapter 4, Section 9. Functional separation may be imposed on the basis of the market analyses already carried out and existing SMP and obligation decisions, even if it is more likely that functional separation is imposed in conjunction with new analyses and decisions.

Before obligations are introduced, a market analysis must be carried out as regards the relevant market(s) in which it may be applicable to impose functional separation. Before a decision on obligations is made, a consultation must also be carried out and a notification submitted to the Commission. A notification of an obligation on functional separation is probably more complex than a notification of other obligations, as the Commission can veto such an obligation under Articles 8.3 and 14.2 of the Access Directive.

If an obligation on functional separation is imposed, it is likely that this will be made in conjunction with the imposition of other obligations against the same operator in one or more local loop markets, or subsequently closely connected with this. Functional separation may be imposed on one or more markets in separate decisions, or on several markets as part of the same decision. The latter presupposes that market analyses are carried out simultaneously for a cluster of local loop markets.

After PTS has reached a decision on obligations pertaining to functional separation, the operator has the opportunity to appeal against this decision, which may entail a certain time delay. After the obligation decision has entered into force, implementation and compliance will be followed up within the framework of PTS's supervisory work and any remaining details for the functional separation can be determined.

If an obligation for access to such a network as referred to in Chapter 4, Section 9 is imposed on an operator who, in accordance with Chapter 4, Section 4 and Chapter 8, Section 6, voluntarily agrees to a functional separation which is acceptable to PTS, this means considerable time savings as compared with

imposing an obligation on the same. PTS certainly must make a decision on an obligation in the market in question before the authority can accept a commitment. This does not mean that a voluntary solution cannot be discussed and proposed at an earlier phase. A decision on accepting a commitment could be taken in connection with other obligations being imposed on the market. A commitment may need to be subject to joint consultation and notification to the Commission.

As the commitment is voluntary, this avoids a likely time delay in court. Furthermore, it is possible to make a detailed commitment at an early stage. As the sanction of a fine can attach to the commitment, this means that supervision in the form of notifications concerning suspected infringements and orders, which may be combined with a fine under Chapter 7, becomes unnecessary. However, supervision is needed to ensure that the commitments are being complied with.

Opportunities for sanctions

When it comes to functional separation as an obligation, possible sanctions mainly include those that can be imposed on an operator within the framework of PTS's supervision, where an order that may imposed under penalty of a fine can be directed at the operator. Another possible sanction is the obligation to pay damages in respect of those operators with significant power in a market that do not comply with the obligation decisions proposed by the Government Bill 2006/07:119 *En effektivare lag om elektronisk kommunikation* [A more effective Electronic Communications Act].

Voluntary commitments concerning functional separation can carry the sanction of a fine determined in the decision to accept the commitment. PTS requests that a court imposes the fine if the operator breaches the commitments.

In addition to the sanctions ensuing from legislation, a functional separation, whether imposed through an obligation or in the form of a voluntary commitment, should encompass other requirements within the framework of the obligation/commitment.

Legal issues pertaining to the Companies Act

Functional separation of an operator will entail significant requirements in terms of changes to the way it organises and operates its business. Requirements on the company's organisation are normally driven by commercial considerations and based on the provisions contained in ABL.

However, there are examples of when public authorities view it as necessary to limit the rules governing how limited companies are managed. Such an example is the electricity market where there are requirements stating that network operations and the generation of or trade in electricity may not be carried on by the same legal entity. Furthermore, it is stated that the majority of the board members in a network undertaking may not simultaneously be board members of another undertaking generating or trading in electricity and that the managing

director of a network undertaking may not simultaneously be the managing director of an undertaking generating or trading in electricity. [82]

Similar requirements to those in the electricity market could also be introduced into LEK in order to enable functional separation without having to contravene the provisions of ABL. Such legal requirements should be complied with appropriately by amending the articles of association to take account of the requirements stated in an obligation decision. As regards the design and scope of an obligation decision on functional separation, requirements should be stipulated to amend the articles of association so that they reflect the requirements stipulated by the obligation decision.

The fundamental principle of ABL is that the articles of association should be determined by the shareholders. However, ABL provides some opportunities to prevent changes to provisions in articles of association if these provisions have been imposed as a result of legislation or other statute, or following the consent of the Swedish Government.[83] Amending or removing the provisions adopted under such legislation or statute or following Government consent can only take place through corresponding legislation or statute or, alternatively, with new consent from the Government. An AGM decision to change such provision in the articles of association without the prescribed support or consent is invalid and cannot be registered with the Swedish Companies Registration Office and, in that case, the change will never enter into force. In order to prescribe that particular provisions should be included in articles of association, outright statutory support should be required.

7.2.4 Functional separation and the transition from sector specific regulation to general competition law

Competition legislation and the regulatory framework for electronic communication both aim to promote sound competition, but their design is different. Competition legislation stipulates general restrictions to protect competition that undertakings must comply with. Sanctions are imposed when an infringement of this competition legislation has been observed. The regulatory framework shall promote competition through the opportunity to impose obligations in advance that are directly adapted to the situation in a determined market.

The regulatory framework and hence LEK are a co-existing complement to competition legislation. Intervention under LEK does not exclude intervention under general competition law. Nor does abuse of a dominant position constitute a precondition for imposing an obligation promoting competition under the regulatory framework. Therefore, the dual regulation does not constitute a problem in cases where no such abuse exists. However, in cases where regulatory frameworks collide, the relevant authorities should conduct a dialogue to ensure that the overall reaction is proportionate to the purpose and aim of the measures

[82] Government Bill 2001/02:56, p.29 ff.
[83] Chapter 3, Section 6 of ABL

taken. General competition law should be the primary means of resolving competition problems. At the same time, however, it is unreasonable for measures under competition legislation to be exhausted first before measures to promote competition under regulations can be taken. Forecasts that the regulatory authority makes during its market analysis should also consider the potential of competition legislation to resolve an existing competition problem.

Sector-specific *ex ante* regulation facilitates detailed and specifically adapted intervention to resolve typical and potential problems in a way that establishes predictable rules of the game for the entire market. However, an ambition at both a European and national level is for a transition in the long run to move from sector regulation in the regulatory framework to general competition law.[84] For this reason, the regulatory framework must contain effective tools and mechanisms in order to achieve this.

In the regulatory framework, sector-specific regulation is orientated towards general competition law and is to be replaced by this over time. Market analyses shall be conducted on a regular basis and these analyses shall identify SMP operators; obligations can only be imposed on these operators and only as long as an operator has SMP status. The measures applied should be proportionate; that is, they constitute the slightest intervention necessary in order to realise the stated objective. Altogether, this indicates that special regulation may only be applied as long as it can be justified by the presence of at least one SMP stakeholder. Instead of laying down the obligations in legislation, the national regulatory authorities are given a mandate to decide on and examine the need for obligations on the basis of regular market analyses. This also means that considerable responsibility is placed on the regulatory authorities to find the right balance between under- and over-regulation. A discussion of effective regulation must make a distinction between that which requires changes to European legislation and that which the Member States are able to change at a national level themselves.

One of the questions raised during the ongoing review of the directives is the pace at which sector-specific regulation can be phased out. In this context, it is important to point out that regulatory systems must also contain the impetus to phase out special regulation. It is crucial to retain the flexibility that the European legislators wished to achieve, which means that the regulatory authority must constantly pay particular attention to new fields where monopoly power is developing, but also rapidly phase out regulation where this is superfluous.

Products and markets are developing rapidly which is why, despite this rapid development, regulation needs to be flexible at the same time as infrastructure in several sub-markets is giving rise to non-transitory barriers to competition. General competition law is not sufficient to resolve the competition problems, often related to the access to infrastructure, that still exist in the market. This

[84] Cf. Government Bill 2002/03:110, p.108

shows that it is not yet the right time to depend exclusively on general competition law.[85]

PTS has established that the regulatory tools in current legislation are not sufficient to bring about the competitive situation intended by the regulatory framework. A regulatory tool is required to improve the conditions for effective competition and reduce the risk of competition being distorted. The aim of this tool should be to eliminate the problems that existing regulatory tools have not succeeded in resolving, in terms of information advantage and discriminatory behaviour, and to create incentives for compliance with the regulatory framework so that the objectives for the electronic communications sector can be satisfied. On the basis of the competition problems that currently exist in the market, functional separation, together with the current ability to impose obligations on operators with significant power, would permanently reduce competition problems in the electronic communications market.

In its true meaning, functional separation does not involve any additional regulations for an SMP operator. Firstly, functional separation, like other obligations, will only be imposed following a market analysis and will be continually reviewed; secondly, an obligation for functional separation does not entail a material expansion of the regulation. Instead, functional separation aims to create such openness for PTS and other operators that the requirements on non-discrimination ensuing from existing obligations can be realised. Functional separation may create incentives for the market to establish a functioning buy-sell relationship, which is lacking at the present time. A functioning buy-sell relationship eliminates the incentive to discriminate and thereby promotes competition.

A functional separation of an SMP operator will be imposed when the opportunities to resolve competition problems using existing obligations have been exhausted. Consequently, the assessment corresponds with the assessment made by competition authorities when considering the issue of structural measures in general competition law.[86] Furthermore, functional separation should in certain respects be comparable to structural measures in competition law; at the same time, it is, however, important to point out that structural adaptations made through separation only aim to underpin the existing behavioural obligations.

Ofcom considers that functional separation and enhanced equal treatment will eventually reduce the need for regulation.[87] Experience from the United Kingdom also indicates that functional separation reduces the incentive to discriminate and that there is a reduced need for regulatory intervention in the form of individual supervisory and dispute-resolving matters pertaining to detailed issues. Experience also shows that competition increases as a functioning wholesale operation is established for basic input goods in the local loop (such as LLU). Growth of LLU

[85] Sweden's standpoint in the future review of the EC regulatory framework for electronic communications of 8 February 2006, p.6
[86] See Regulation 1/2003 EC, Article 7
[87] Final statements on the Strategic Review of Telecommunications, and undertakings in lieu of a reference under the Enterprise Act 2002, 22 September 2005

in the United Kingdom has increased dramatically since the introduction of functional separation. Ofcom considers that the currently efficient use of LLU may gradually reduce the need for other, more refined products, such as bitstream access. Ofcom is currently considering whether to restrict BT's delivery obligation geographically by stipulating bitstream access to areas where there is no functioning access to LLU. Ofcom considers that end-user regulation is unnecessary because of the functional separation (this is consequently only dealt with through general competition law), whereas wholesale regulation is necessary to ensure access to bottleneck resources. For this reason, price regulation and all other regulation at the retail level have been abolished.

PTS believes that functional separation does not entail increased regulation, even if it does entail additional obligations. Firstly, functional separation, like other obligations, will only be imposed following a market analysis and will be reviewed continually; secondly, an obligation on functional separation does not entail a material expansion of the regulation. On the contrary, a separation that is implemented effectively may serve as a step on the way towards a gradual transition from sector-specific regulation to general competition law.

7.3 Material delimitations

PTS's proposal: The material extent of a functionally separate unit shall be based on an analysis of the current market. The markets, and thus also the assets, that are to be encompassed by the separate unit are determined on this basis.

In the light of the long-term bottleneck problems characterising the market, a separate unit should at least encompass the assets and operations for LLU. The assets and operations required for bitstream should also be included in a separate unit, as this market is also characterised by extensive difficulties for operators in obtaining access on terms equivalent to those that TeliaSonera provides to its own retail organisation.

Although it is impossible to decide whether a functionally separate unit should include unregulated assets outside the framework of LLU and bitstream, this type of solution would be advantageous both for the dominant operator and other operators. For this reason, the operator should have the opportunity to voluntarily form its organisation so that the physical layer of the local loop is encompassed by the separate unit.

7.3.1 The material scope

In order to rectify competition problems in the market in the long term, a model is needed to encompass those assets that can be identified as bottleneck resources. One relevant aspect of competition in the electronic communications market is that different parts of the value chain have different levels of economies of scale. The national metallic loop is, for example, characterised by a very high level of economies of scale. A bottleneck problem arises when a lack of competition in the local loop spreads to other stages of the value chain. An undertaking with

significant power in one link in the value chain will be able to enjoy the same profits as if the undertaking had such power throughout the entire value chain.

There is a correlation between the extent to which different components[88] of the local loop are bottleneck resources and their level of refinement. The less refined a component is, the greater potential a dominant stakeholder has to utilise economies of scale and restrict competition. Therefore, it is important that a model for functional separation focuses on the unrefined components of the local loop.[89] This intention also permeates the existing regulatory framework for electronic communications and strives for the highest possible degree of infrastructure-based competition as well. The market analyses that PTS will carry out will serve as a basis for the final definition of a functionally separate unit. Through these, PTS will ensure that the *ex ante* regulation that is introduced is proportionate and reasonable when weighed against the background of the long-term objective of sustainable competition (which is infrastructure-based as far as possible) that the public authority is working towards.

The imposition of functional separation as an obligation requires a market analysis of one or more relevant markets connected to the local loop. Such an imposition is only feasible where permanent competition problems have been observed (effective non-discrimination cannot be achieved) and where it is proportionate to impose such an obligation. The analysis must then state that existing obligations are insufficient.

Even if the market analysis is ultimately decisive as regards the assets and products that should be placed in the functionally separate unit, it has already been indicated that at least those assets and products encompassed by the LLU obligation should be included. The assets, products and services encompassed by the LLU obligation usually function as necessary input goods for other regulated wholesale products in the local loop.[90] It is unreasonable to envisage a separate unit that, for example, provides the enhanced wholesale product, WLR, but not the input good forming the basis of WLR.

With the current remedy of LLU, TeliaSonera is obliged to provide unbundled access to metallic loops. This obligation also means that TeliaSonera shall provide access to the line (backhaul), which means that another operator's network is connected to TeliaSonera's telecommunications exchange as well as to the connection cabinet (FTTC, see Section 3.5.3) during the transition to NGA, as well as to associated facilities, i.e. collocation in TeliaSonera's telecommunications

[88] A 'component' may be used as an input good to provide own products in the retail market, but may also be provided as a product at the wholesale level.
[89] 'Replicability' is a concept that can explain the meaning of the level of refinement. Components at less refined levels are often more difficult to replicate for technical, financial or legal reasons. In its Policy for Access Regulation (PTS-ER-2006:26), PTS defines 'replicability' as "the term generally used within regulatory theory to describe network elements that are possible and desirable to replicate, i.e. to establish in parallel. All networks and network elements are able to be replicated from a purely technical perspective, but it may be more or less desirable to replicate infrastructure from a business or socio-economic perspective".
[90] And which thus theoretically may be encompassed by the functionally separat unit if the market analysis shows that this is needed to resolve the competition problems.

exchange, etc., or a connection cabinet for NGA. This means that a functionally separate unit encompassing LLU shall control and manage the assets that are necessary for TeliaSonera to satisfy its obligations in terms of LLU.

In several geographical areas, conditions for the replication of infrastructure based on LLU are lacking, as the number of subscribers is too small to be profitable. Only a single operator can achieve the economies of scale necessary to implement investments in large parts of these areas. TeliaSonera is the operator that, besides access to infrastructure, can also achieve economies of scope with other services; for example, telephone subscriptions. In these situations, bitstream is a prerequisite if competition is to become established. It is worth mentioning as well that there are also areas where TeliaSonera lacks the prerequisites to invest so as to be able to offer broadband access lines. This has previously been described by PTS.[91]

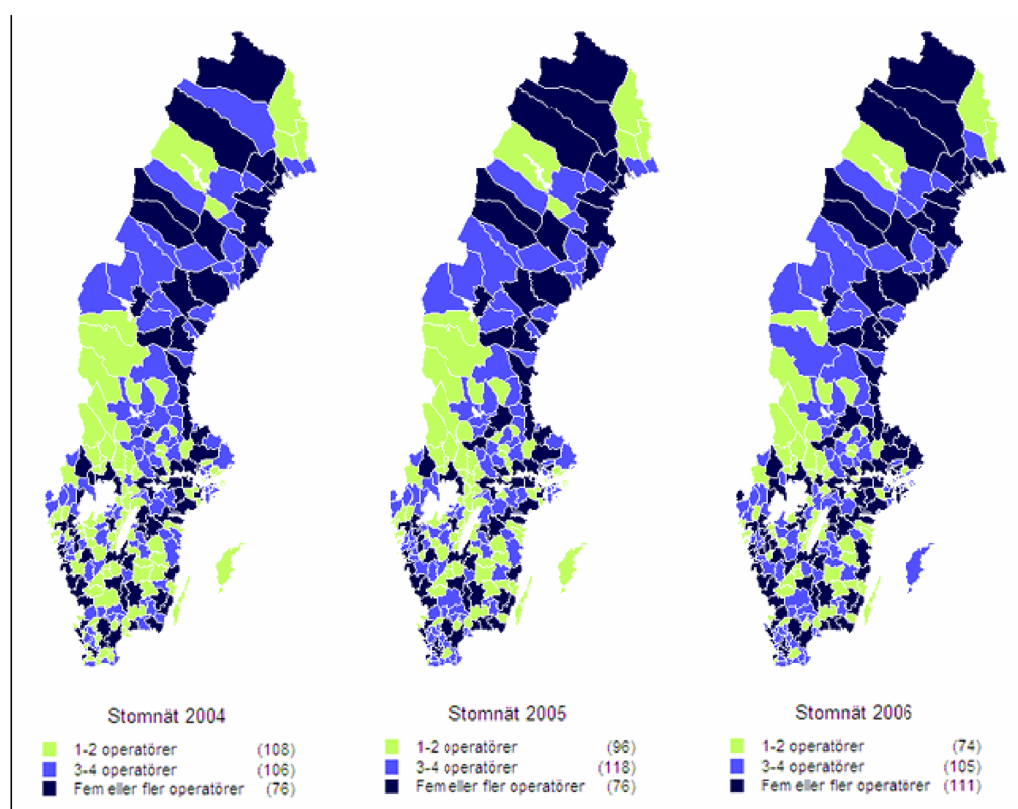
The assets related to the bitstream market can also be deemed to constitute one such bottleneck resource, where there is reason to allow these to be included in a functionally separate unit. As regards bitstream, a key asset related to this market is the points of interconnection, which mean that operators' own networks are connected to TeliaSonera's network; see the diagram regarding bitstream access in Section 3.4.1. The bitstream product presupposes that the operator, as with LLU, has its own network infrastructure where bitstream access lines can be handed over. With the current bitstream obligation, TeliaSonera is obliged to provide access to a point of interconnection when connecting to the local loop, allowing another operator to connect its backbone network to TeliaSonera's local loop. In this case, such handing over takes place in conjunction with TeliaSonera's DSLAM equipment. For operators with more limited network resources, this procedure takes place when connecting to TeliaSonera's transmission network, where the operator's backbone network takes over.[92] The points of interconnection are then the main distribution frames for optical fibre lines (ODF) or the equivalent for other types of line. Among the assets that may need to be separated, fibre, etc. is consequently included between the point of interconnection and TeliaSonera's DSLAM equipment, the DSLAM equipment and the points of interconnection where access to bitstream takes place.

As regards the backbone networks[93] in Sweden, there are several stakeholders that have set up their own networks; see the figure below.[94] Consequently, a backbone network cannot be perceived as constituting a bottleneck resource. Replication of backbone networks is gradually increasing, which is shown in the figure below. The expansion of parallel backbone networks encompasses most municipalities, although there are a significant number of municipalities where only one or two

[91] Proposed broadband strategy for Sweden, PTS-ER-2007:7
[92] For example, in its reference offer for bitstream, TeliaSonera offers 200 interconnection points for the handover of bitstream access lines.
[93] National backbone networks: national, public networks covering much of the country with connections to some of the main nodes available in Stockholm, Gothenburg, Malmö, Sundsvall and Luleå. National backbone networks are mainly based on fibre optic cables.
[94] http://www.pts.se/Archive/Documents/SE/Bredband_i_Sverige_2006_22.pdf

networks are established.[95] However, it is unreasonable to assume that parallel backbone networks will become established to provide an alternative to TeliaSonera's infrastructure for connecting a large number of the approximately 7 000 telecommunications exchanges in Sweden. As described previously, the development of NGA will also boost the number of interconnection points. Access to lines for connecting collocated equipment and handing over bitstream access lines are a persistent bottleneck problem.

Figure 7.1. The expansion of backbone networks in Sweden



[Text for figure:

Backbone networks 2004	Backbone networks 2005	Backbone networks 2006
1-2 operators	1-2 operators	1-2 operators
3-4 operators	3-4 operators	3-4 operators
Five or more operators	Five or more operators	Five or more operators]

95 Broadband in Sweden 2006, PTS-ER-2006:22

An organisationally effective separate unit

It is important for a functionally separate unit to be effective and to function well in practice. Although a separate unit should mainly contain assets referable to the markets described above, it may consequently be disproportionate to impose requirements that mean that the separate unit may not also encompass those parts of the dominant operator's fibre network required for FTTH/FTTB, while fibre for FTTC is encompassed by a separate unit (see Section 3 for an explanation of these concepts).

By considering the practical aspects in connection with the implementation of a functionally separate unit, certain internal transactions in the form of internal debiting between the separate unit and the wholesale organisation could be eliminated. Such internal transactions may otherwise become too large if the provision of a certain asset (e.g. optical fibre) to different parts of the network is to be divided into different organisational units. Furthermore, the Chinese walls, which are a key principle of a functionally separate unit, can be maintained more easily if it is possible to structure the organisation in a way that reduces unnecessary points of contact between the separate unit and other parts of the group.

Consequently, the dominant operator should be given the opportunity to voluntarily form its organisation so that significant parts of the physical layer of the local loop are encompassed by the separate unit. This should be a more effective and practical model for a vertically integrated operator than a separate unit that excludes certain unregulated assets from the whole comprised by the local loop. This type of organisation could include the infrastructure assets referable to the group's access network consisting of, for example, copper, fibre and ducting. This type of technology-neutral model can then in practice be comparable to the British model, according to which the separate unit is to control and manage assets within the physical layer of the national local loop and those elements that are necessary to support these assets.

A profit-maximising separate unit may be expected to be interested in utilising all of its assets and selling refined wholesale products rather than the unrefined and regulated wholesale products that it is ordered to provide under the obligation decision. For this reason, it is important to ensure that assets are not transferred to the extent that it jeopardises the aim of the establishment of a functionally separate unit. Consequently, the authority must be able to impose requirements on which assets the unit may not include.

7.3.2 The New Generation Access network (NGA)

The New Generation Access network (NGA) is likely to consist of several networks, such as copper, fibre and wireless alternatives. Based on case studies regarding the development of NGA by individual countries, it has been observed

that network owners in several countries have started to invest in the fibre local loop in order to meet future demand and to reduce operating costs.[96] Rolling out fibre in the local loop has also started in Sweden in respect of FTTB and FTTH, with an emphasis on FTTB, i.e. fibre that has recently been rolled out to apartment blocks. In January 2006, almost one million dwellings were connected to Fibre LAN. These connections were made by several different network suppliers in the Swedish market; see also Section 3.2.2 ('Fibre LAN') and Section 3.5, 'Future development of the metallic loop'.

There are many owners of local fibre infrastructure as opposed to the situation in respect of the metallic loop. For example, there are over 150 urban networks. PTS has observed that there is a clear trend indicating that fibre in local loops is increasing in Sweden, which is in line with the development towards NGA also taking place in several other countries. However, a limiting factor as regards the rollout of several parallel infrastructures in a local loop based on fibre is that the installation of fibre presupposes economies of scale in order to ensure the profitability of the investment.

The principle of promoting competition at the most unrefined level of the network, where it is probable that competition may be most effective and lasting, will continue to be a reasonable point of departure, primarily in respect of obligations on LLU and its adaptation to NGA. Furthermore, regulation should be formulated so that it does not prevent market investment by local loop operators. In situations where operators do not find it profitable to establish their own local loops, service competition in the form of bitstream should be a functioning and competitive alternative. It is also essential for regulation to deal with the hybrid of access network technologies (copper and fibre), which will become increasingly available in the future during the transition to NGA. The relatively multifaceted situation with reference to FTTB and FTTH means that it is inappropriate to impose regulation on these parts of the local loop at the current time. This corresponds to the Commission's assessment of relevant markets for *ex ante* regulation.

7.3.3 Conclusions on material delimitations

Assets that should be included in a separate unit are all (existing and newly established) assets relating to the local loop and associated facilities that are used to provide the products and services encompassed by relevant access regulation. Consequently, it is apparent that under the remedy decision there should be an opportunity to establish a functionally separate unit that at least includes the LLU market and associated assets. These assets include the rollout of Fibre To The Cabinet (FTTC). Bitstream and associated assets should also be encompassed by a separate unit in light of the considerable competition problems present in the market. The obligation on functional separation will state the minimum and maximum levels in respect of the assets that may and shall be controlled and provided by the separate unit.

[96] ERG Consultation Document on Regulatory Principles of NGA , ERG (07) 16

The dominant operator should be given the opportunity to voluntarily organise itself so that other parts of the local loop's physical layer are also encompassed by the separate unit, as such a model is probably more effective and practical for a vertically integrated operator than a model that excludes certain unregulated assets from the whole represented by the local loop. There may also be reason to provide unregulated products (e.g. a wholesale product for fibre access lines) in the separate unit, but these will not then be encompassed by the regulation.

7.4 Organisational delimitations

PTS's proposal: PTS should be given an opportunity to impose requirements on openness, management, accounting, control and independence in relation to other parts of the operator's organisation in the obligation decision on functional separation with the aim of achieving non-discrimination and openness in the separate section.

Requirements may be imposed on the legal status, the composition of the board and its powers, the equity, solvency and liquidity of the separate unit, reporting in respect of how the obligation is being complied with, and auditing by an external auditor, in addition to the establishment of an audit committee which, through contacts with the company's auditors, exercises supervision of procedures and processes for accounting, and internal control regarding compliance with the obligation.

Furthermore, behavioural requirements could be imposed concerning the design of incentive structures and other rules for the conduct of personnel, in addition to requirements on administrative measures, such as the separation of IT systems.

7.4.1 Scope of organisational delimitations

The order concerning the obligation to be imposed should take several organisational issues into consideration to achieve the intended effects of a functional separation. These should mainly ensure that the functionally separate unit becomes an independent and autonomous unit with clear delimitations from other parts of the dominant operator's organisation. It is also important to achieve openness as regards financial accounting and reporting. The organisational delimitations should, together with the material delimitation, ensure that the risk of cross subsidy between the different operations is eliminated and that equal treatment is applied in respect of all customers within and outside the operator's organisation.

The organisational delimitations discussed in this section include: legal status, board and management, rules of conduct, financial resources and value transfers, openness and control, as well as administrative measures. It cannot be ruled out that other areas may also be included in a future order on obligations if PTS finds this appropriate following a market analysis.

7.4.2 Legal status

The Inquiry's statutory proposal states that the legal status of the separate unit must be stated in the obligation decision on functional separation. The possible alternatives in the event of functional separation, as previously discussed, are that the functions and operations to be included in the functionally separate unit shall be separated organisationally by establishing a new business category or the equivalent within the existing organisation, or by the operation of the separate unit being placed in its own limited company.

In terms of the requirements on independence and autonomy as required by a functional separation, the main rule should be that this operation is to be run as a limited company. The regulations governing limited companies stipulate a number of formal requirements, which, for example, cover requirements on equity, accounting, auditing and independence, which are important for establishing an independent and healthy wholesale operation for local loop services in the market. The rules of the Swedish Companies Act should also be able to supplement and enhance the requirements ensuing from an obligation decision on functional separation. The establishment of a limited company for the local loop will in itself entail in-depth and extensive changes to the existing structure of the operation. However, the specific changes that will be required must be determined when the obligation decision is being implemented and on the basis of the competition problems to be rectified. An obligation regarding functional separation will nevertheless require access to expert knowledge for the specific legal issues that may arise; for example, when setting up a new company as well as transferring assets and personnel.

Within the energy sector, the legislator has chosen to separate the units through legal separation, as undertakings running network operations are to place this part of the operation into its own legal entity which is separate from the generation of or trade in electricity. The energy sector is not entirely comparable with the telecommunications sector as the prerequisites for the network infrastructure, production and trade differ. However, the justification stated in the Government Bill leading to the Electricity Act is nevertheless applicable as the aim of separation into different legal entities is to avoid mixing operations and eliminates the risk of an incorrect distribution of costs between the operations.[97]

In the United Kingdom, functional separation was based on a voluntary agreement between BT and Ofcom. This resulted in parts of BT's physical infrastructure, certain wholesale products and personnel being separated by function into a separate division, Openreach, within BT. This division is clearly delimited from other parts of BT, but does not represent a separate legal entity.

The Inquiry considers that the main rule should be that the separated part in a functional separation should be its own legal entity in the form of a limited company. However, PTS should be given the opportunity to depart from this main rule and instead state that it may be sufficient for the operator to separate its

[97] Government Bill 2001/02:56

operation within its existing organisation. However, this type of exception should only be permissible if PTS considers it to be practical and feasible for achieving an intended separation within the framework of the operator's existing operation. PTS should therefore be restrictive in its assessment.

7.4.3 Board and management

In the event of functional separation, the management of the functionally separate unit becomes significant as it has to ensure that the unit is independent and autonomous in relation to other parts of the dominant operator's organisation. The aim is to be able to eliminate the risk of discrimination between customers within the organisation and alternative operators. It is crucial that the separate unit is neutral in relation to all market stakeholders.

PTS should impose requirements on the composition of the board of a separate unit in terms of the number of board members, the appointment of board members and the powers of the board. In order to achieve an independent board, which mainly is concerned with the best interests of the separate unit, a board member may not simultaneously be a board member, managing director or authorised signatory in another company or other legal entity in the same group. The management of the separate unit should also be subjected to rules to secure such independence. For example, there should be restrictions on the managing director, who may not simultaneously be a board member, managing director or authorised signatory in the group of the dominant operator. There may also be reason to impose a requirement that the managing director is to be recruited from outside the operator's group of companies.

The above proposals are based on the Electricity Act[98] and its provisions concerning the management of a network operation. This states that a company conducting network operations may not have a board member, managing director or authorised signatory who holds corresponding positions in an undertaking conducting generation of or trade in electricity. The justification for this wording was that a person who has dual roles might have conflicting interests in both roles. Thus, it cannot be ruled out that this person intentionally or unintentionally takes into consideration interests other than those that should be achieved by separation. Similar justifications were reported in the inquiry (SOU 2000:90) preceding the legislative proposal. The inquiry's opinion was that the board of an undertaking that conducts operations under monopolistic conditions cannot also manage an undertaking operating in a competitive market.

In the United Kingdom, BT chose not to take on any commitments for Openreach in terms of the structure and composition of the board or the like, due to the fact that Openreach is run as an operational area within BT. However, the commitments state that the managing director (CEO) of Openreach shall report directly to the CEO of BT and that this person may not be a part of the management group of the BT Group.

[98] Chapter 3 of the Electricity Act

The Swedish Code of Corporate Governance[99] also discusses issues pertaining to the function of the board in limited companies. This Code focuses on stock market companies, i.e. companies listed on a stock exchange or in an authorised marketplace. However, it is stated that the Code should also apply to other categories of companies with spread ownership or public interests. This Code imposes several requirements on how the board function of a company should be set up. The rules concerning the independence of board members in Sections 3.2.4 and 3.2.5 of the Swedish Code of Corporate Governance are of particular interest to this assignment. Here, 'independence' means independence in relation to the company and corporate management; for instance, a board member may not be the managing director of the company or an associated company, be employed by the company or by an associated company, or have extensive business connections or financial dealings with this company or an associated undertaking. This rule should apply to the majority of board members. Furthermore, at least two members of the board, who are independent in relation to the company and corporate management, should also be independent in relation to the major shareholders of the company.[100]

The board members of a limited company are normally appointed by the company's shareholders at the annual general meeting. ABL nevertheless offers opportunities for stipulating that one or more of the company's board members should be appointed in some other way through special provisions in the company's articles of association; for example, by an authority or other third party.[101] As regards a private limited company, ABL contains no limitations as to the number of board members who can be appointed by a third party, as opposed to a public limited company, where at least half of the board members must be appointed by the shareholders at an annual general meeting of the company.[102] This means that consideration should be given to whether any of the board members should be appointed by another party, e.g. PTS, so as to enhance the independence of the separate unit.

It can consequently be established that different contexts presuppose requirements and guidelines for how board members should be appointed and corporate management should take place. In all cases, the intention of this is to achieve a board that acts in the best interests of the company and is independent in relation to other parts of the organisation. It is therefore justifiable in connection with functional separation to also impose particular obligations in terms of the composition and powers of the board, as well as requirements

[99] The Swedish Code of Corporate Governance is the result of collaboration between the private sector and the Government Commission on Business Confidence in the 'Code group'. This group was appointed in the autumn of 2003 and presented its proposal in April 2004. After being circulated for comment, the final Code was presented on 16 December 2004. This Code is a part of the business sector's self-regulation and aims to improve corporate governance in Swedish companies listed on a stock exchange. It supplements ABL and other obligatory regulations by, beyond minimum statutory requirements, indicating a norm for what can generally be perceived as satisfactory – not just acceptable – corporate governance. (www.bolagsstyrning.se)
[100] See Appendix 2; extract from the Swedish Code of Corporate Governance
[101] Chapter 8, Section 8, first paragraph of ABL
[102] Chapter 8, Section 8, second paragraph, of ABL in comparison with Chapter 8, Section 47 of ABL

stipulating that the board members and managing director are to be independent in relation to the dominant operator's group. There may also be reason to consider whether any of the board members should be appointed by a party other than shareholders at the annual general meeting. In the event that the main rule concerning the formation of a limited company for the functionally separate unit is not considered to be applicable, requirements should nevertheless be imposed to establish a function that is similar to a board. This should generally correspond with the above proposals.

7.4.4 Rules of conduct

Functional separation imposes high demands on the implementation of rules of conduct within the functionally separate unit, as well as for other units within the same group, in order to achieve the intended effects of the separation. It is often stated that 'Chinese walls', clear delimitations, need to be established between the separate unit and other parts of the group. The areas normally encompassed by this type of discussion on rules of conduct are the exchange of information, employment conditions and incentive schemes.

The rules of conduct should ensure the independence of the unit and that all customers are treated equally regardless of whether they are internal or external customers. There should be no asymmetry between these different categories of customers in access to information; rather, they should be given the same information on the same terms. If employees are to comply with these requirements, it is necessary to increase the incentives for them to remain loyal to the functionally separate unit. A relatively simple measure would be to ensure that employees are not employed at the same time in another part of the group, but are dedicated to the separate operation. Another measure would be to ensure that employees are not included in incentive schemes, e.g. bonus, share or option schemes, that are generally found within the operator's organisation. Instead, remuneration, bonus schemes and the like should be entirely based on the operational terms of and results achieved by the separate unit. These measures aim to minimise the risk of employees having a conflict of interest between the interests of the group and the interests of the separate unit.

There are no barriers under ABL on the imposition of requirements stipulating that an incentive scheme may only be based on the performance of the functionally separate unit. The company's board is the body that decides on matters concerning incentive schemes. It is certainly possible to state in the articles of association that a certain legal act of the board requires the approval of shareholders, etc.; however, it must be ensured that the board is not deprived of its position as a competent and responsible body working for the operation.

A somewhat more complex area to consider is how the exchange of information should take place between the separate unit and other units within the group. Here, there should be very clear rules stipulating what may be passed on and to whom. A general rule may be that no information concerning the operation or a customer may be passed on without checking with the relevant customer or unless this information can be communicated to all customers of the company (both internal and external). It is also important to draw up guidelines on what

other parts of the group can pass on to employees within the separate unit. The general rule can also be applied to this type of interaction.

In the United Kingdom, BT has undertaken considerable behavioural commitments. The voluntary commitments clearly state how the exchange of information may take place between Openreach, BT Wholesale and other parts of BT. The main rule is that information may be exchanged between the different operations within BT unless such information is prohibited or restricted by the commitments or other legislation. The existing restrictions on the exchange of information apply to commercial information, such as that pertaining to products, pricing, costs, volumes, etc., and customer confidential information that Openreach or other parts of BT have received from an operator in the market. These two categories of information may not be passed on without the customer's consent or unless it is necessary for delivery of the product. There are also restrictions on the extent to which BT employees (excluding Openreach) may directly or indirectly influence business decisions at Openreach through informal channels. There are also commitments referring to the employment conditions of personnel, and remuneration and bonus schemes shall be based on the performance and target fulfilment of the unit. BT has also agreed to draw up a set of ethical rules to be released to the public and submitted to all BT employees. The ethical rules are to encompass not only Openreach but also other wholesale operations within BT.

It is important to point out that the behavioural measures should encompass both the functionally separate unit as well as other parts of the operator's organisation. The 'Chinese walls' should be so sound that all employees within the group are informed about and are aware of the rules that apply. This is to ensure the equal treatment of internal and external customers as well as to contribute towards boosting confidence in the separate unit in the market.

7.4.5 Financial resources and value transfers

In the event of functional separation, there may be reason to impose requirements on how the capital and profits that arise in the separate unit are to be dealt with. For example, issues regarding group contributions, dividends and other value transfers may need to be dealt with. This does not directly affect the performance of the separate unit, but abnormally large value transfers may undermine the liquidity and solvency of the operation. It may also be important to impose requirements on equity, solvency and liquidity so that the company has the financial resources necessary to run the operation.

In the energy sector, monitoring a subsidy that is undesirable through group contributions takes place within the framework of monitoring the tariff level. In order to make it easier to supervise the network authority, provisions can be introduced stipulating that the annual report must contain information about group contributions and dividends pertaining to the network operation.[103] The

[103] Government Bill 2001/02:56 and Swedish Government Official Report – SOU 2000:90

Annual Accounts Act also contains provisions stating that group contributions, dividends and other value transfers must be reported in the annual report.

The fundamental aim of a limited company is to serve its profit interests, i.e. a limited company should generate profits for its shareholders. An exception to this principle should always be stated in the company's articles of association in order to be valid. This means that it is the shareholders who, with certain restrictions, are entitled to utilise the company's profits, usually through dividends, or alternatively through other value transfer. ABL states the limits for the value transfers that may take place from a limited company; these limits may not be exceeded either by the board or as a result of a decision taken at the annual general meeting.

It is possible to deviate from the fundamental principle that a company's profits must always belong to company shareholders. If this is the case, it must be stated in the company's articles of association. In a corresponding way, it is possible to deviate from the main rule stating that the amount available for dividends or other value transfers must be at the disposal of the shareholders following a decision at the annual general meeting. Consequently, it is possible to limit the opportunities for withdrawal of profits by prescribing that the amount available, or part of it, should, for example, remain in the company until a certain equity/assets ratio has been achieved. This may be of interest in connection with functional separation in order to ensure, for example, that any necessary maintenance of the separate network is carried out.

7.4.6 Openness and control

In order to increase transparency and openness in the functionally separate unit, requirements should be imposed on financial and regulatory reporting in addition to auditing these reports. As the main rule of PTS's proposal is for the separate unit to be placed in a limited company, rules regarding the accounting, taxation and auditing of limited companies will be applicable. This makes it possible to avoid some of the problems of internal accounting and also minimises the risk of cross subsidy between operations within the dominant operator's organisation.

In order to supplement the general provisions for limited companies in, for instance, ABL, the Annual Accounts Act (1995:1554) and the Bookkeeping Act (1999:1078), an audit committee should be established to exercise supervision over the routines for accounting, internal control and compliance with imposed obligations, and also to be responsible for contacts with the company's auditors. Members of the audit committee should be appointed by the board in consultation with PTS. The audit committee should consist of at least three members, and the majority of these members should be independent in relation to the operator and companies within the operator's group. Members may be representatives of the board of the separate unit, but may also be externally recruited because they possess required specialist knowledge within the field.

The proposed establishment of an audit committee is based on the rules drawn up in the Swedish Code of Corporate Governance. Section 3.8 of the Swedish Code of Corporate Governance stipulates how the board should work in respect of

accounting and auditing issues and how an audit committee should be set up. The Code states that the majority of committee members should be independent in relation to the company and company management and that at least one member must be independent in relation to major shareholders. Furthermore, it is stated that the area of responsibility for the audit committee should, for example, include the quality assurance of the financial reporting and contacts with company auditors. There is a corresponding body in the United Kingdom, the Equality of Access Board (EAB), in BT's voluntary commitments.

The EAB has the task of examining and auditing BT's compliance with the terms of the commitments. This includes, for example, following up results in relation to defined key figures and the evaluation of SLAs (service level agreements, i.e. target service levels) in relation to agreed targets. They are also responsible for the supervision and auditing of product roadmaps, volume forecasts and investments. They shall issue a report annually concerning the results of the examination of BT's compliance with the terms of the commitments. This report shall be read by the regulatory authority and a summary of it shall be released to the public. The report is to be examined by external auditors. The EAB must comprise five persons, three of whom are to hold independent posts. Here, 'independence' means that they may not be current or former employees of BT, Ofcom, of a consultancy firm engaged by BT or have been an executive at an alternative operator. The other two members may be BT representatives, but not employed by Openreach or in operations in the wholesale or retail market.

The annual report issued by the EAB concerning the evaluation of BT's compliance with the voluntary commitments plays an important role in increasing confidence in the functionally separate unit in the market. This type of report makes it possible to follow up the commitments undertaken as regards non-discrimination and equal treatment. The Electricity Act also contains specific provisions on how companies running network operations should be examined and reported on. These provisions state that an auditor shall carry out a special audit of the accounts of the operation of the company running network operations. After this work has been carried out, the auditor shall draw up a special certificate with a statement as to whether the accounts of the network operations comply with current regulations. This certificate should subsequently be submitted to the network authority.

It the event of functional separation, requirements should also be imposed in respect of financial and regulatory accounting, reporting and auditing, and that the accounting principles applied correspond as far as possible to those applied by a company listed on a stock exchange. The separate unit should draw up a special report on a regular basis, at least annually, with the aim of following up obligations imposed in relation to the actual outcome and key figures set. This report should be submitted to PTS. The company's auditor should also carry out a special annual audit of the accounts of the operation in the functionally separate unit and in a special certificate comment as to whether the obligation has been complied with. This certificate should be submitted to the authority. The annual accounts and auditor's statement should be published wholly or in part.

It should also be possible to impose requirements on how transactions between the separate unit and the operator's organisation should be dealt with. The fundamental principle should be that these are to take place 'at arm's length' and on market terms.

If the functionally separate unit is also to encompass products and services that are unregulated (see discussion in Section 7.2), requirements should be imposed stipulating that these be accounted for separately from the rest of the operations.

In the event that PTS chooses to refrain from applying the main rule on limited companies in the event of functional separation, it should nevertheless be reasonable to impose corresponding requirements in terms of the audit committee, financial and regulatory reporting, and auditing.

7.4.7 Administrative measures

Another area that should be encompassed by the imposition of the obligation to separate functions and operations is the separation of all IT systems pertaining to the operation of the functionally separate unit. This may, for example, include information systems, customer support systems, ordering systems, accounting systems, operating systems and other types of support systems that are necessary for running the business. It is important to ensure that the access to information is the same for both internal and external customers in order to achieve equal treatment. Also, a separation of IT systems is important to be able to guarantee independence in relation to other parts of the operator's organisation. However, the extent of the requirements that may be imposed on the separation of IT systems needs to be analysed in more detail during such separation, as consideration must be taken of the practical implementation, the time aspect and the implementation costs.

Earlier in this report, it was explained that there is an asymmetry between the dominant operator's own operation and that of competing operators in access to information. This mainly involves the issue of access to information and ordering systems, where our experience from the supervisory work within this area indicates that it is a complex and very demanding area in terms of resources. The reason why this area is especially complicated and of particular interest in terms of ensuring equal treatment is that there is a multitude of support systems in connection with the provision of retail and corresponding wholesale products. These systems differ between the external and internal operation. It is difficult both for PTS and purchasing operators to assess these systems, and operators have pointed out that they feel that they do not have access to systems with the same information and performance as those used internally.

BT's voluntary commitments contain a section stating that BT should ensure that all IT systems developed for Openreach are separated from BT's other systems; the same applies to the accounting system, which is to be run independently from the BT Group. Furthermore, BT is obliged to ensure that the IT systems containing business information about wholesale operations should not be accessible to units within the retail operation.

There may also be reason to include obligations stating that the entire or parts of the operation in the separate unit shall be physically separated from the rest of the operator's organisation and that the separate unit is to operate in the market under its own trademark. Both of these areas are included in BT voluntary commitments.

7.5 Voluntary commitments

PTS's proposal: LEK should be supplemented with an ability for PTS to accept voluntary commitments from an operator.

The provisions for voluntary commitments should encompass commitments related to an obligation being imposed on an operator under Chapter 4, Section 9a.

The provisions for voluntary commitments in LEK should be based on the existing provisions for accepting voluntary commitments in general competition law, both within EC law as well as in competition law.

The intention behind voluntary commitments is to establish an effective and practical procedure by which damaging restrictions on competition can be quickly and easily eliminated through mutual understanding. One particular reason for undertakings is to reach a decision quickly without lengthy court proceedings, which demand a lot of resources. The uncertainty that this delay brings can have a negative impact on the undertaking's relationship with investors, competitors and consumers. For the authority, a commitment means that market changes deemed as beneficial to competition can be implemented quickly. A commitment also saves the authority resources.

A regulatory framework for accepting voluntary commitments is present in general competition law, both within EC law and competition law. The provisions for voluntary commitments in LEK should be based on the rules present in general competition law for the acceptance of voluntary commitments, both within EC law and competition law.

7.5.1 Voluntary commitments within general competition law

Voluntary commitments within general competition law are regulated by the Swedish Competition Act (KL), EC's Regulation 1/2003[104] and the EC Merger Regulation.[105] Within general competition law, there are two opportunities to utilise voluntary commitments: firstly, in connection with the infringement of competition rules, and secondly, in connection with investigations into concentrations between undertakings.

[104] Council Regulation (EC) No. 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty, OJ L 1, 4.1.2003, p.1

[105] Council Regulation (EC) No. 139/2004 of 20 January 2004 on the control of concentrations between undertakings, OJ L 24, 29.1.2004, p.1

Voluntary commitments within general competition law are fundamentally based on commitments being formulated on a case by case basis to resolve a specific competition problem, and it is the undertaking that voluntarily proposes the commitment and the competition authority that decides whether the commitment resolves the problem. In the main, behavioural commitments are applied to rectify ongoing infringements of the prohibition against anti-competitive collusion and abuse of a dominant position that have been called into question, whereas behavioural and structural commitments are applied to competition problems that may arise in connection with concentrations.

Regulation of voluntary commitments under Section 23 a of KL and Article 9 of Regulation 1/2003

The Swedish Competition Authority may take measures against anti-competitive collusion (Section 6 of KL/Article 81.1 EC) and abuse of a dominant position (Section 19 of KL/Article 82 EC). Under Section 23 of KL, ongoing infringements can be stopped by the Swedish Competition Authority requiring an undertaking to terminate the infringement. Section 25 of KL also stipulates that interim measures may be taken. For infringements carried out intentionally or negligently, the Swedish Competition Authority may institute proceedings for a competition impairment penalty. Sections 26 to 32 of KL contain provisions on this.

Under Articles 7 to 8 and Article 23.2 of Regulation 1/2003, the Commission has corresponding opportunities to prosecute infringements of the prohibitions in Articles 81 and 82 EC. Under Article 7.1, the Commission is also entitled to impose structural measures. Orders of this type may be imposed either where there is no equally effective behavioural remedy or where an equally effective behavioural remedy would be more burdensome than the structural remedy for the undertaking concerned.[106]

During the investigation of an ongoing infringement, an undertaking may propose various measures aimed at resolving the competition law problem. Since 1 July 2004, voluntary commitments have been regulated under Section 23 a of KL. Section 23 a stipulates that if the question has been raised as to whether an undertaking is infringing any of the prohibitions on anti-competitive collusion laid down in Section 6 of KL or Article 81.1 EC and on abuse of a dominant position laid down in Section 19 of KL or Article 82 EC, the Swedish Competition Authority may decide to accept a commitment from the undertaking if the commitment is such that the Authority no longer considers that an infringement exists. This rule was inspired by a similar provision in Article 9.1 of Regulation 1/2003.[107]

[106] The Government considers it inappropriate to impose regulations on breaking up undertakings at a national level, see Government Bill 2003/04:80, p.99.
[107] Article 9.1: "Where the Commission intends to adopt a decision requiring that an infringement be brought to an end and the undertakings concerned propose commitments to meet the concerns expressed to them by the Commission in its preliminary assessment, the Commission may by a decision make those commitments binding on the undertakings. Such a decision may be adopted

In other words, the Swedish Competition Authority may accept a voluntary commitment from an undertaking instead of requiring the undertaking to terminate an infringement of the prohibition provisions in KL or the EC Regulation. The commitment shall mean that the undertaking agrees to take measures whereby the Authority no longer considers that an infringement exists.[108] A decision to accept a voluntary commitment means that the Authority is making the decision in the manner proposed by the undertaking.

The underlying intent of the provision on voluntary commitments is to prevent the Swedish Competition Authority from being unnecessarily burdened with time-consuming investigations when the Authority questions an agreement or a procedure. The intention is to establish an effective and practical procedure through which damaging restrictions on competition can be quickly and easily eliminated through mutual understanding.

KL does not regulate in which cases the authority should be satisfied with a voluntary commitment instead of taking action against the procedure and issuing an order under Section 23 of KL. On the other hand, the justifications state that commitment decisions are not appropriate in cases where the Swedish Competition Authority intends to institute proceedings for a competition impairment penalty.[109]

Under Section 23 a of KL, the Swedish Competition Authority's decision to accept a commitment may refer to a specified period. Situations in which it is appropriate to impose a time limit on a commitment depend on the circumstances of the individual case. The nature of the procedure being questioned and the content of the commitment proposed by the undertaking are naturally important. Generally, a commitment should not last longer than is required to achieve its aim.

The Swedish Competition Authority is not obliged to request views from third parties concerning the voluntary commitments proposed by the undertaking, i.e. to test these commitments in the market. However, the Commission is obliged to do this under Article 27.4 of Regulation 1/2003. This obligation means that the Commission shall publish a concise summary of the case and the main content of the proposed commitments. Relevant third parties may submit their observations within a fixed time limit.

Appeals may not be lodged against a decision to accept a commitment. An undertaking that, despite the commitment, perceives that it being subjected to an infringement may, under Section 23, second paragraph of KL, institute

for a specified period and shall conclude that there are no longer grounds for action by the Commission."

[108] Swedish Official Government Report SOU 2006:99 *En ny konkurrenslag* [A new Competition Act] (p.369); the investigation into a review of KL has proposed that the statutory provisions be amended so that they clearly show that the legal consequence of a commitment being approved is only that the Swedish Competition Authority no longer finds reason to intervene against the procedure in question.

[109] Government Bill 2003/04:80, p.142. Cf. also para. 13 of Regulation No 1/2003.

proceedings in the Market Court. [110] In this case, the action is directed at the undertaking claimed to be infringing one or more of the prohibitions. It should be possible under Article 230 EC to appeal to the Court of Justice against the Commission's decision to accept a commitment under Article 9.1 of Regulation 1/2003.

A measure encompassed by a commitment may be structural or behavioural. A structural commitment means that the undertaking disposes of an operation, e.g. a retail operation, if the procedure being questioned is a margin squeeze between retail and wholesale sales. A behavioural commitment focuses on the undertaking's behaviour and can involve the undertaking agreeing to apply the same terms vis-à-vis its competitors purchasing wholesale services as applied by the undertaking internally vis-à-vis its own retail operation.

To date, the commitments accepted in the Swedish Competition Authority's current practice have been behavioural. These commitments mean that the undertaking agrees to remove or amend a clause that has been called into question for restricting competition at a certain date and to apply terms in a non-discriminatory manner.[111]

Until now, the Commission has issued a small number of decisions following commitments under Article 9.1 of Regulation 1/2003. The commitments in these decisions are also behavioural. For example, the decisions concern commitments to transparency and non-discrimination, [112] [113] exclusivity agreements and rebates,[114] and opening up markets to competition[115].

No representative commitments have been applied in practice. These commitments are worded individually and may be more or less detailed depending on the circumstances in each individual case. A prerequisite for accepting a commitment is that it resolves the competition problem that has been identified. The commitment must also be specific enough to enable a decision to be made as to whether the undertaking has complied with the commitment. Non-specific commitments are not acceptable.

[110] Government Bill 2003/04:80, p.102

[111] Swedish Competition Authority decision of 21 September 2005, Schneider Electric Sverige AB concerning possible abuse of a dominant position, file ref. 797/2004; Swedish Competition Authority decision of 13 December 2005, ECO-Boråstapeter AB concerning possible anti-competitive collusion, file ref. 532/2004; Swedish Competition Authority decision of 6 February 2006 Reitan Servicehandel Sverige AB concerning possible anti-competitive collusion, file ref. 994/2004

[112] Commission Decision of 19 January 2005 in case COMP/C-2/37.214, Liga-Fußballverband concerning possible anti-competitive collusion

[113] Commission Decision of 22 March 2006 in case COMP/C-2/38.173, FA Premier League Limited concerning possible anti-competitive collusion

[114] Commission decision of 22 June 2005 in case COMP/A.39.116/B2, Coca-Cola concerning possible abuse of a dominant position

[115] Commission Decision of 12 April 2006 in case COMP/B-1-/38.348, Repsol C.P.P. concerning possible anti-competitive collusion. This decision is published in Spanish. There is a summary in English in OJ L 176, 30.06.2006.

As regards commitments under Section 23 a of KL, this Act contains provisions on fines and the revocation of commitment decisions. A voluntary commitment may be imposed under penalty of a fine. Such a fine shall be imposed by the Stockholm City Court at the request of the Swedish Competition Authority under Section 57, second paragraph of KL. Here, the examination by the City Court focuses on checking whether the formal conditions have been satisfied, that the arrangement lies within the framework of KL and also that the commitment is sufficiently specific.[116] Section 59 of KL provides for the Swedish Competition Authority bringing actions for the imposition of fines.

Under Section 23 a, second paragraph of KL, the Swedish Competition Authority may revoke a decision under the first paragraph where there has been a change in any of the facts that were material to the making of the decision, the parties commit a breach of any obligation attached to the decision, or the decision is based on incomplete, incorrect or misleading information that the parties have submitted.

A commitment decision is considered to be favourable to the undertaking concerned. For this reason, appeals can be made against the decision of the Swedish Competition Authority to revoke a measure.[117] Section 60 of KL consequently stipulates that appeals against the Swedish Competition Authority's decision to revoke a commitment may be made to the Market Court by an undertaking affected by the decision. An 'undertaking affected by a decision' mainly refers to the undertaking that has made a commitment; however, competitor and other undertakings at earlier or later sales stages and which are directly affected by the decision should also have the right to legal action.[118]

The conditions for revoking a decision to accept a commitment are expressly stated in KL. However, not all changes constitute reasons for a new position. A circumstance must be of objective significance and of a certain gravity if it is to result in the Authority revoking its decision.[119]

If the Swedish Competition Authority revokes a decision to accept a commitment, the Authority may once again bring up the issue of requiring an undertaking to terminate an infringement of the prohibition provisions of KL or the EC Regulation. The Authority may also initiate negotiations with the undertaking concerned about a new commitment. When a decision to accept a commitment is revoked because of a party submitting incomplete, incorrect or misleading information (para. 3), the Authority may also institute proceedings for

[116] Government Bill 2003/04:80, p.102, cf. Stockholm City Court decision of 24 November 2005 in case no. Ä 31532-04 Konkurrensverket vs. Nynäs Refining AB and others

[117] Government Bill 2003/04:80, p.150

[118] Cf. Government Bill 1992/93:56, p.114 and Government Bill 1998/99:144, p.97

[119] Government Bill 2003/04:80, p.142. Cf. also the *travaux préparatoires* to the rules contained in Section 12 of KL, which have now been abolished, on the conditions for revoking or changing a decision on exceptions, where it is stated that, in order for revocation/change to be possible, it is not sufficient that the decision is incorrect due to an incorrect legal assessment or a change in the legal status, e.g. by a case from the Market Court; see Government Bill 1992/93:56, p.82.

a competition impairment penalty for an infringement that relates to the time prior to the revocation. This is stated in Section 29 of KL.

As regards commitments under Article 9.1 of Regulation 1/2003, the Commission's ability to take measures against an undertaking that has failed to comply with a commitment that has been made binding on it is considerably more extensive than the ability that the Swedish Competition Authority has under KL. The Commission may order both fines and penalties.

Under Article 23.2 of Regulation 1/2003, the conditions for fines are that the undertaking intentionally or negligently failed to comply with a commitment. The Commission may then impose a fine that does not exceed ten per cent of the undertaking's turnover. In the event that the undertaking fails to comply with this commitment, the Commission may, under Article 24.1, impose a periodic penalty payment not exceeding five per cent of the average daily turnover calculated from the date when the commitment would have started to apply.

The Commission's ability to revoke a decision on commitments under Article 9.1 of Regulation 1/2003 is regulated by Article 9.2. The prerequisites for revocation match those stipulated in Section 23 a, second paragraph of KL.

Appeals against the Commission's decision are made to the Court of Justice under Article 230 EC. Article 31 of Regulation 1/2003 and Article 229 EC state that, as regards both fines and periodic penalty payments, the Court should have unlimited jurisdiction to review decisions. The Court of Justice may even increase the fine or periodic penalty payment imposed.

Regulation of voluntary commitments in connection with concentrations between undertakings

Under Section 34 of KL, a concentration between undertakings exists where, for example, two or more independent undertakings merge.

Under 37 of KL, concentrations shall be notified to the Swedish Competition Authority if the combined aggregate turnover of the undertakings concerned exceeds SEK 4 billion and at least two of the undertakings had a turnover in Sweden exceeding SEK 100 million for each of the undertakings. Under Section 38 of KL, the Swedish Competition Authority may, when notification has been made and within no more than 25 days, investigate the effects that a concentration may have on competition. The Swedish Competition Authority may, no later than the expiry of this period, decide to carry out a special investigation of the notified concentration. Under Section 39 of KL, the Swedish Competition Authority has an additional three months during which to complete the investigation in order to bring an action regarding the concentration. A decision concerning a special investigation is a prerequisite for the Authority being able to take action against the concentration by means of a prohibition or orders.

Intervention against a business concentration is viewed as an exceptional measure. A prohibition only applies to concentrations that may result in more significantly damaging effects from a long-term perspective. However, the risks of a business concentration should be eliminated first by ordering the disposal of an

undertaking or part of an undertaking or by other measures to promote competition that are of a less interventionist nature than a prohibition. Provisions on this can be found in Sections 34 a and 36 of KL.

Some concentrations are examined by the Commission within the framework of the EC Merger Regulation. This Regulation generally applies to concentrations where the parties concerned have a worldwide aggregate turnover that exceeds five billion Euros and an aggregate Community-wide turnover that exceeds 250 million Euros. KL does not apply to concentrations encompassed by the Merger Regulation.

During the processing of a concentration matter by the Swedish Competition Authority, the undertakings concerned sometimes agree to voluntary commitments with the same content as an order. The undertakings may propose measures that may rectify competition problems identified by the Swedish Competition Authority. The Authority may refrain from intervention if the measures are considered to be sufficient. The fundamental aim of the commitments is to ensure competitive market structures.[120]

The parties that have proposed feasible commitments are the parties that can remedy the restrictions on competition that the Authority considers the concentration gives rise to. The Swedish Competition Authority then assesses whether these commitments are relevant and sufficient. Factors taken into consideration include the type, extent and breadth of the proposed commitment, the likelihood of the parties implementing the commitment successfully, completely and on time, and the structure of the market. If a common understanding is reached, the undertakings put the commitments down in writing. With reference to the commitments made, the Swedish Competition Authority makes decisions on whether no action should be taken regarding the concentration. It should be noted that voluntary commitments in connection with concentrations are not expressly regulated in KL.[121]

Voluntary commitments are also applied by the Commission within the framework of the EC Merger Regulation. Unlike KL, this Regulation contains relatively detailed provisions on voluntary commitments.[122] However, the meaning of the voluntary commitments is the same. When considering the commitments, the Commission, in the same way as the Swedish Competition Authority, may choose to refrain from taking any action with regard to the concentration.

The Swedish Competition Authority is not obliged to test voluntary commitments in the market. The Commission also is not subject to any such obligation.[123] However, in practice, the Commission market tests the proposed commitments.[124]

[120] Cf. Court of First Instance judgment in case T-102/96, Gencor vs. The Commission, REG 1999, p.II-753, para. 316
[121] SOU 2006:99 p.379. The report proposes that voluntary commitments should be regulated, see p.425.
[122] Articles 6.2-3, 8.2, 8.6, 14.2 and 15.1
[123] Court of First Instance judgment in case T-290/94, Kaysersberg vs. The Commission, REG 1997 p. II-2137, paras. 105-123

Appeals may not be made against the Swedish Competition Authority's decision not to take action with regard to a concentration. This means that an accepted commitment may not be reconsidered. On the other hand, appeals can be made under Article 230 EC against the Commission's decision to declare a concentration as being compatible with the Common Market.

Measures proposed by undertakings to resolve competition problems that have arisen can either be structural or behavioural. Structural measures mean that the parties in the concentration undertake to dispose of certain operations. Behavioural measures mean that the parties agree to act in a certain way. Commitments of a structural nature, such as selling a subsidiary, are generally preferable, since the commitment prevents the establishment or strengthening of a dominant position. In addition, this type of commitment does not require more extensive monitoring measures.[125]

The Commission has drawn up a notice on commitments in connection with concentrations that takes into consideration various aspects of commitments. The notice states that the parties' proposed commitments must be sufficiently detailed for the Commission to be able to make an assessment and the parties must explain how the proposed measures will resolve the competition problems discovered by the Commission.[126]

The established practice of the Swedish Competition Authority encompasses both structural and behavioural commitments. The following decisions illustrate how voluntary commitments concerning both non-discrimination and the supply obligation have been applied in practice.

In the case *Farmek/Scan*, the parties agreed, among other things, to introduce provisions in a consortium agreement that aimed to guarantee that independent meat companies were not discriminated against in relation to undertakings within the Scan Group as regards the distribution and sale of meat.[127]

In the case *Skanska/Geveko*, Skanska agreed to transfer certain asphalt operations to a buyer approved by the Swedish Competition Authority and to ensure a long-term agreement for the purchaser concerning the delivery of ballast (ingredient in the manufacture of bulk asphalt).[128]

In the case *Partek/Sisu*, Partek agreed to supply certain forestry cranes to Swedish forestry machine manufacturers that did not manufacture such cranes themselves and had no group-related legal connection with a crane manufacturer. The terms of delivery were to be non-discriminatory compared with deliveries to Partek's

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[124] Commission Notice of remedies acceptable under Council Regulation (EEC) No 4064/89 and Commission Regulation (EC) No 447/98, OJ C 68, 2.3.2001, p.3, para. 34
[125] Cf. Court of First Instance judgment in case T-102/96, Gencor vs. The Commission, REG 1999, p. II-753, para. 319
[126] a. notice, para. 34. On 24 April 2007, the Commission published a draft for a new notice for views from the general public.
[127] Swedish Competition Authority decision of 30 January 1995, Farmek/Scan, file ref. 1178/94
[128] Swedish Competition Authority decision of 12 September 1997, Skanska/Geveko, file ref. 420/97

own subsidiaries that manufactured forestry machinery. This especially applied to prices, discounts, delivery times, warranties, maintenance and other agreement terms. If this commitment were to result in unacceptable distortions of competition, Partek also undertook to revise the commitment in consultation with the Swedish Competition Authority.[129]

In the case *Slakteriförbundet*, the undertaking agreed to ensure, among other things, that its external industrial clients were treated professionally and on non-discriminatory terms compared with those that applied for internal deliveries within the Slakteriförbundet Group. Furthermore, the company agreed to refrain from discriminating against smaller industrial clients, in comparison with the largest industrial clients, on the basis of price in connection with purchases of whole and half carcasses from the Slakteriförbundet Group.[130]

In the case *Orkla Foods/Cerealia*, the undertaking agreed not give small customers less favourable terms in relation to the largest external customers in connection with the supply of almond paste and marzipan to bakeries, etc.[131]

In the case *Posten/Strålfors*, Posten AB agreed, in summary, not to link certain services or to discriminate against those buying some of these services. Posten AB also agreed to provide the information needed by the Swedish Competition Authority for it to assess how the commitment was being complied with.[132]

Structural and behavioural commitments are also encompassed by the general practice of the Commission. The general practice of the Commission is more extensive than that of the Swedish Competition Authority. Since 1990, the Commission has issued over 220 decisions where undertakings had made voluntary commitments. The following cases may serve as examples as regards non-discrimination and supply obligations:

In the case *Vodafone Airtouch/Mannesmann*, the undertaking agreed, among other things, to provide a third party with access to the undertaking's mobile telephone network on non-discriminatory terms so that it could provide its customers with advanced mobile telephony services. Other operators were to be provided with wholesale services on the same terms as the company provided itself. This commitment was limited to three years from the date of the decision.[133]

In the case *Vodafone/Vivendi/Canal+*, the undertakings agreed to provide other operators with access to mobile telephones and set-top boxes in order to provide Internet portal services. This commitment was limited to three years in

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[129] Swedish Competition Authority decision of 5 November 1997, Partek/Sisu, file ref. 686/97
[130] Swedish Competition Authority decision of 13 January 1999, Slakteriförbundet, file ref. 591/98
[131] Swedish Competition Authority decision of 17 June 1999, Orkla Foods/Cerealia, file ref. 221/99
[132] Swedish Competition Authority decision of 12 May 2006, Posten/Strålfors, file ref. 251/06
[133] Commission decision of 12 April 2000 in case COMP/M. 1795, Vodafone Airtouch/Mannesmann

consideration of, among other things, the technological developments in the market.[134]

Voluntary commitments in connection with concentrations mainly take place in order to have the concentrations approved. The voluntary commitments may be both structural and behavioural and their scope varies from case to case. Generally, structural commitments are more extensive as they often regulate the terms for the disposal of an operation. In all circumstances, the condition for accepting a commitment is that it resolves an identified competition problem. Commitments must also be expressly stated so that it is possible to decide whether the undertaking is complying with the commitment. A non-specific commitment is rejected, as are overly extensive and complicated commitments, since it is difficult to assess with certainty the effects that these will have on competition in the market.[135]

Under KL, a voluntary commitment made in connection with a concentration may be made subject to a penalty of a fine. Such a fine shall be imposed by the Stockholm City Court under Section 57, second paragraph of KL when an action is brought by the Swedish Competition Authority. The examination by the City Court focuses on checking whether formal conditions have been satisfied, that the arrangement lies within the framework of KL and also that the commitment is sufficiently specific.[136] As a rule, the Authority applies to the City Court for the voluntary commitments to be made subject to a penalty of a fine. Section 59 of KL states that the Swedish Competition Authority shall bring an action in order to impose a fine.

In contrast to what counts as voluntary commitments under Section 23 a of KL, KL lacks provisions concerning the revocation of voluntary commitments in connection with concentrations. The probable reason for this is that the Swedish Competition Authority 'approves' the business concentration concerned through this decision. Under Section 40 of KL, the Swedish Competition Authority may not subsequently bring an action for prohibitions or orders against the approved concentration. However, this does not apply when a party has provided incorrect information that has affected the Swedish Competition Authority's decision.

A decision not to take measures with regard to a concentration is consequently a procedural hindrance. If a party in a concentration has made a voluntary commitment that it subsequently does not comply with, the Swedish Competition Authority may not consequently revoke its decision. It is therefore important that voluntary commitments in connection with a concentration are imposed subject to a penalty of a fine.

KL lacks provisions on the reconsideration of voluntary commitments. The fact that a reconsideration cannot take place to the disadvantage of a party in the concentration already ensues from the fact that action cannot be brought against

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[134] Commission decision of 20 July 2000 in case COMP/ JV.48 - Vodafone/Vivendi/Canal+

[135] Court of First Instance judgment in case T-87/05, EDP vs. The Commission, REG 2005, p. II-3745, para. 102

[136] See Government Bill 1992/93:56, p.112

an approved concentration. On the other hand, the Swedish Competition Authority ought to be able to carry out a reconsideration in favour of a party. A reconsideration by the City Court will take place in the event of the voluntary commitment being found by the Stockholm City Court to be liable to a fine.[137]

As regards commitments in connection with concentrations investigated under the EC Merger Regulation, the Commission may, when an undertaking has made modifications to a notified concentration through voluntary commitments, declare the concentration compatible with the Common Market. This is stated by Articles 6.2 and 8.2 of the Merger Regulation. This type of decision may be associated with terms and orders aimed at ensuring that the relevant undertakings satisfy their commitments.

In the event of an undertaking failing to comply with the terms and orders issued, the Commission may impose fines under Article 14.2, and then impose periodic penalty payments under Article 15.1. Fines assume intent or negligence. The fines can amount to ten per cent of the aggregate turnover of the undertaking concerned. The periodic penalty payments can amount to five per cent of the daily aggregate turnover of the undertaking concerned within the meaning of the order for each working day of delay, calculated from the date set in the decision.

The opportunities for the Commission to revoke a decision are stated in Articles 6.3 and 8.6. A decision may be revoked if, for example, it is based on incorrect information or if the undertakings concerned commit a breach of an obligation attached to the decision. Articles 6.4 and 8.7 state that the Commission may subsequently reopen concentration inquiries and issue prohibitions against the notified concentration.

Appeals against a Commission decision may be made to the Court of Justice under Article 230 EC. Article 16 of the Concentration Regulation and Article 229 EC state that the Court shall have unlimited jurisdiction as regards fines and periodic penalty payments. The Court may also increase the fines or periodic penalty payments imposed.

Concluding comments

Undertakings may have different reasons for proposing voluntary commitments. In the event of suspected infringements of some of the prohibitions against anti-competitive collusion or abuse of a dominant position, it may be assumed that the reason is to effect a quick decision. Drawn-out legal processes are generally demanding for an undertaking in terms of resources. The uncertainty linked to slow processes can also have a negative impact an undertaking's position vis-à-vis investors, competitors and consumers. On the part of the Competition Authority, a commitment means that changes in the market that are assessed as positive for competition can be implemented quickly. Furthermore, a commitment saves the Authority resources.

[137] Stockholm City Court judgment of 13 June 2006 in case Ä 32249-04, Stena Metall vs. the Swedish Competition Authority

As regards concentrations, an undertaking's reason for having a voluntary commitment that the concentration can be implemented as quickly as possible. There are major incentives for proposing a commitment when the alternative is that the concentration cannot be implemented as planned.

Regardless of whether it is a question of commitments under Section 23 a of KL, Article 9.1 of Regulation 1/2003 or in connection with concentrations, it is apparent that there are no representative commitments that are used or could be used to resolve supply problems, discrimination, lack of information, etc. Commitments are formulated on a case by case basis depending on the competition problems identified. Furthermore, it is the responsibility of the undertaking to formulate a commitment that resolves the competition problems. This of course takes place following discussions with the Competition Authority, but it is the Authority that ultimately decides whether the commitment should be accepted or not.

To date, structural commitments have only been applied in connection with concentrations. In this context, a structural commitment is a simple tool when the concentration means that the undertaking is establishing or strengthening a dominant position in the market; that is, the market structure becomes such that there is a risk of competition in the market being affected negatively.

Within the framework of a new notice regarding measures that are accepted under the Concentration Regulation, the Commission has published a study[138] regarding the implementation and effectiveness of obligations, including decisions by EU courts and the Commission's decisions. This study, for example, focuses on the need to clearly define how much of the operation is to be separated and to ensure effective supervision of the commitments.

Structural measures that in some respects require an undertaking to restrict the link between its assets may, on the one hand, quickly eliminate market power and strengthen competition as well as require less supervision by courts and authorities than other measures. On the other hand, structural measures may initially be more restrictive for the undertaking's operation than other measures and may give rise to immediate inefficiencies. Furthermore, it has been shown that structural measures are not always easy to administer.[139]

The forms of sanction for voluntary commitments vary in general competition law. Overall, however, fines should be the sanction that KL has in common with EC competition law. Unlike EC law, KL lacks provisions on fines. Also, under KL it is not possible to revoke a decision not to take action with regard to a concentration because of the undertaking not complying with the commitment.

[138] IP/05/1327

[139] OECD; Remedies and sanctions in abuse of dominance cases, DAF/COMP(2006)19

7.5.2 Voluntary commitments in the Electronic Communications Act (LEK)

Voluntary commitments for functional separation

An ability should be introduced into LEK for PTS to accept voluntary commitments from an operator. The provisions in LEK for voluntary commitments should be based on the regulations available in general competition law for accepting voluntary commitments, both within EC law and KL.

However, LEK differs from general competition law in a number of respects. One crucial difference is that the competition authorities can decide on orders or fines with direct legislative support in KL or, alternatively, EC law. PTS can only decide on an order after the authority has defined the relevant market, identified an SMP operator and imposed obligations on this operator. In practice, a voluntary commitment may thus be made by the SMP operator both prior to the authority having decided on obligations and after the authority has imposed one or more obligations on the operator. In both cases, PTS must have identified an SMP operator. The formulation of a provision on a voluntary commitment must take this fact into consideration.

PTS's decision to accept a voluntary commitment from an SMP operator may apply to a predetermined period of time. This period should at least encompass the implementation of the next market analysis.

The decision to accept a commitment should not make any analysis of whether an operator breached the regulatory framework prior to the commitments being made or whether there was an infringement following the commitments. Regulations regarding the obligation of authorities to justify their decision can be found in Section 20 of the Administrative Procedure Act (FL)(1986:223). A decision whereby an authority determines a matter should contain the reasons that have determined the outcome if the matter refers to an exercise of official authority against an individual party. However, the reasons may be omitted entirely or partially; for example, if a decision is not made against a particular party or if for some other reason it is obviously unnecessary to make the reasons clear. Furthermore, it is stated that the authority should, when requested by a party, make the reasons clear afterwards if these have been omitted. The requirement that an authority's decision should contain the reasons for determining the outcome is consequently not without exception.

In cases where PTS has accepted a commitment, it is question of an exercise of official authority against the individual party. A decision to accept a commitment means that the authority makes a decision in the way requested by the undertaking. In this aspect, it could be said that the decision is not made against the party. However, the aim of the commitment from the perspective of the undertaking is to prevent the authority from issuing an obligation decision against the undertaking or, alternatively, initiating supervision on the basis of the decision. PTS's decision is the last phase of an exercise of official authority, namely, an intervention against the undertaking and, from this perspective, it could be claimed that the decision goes against the undertaking as a party in the matter. An exemption from the justification obligation in the Administrative Procedure Act

(FL) should also be interpreted so that it does not apply in the event of uncertainty as to whether a decision goes against a party or not. The above indicates that the main rule in FL concerning the justification decision should apply to PTS's decisions concerning the acceptance of commitments. It is also worth mentioning that the legal security of undertakings is underpinned if the authority states in a decision what the infringement comprised of. This facilitates control over the exercise of power of the authority. On the other hand, the procedure may be compared with procedures in related fields. As regards commitments by undertakings in connection with investigations of concentrations between undertakings under KL, general practice should mean that the Swedish Competition Authority does not state in the decision the way in which an infringement has been determined or that a prohibition should have been issued if the commitment had not been made.

A system that shows greater consideration for the interests of undertakings in being issued reasoned decisions could mean other disadvantages for the undertaking; for example, longer processing times. Furthermore, these types of reasoned decision could be used against the undertaking in a civil liability case. The more detailed the decision, the greater the disadvantage may be to the undertaking during the process. However, it would stand to reason that this would be advantageous for certain other undertakings, namely, the undertakings requesting damages. Reasoned decisions consequently have both advantages and disadvantages. A special requirement regarding justification should therefore not be made if a decision concerning the acceptance of commitments is to be an effective tool. A rational application of the provisions contained in the Administrative Procedure Act should satisfy the requirement for legal security as well as the need for a smooth procedure. In many cases, providing a brief description of the considerations behind the authority's acceptance of the proposed commitments should be sufficient.

The legal repercussions of PTS accepting a commitment include the authority being bound by the commitment through the authority not being able to make a corresponding obligation decision in the same markets. PTS can revoke a decision for an SMP operator concerning the acceptance of a voluntary commitment if the circumstances on which the decision is based have changed in a significant respect, the party to whom the decision applies breaches a commitment stated in the decision or the decision was based on incomplete, incorrect or misleading information provided by the parties. This possibly ought to already follow general legal principles but should, in the interest of clarity, be expressly regulated in LEK. The undertaking is also bound by its commitment.

As regards the more detailed regulation of PTS's decisions on accepting commitments, models concerning the procedure for commitments in connection with the investigation of concentrations between undertakings can be sought in the current provisions in KL. Under Section 57, second paragraph of KL, a voluntary commitment in connection with a business concentration may be imposed subject to a penalty of a fine. It should be possible to apply the same procedure when PTS accepts a commitment. PTS should be able to order this type of fine. For this type of order, the formal prerequisites must be satisfied, the settlement must lie within the framework of LEK and the commitment must have

been made sufficiently specific. As a PTS decision to accept a voluntary commitment of the type now in question is a favourable decision, it should not be possible to appeal against this. The provisions of the Administrative Procedure Act apply in this respect.

Under Chapter 4, it is likely that the Commission must be consulted about and notified of a commitment and, in that connection, it constitutes the type of obligation that can be imposed under exceptional circumstances under Article 8, item 3 of the Access Directive. In view of the Commission's ability to prevent the national regulatory authority from taking a measure under Article 8.3 of the Access Directive, PTS considers that a provision is needed in LEK which means that the same provisions should apply when taking such a measure as when a market that is to be determined under Chapter 8, Section 5 differs from the Commission Recommendation or when identifying an undertaking under Chapter 8, Section 6, second paragraph. PTS proposes that such a provision be introduced as item 3 in Chapter 8, Section 12 of LEK.

PTS should have the opportunity to accept a detailed commitment through a solution with voluntary commitments. An effective sanction is achieved if it can be imposed subject to a penalty of a fine. In the event of deviations from the commitment, PTS may apply to the County Administrative Court and request that a fine be imposed. This type of procedure is based on obligations being worded so specifically that it is possible to make a decision as to whether the operator is complying with them. One important principle is that the commitment should be regarded as a whole and, if detailed requirements in it are breached, the commitment is breached, given that this is judged to be proportional. A commitment, for example, on functional separation, will contain detailed requirements in addition to requirements on systems, the handling of information, etc. If the operator breaches such a detailed requirement, it is reasonable that a fine may be imposed.

7.5.3 Future solutions for voluntary commitments in LEK

Beyond the solution now proposed, PTS has perceived during the work on this assignment that a broader solution of voluntary commitments could have advantages. However, PTS has not had the opportunity to investigate such a solution within the framework of this assignment, but would nevertheless like to point out two feasible, future solutions.

Voluntary commitments for functional separation and other obligations in the same market

To achieve increased flexibility, it would be desirable if PTS had the opportunity to accept voluntary commitments encompassing both functional separation and other obligations that the authority intends to impose on the same market. Such a solution would also increase incentives for operators to make voluntary commitments, particularly at a point in time when the authority is about to impose obligations on a market. In general, the same preconditions apply to such a solution as to a voluntary commitment for functional separation.

Voluntary commitment as a general solution in LEK

PTS also considers that there could be advantages in having a general solution with voluntary commitments within LEK. This type of solution could constitute an effective tool for establishing predictability in the market in a flexible way.

8 Impact analysis

PTS's assessment: The objectives of equal treatment in connection with unbundled access to the local loop can be satisfied by the proposal to establish a functionally separate unit through obligation decisions and the potential gains that the model entails exceed any costs that may arise.

The costs that arise are mainly generated from the transaction costs incurred by a regulated operator in connection with the implementation and formation of a functionally separate unit. There are also potential costs in the form of efficiency losses as a result of the fact that the synergies present in the original vertical structure can no longer be fully realised.

On the income side, there is the value of all operators being treated equally in connection with unbundled access to the local loop. This positive value is mainly reflected in improved competitive terms for the operators and an efficient use of the existing infrastructure and associated investments. For consumers, positive effects arise in the form of enhanced product development, a higher level of service and an increased price squeeze. The greater transparency and predictability for market stakeholders contributes by reducing the number of potential disputes and legal conflicts. This frees up resources of not only operators and PTS, but also of the judicial system.

This section discusses the impact of the proposals described in previous sections.

8.1 A summary of the Inquiry's proposal

The proposed amendments are aimed at the long-term rectification of the competition problems identified in the local loop market. This requires a model encompassing the assets that can be identified as bottleneck resources.

The obligation decision should also provide an opportunity to establish a functionally separate unit encompassing at least those assets used to provide LLU products.

The assets that are used to provide other regulated products found to be justified following a market analysis also form part of the separate unit.

In addition to this, PTS is of the view that the dominant operator should consider organising itself voluntarily so that the entire physical layer of the local loop is encompassed by the model, since the authority perceives this model more effective and practical for a vertically integrated operator than a model that excludes some unregulated assets from the whole comprised by the local loop.

The extent to which different components[140] of the local loop are bottleneck resources is largely a function of the level of refinement. The more unrefined a component is, the greater the potential for the dominant stakeholder to benefit from economies of scale and to restrict competition. For this reason, it has been observed that it is important for a vertical separation model to focus on the unrefined parts of the local loop. This intention also permeates the existing regulatory framework for electronic communications and the intention to strive for as high a degree of infrastructure-based competition as possible.

PTS's proposal means that the bottleneck resources encompassed by a functionally separate unit are based on what is known as infrastructure components.[141] These components can be ducting, copper, fibre, the buildings used, for example, for collocation, and anything else that is needed to back up these assets. Under the proposal, the assets required to provide the products included can also be defined and included in the model after market analyses on product definitions in relation to a functionally separate unit have been carried out.

8.2 Financial consequences

8.2.1 Objectives of the proposals and different kinds of effect

The fundamental aims of the proposed model include objectives for equal treatment that not only bring about effective and equal unbundled access to the local loop, but also contribute by reducing inertia and increasing predictability in the market. The proposed model improves the potential for market stakeholders to make efficient investments and create market innovations. The proposed model affects all stakeholders in the market, including regulated stakeholders, and in this way can have a considerable effect on consumers and society in general.

This impact analysis is limited to the issue of whether the proposed model will result in the objectives being satisfied as well as what the socioeconomic impact will be.

Here, 'direct effects' mean the impact on operators, PTS, consumers and courts. 'Indirect effects' mean the overall effect on the development of infrastructure and markets and how this in turn may impact on the electronic communications objectives in LEK.

8.2.2 Direct effects

PTS makes the following assessment of the direct financial consequences of the proposals.

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[140] A 'component' may be used as an input good for providing own products in the retail market, but can also be provided as a product at wholesale level.
[141] According to the terminology used in the Model Reference Paper (MRP) for the LRIC model that is used for the fixed telephone network.

- *Equal access to the local loop:* The proposal aims to resolve the competition problems in the market in the long term. It also aims to create an effective model that ensures the equal treatment of operators in connection with unbundled access to the local loop in order to increase the potential for effective competition and, at the same time, to reduce the risk of competition becoming distorted. The proposed model entails the introduction of a model for vertical separation by means of a functionally separate unit. For PTS, this means an additional tool that, together with the existing opportunities to impose obligations on operators with significant power, aims to reduce permanent competition problems in the electronic communications market.

It is a fact that, as a consequence of the importance of metallic loops, a number of markets are included that are currently related to this network through *ex ante* regulation. The intention of this regulation is to guarantee an established competitive situation where the dominant stakeholder cannot operate independently from the rest of the world, but should treat all operators equally in connection with unbundled access to the local loop. However, empirical evidence from PTS's supervisory work shows that there are significant competition problems in the market for access to the metallic loop, despite the fact that *ex ante* regulation is in place. The problems that arise take the form of, among other things, discriminatory behaviour, and PTS has also observed that the dominant stakeholder has an information advantage in relation both to other operators and PTS.

The incentives created by the establishment of a functionally separate unit have resulted in an opportunity for a long-term, sustainable change in behaviour for the dominant stakeholder that currently controls unbundled access to the local loop. Instead of, as previously, considering profit maximisation based on the entire vertical value chain, which may give rise to deviations from the principle of equal treatment vis-à-vis the group's internal customers as compared with external customers, these incentives bolster the propensity to sell access to all customers, both external and internal. This ought to pave the way for actually achieving the principle of equal treatment for unbundled access to the local loop. The preconditions for this to apply also in the long term may be assessed as satisfactory too, since the incentives do not change over time, and the willingness to continue to sell access products to both internal group and external customers will continue for the functionally separate unit. A direct interpretation of this is that the proposal can achieve its objective of the long-term rectification of competition problems in the market, and that the preconditions for effective competition are also improved, which simultaneously reduces the risk of competition being distorted.

- *Business economics effects:* The proposal means the introduction of a model for vertical separation by means of a functionally separate unit. The objective of this is to improve the conditions for effective competition and reduce the risk of competition becoming distorted by ensuring the equal treatment of operators in connection with unbundled access to the local loop. As regards the business economic effects, market stakeholders will be affected in different ways. A major difference can be seen between the dominant operator ordered to set up the

functionally separate unit and other operators that have not been ordered to change their internal structure.

A fundamental point of departure in the formulation of the proposal has been to limit the costs entailed by the implementation. For the regulated operator, it is inevitable that the establishment of a functionally separate unit means one-off costs as well as a change in the transaction costs of the daily operation as compared to previously. The significant costs for the regulated operator may be attributed to restructuring in connection with the establishment of the functionally separate unit. These costs may, for example, involve the cost of adapting the organisation as regards both personnel and technical systems. The proposal includes openness to allow the regulated operator control over internal decisions and choices in connection with the required restructuring. However, a basic condition that must be satisfied is that the operator implements and complies with the requirements laid down in the proposal. As the operator has control over this adaptation process, this means that it should be possible for the regulated operator to minimise the costs – in business economics terms – of implementing the functionally separate unit through this procedure.

For operating activities, the new structure is likely to entail increased transaction costs for the regulated operator as compared with previously. This may mean a partial loss of efficiency gains when the previously vertically integrated structure is broken up. Examples of these include a need to duplicate certain functions and coordination losses that may arise. Over time, the consequences in terms of cost should be limited, unless it concerns a case where there had previously been positive effects from, for example, cross-subsidy, which was eliminated with the formation of the functionally separate unit.

For other operators, the proposal mainly entails reduced costs. Transaction costs will reduce for operators when access to the metallic loop under this proposal becomes a functioning marketplace with equal treatment in connection with access. For example, this is indicated by, among other things, reduced information asymmetry in respect of the range of products and terms as compared with the dominant operator's own organisation. A clear principle of equal treatment also ought to mean that the large number of dispute cases between operators concerning products, pricing terms and terms of delivery can be substantially reduced. This should mean considerable socioeconomic savings for operators, PTS and the judicial system. This should apply both to large and small operators.

An important component on the income side for the collective of other operators is the levelling out of the competition terms that the proposal entails. Other operators have the opportunity to compete for end users on the same terms as the dominant operator's own organisation when they are treated on equal terms as regards unbundled access to the local loop. A level playing field releases resources from disputes regarding terms and equal treatment so that customers can be reached in order to be able to focus on product innovations and retail terms in order to capture market shares.

Overall, the proposal means that transaction costs for the regulated operator will increase as a consequence of the establishment of the functionally separate unit.

The reduction in costs from the reduced number of dispute cases will benefit both regulated and other operators. The anticipated revenues will offset the costs for other operators because of reduced transaction costs and information asymmetry that results from being treated equally in connection with unbundled access to the local loop.

- *Effects on shareholders:* The proposal entails a vertical separation for the regulated operator. At first glance, this ought to mean a negative effect for this company's shareholders, as the company bears transaction costs at the same time as the opportunities to benefit from coordination gains through the vertical structure are reduced. This is mainly countered by the reduced regulatory uncertainty and increased predictability that should result from the implementation of the proposal. The reduced uncertainty applies both to the development of future access regulation for the local loop and to a reduced number of dispute cases where the outcome is always uncertain and often involves significant amounts for the company. It is impossible to draw definite conclusions about how the market would place an overall value on this for the regulated operator. However, a parallel may be drawn with BT in the United Kingdom where its shares have performed better than any major competitors within the same sector which, unlike BT, have not undergone a similar reform in their domestic markets.

Share performance 2004-2006

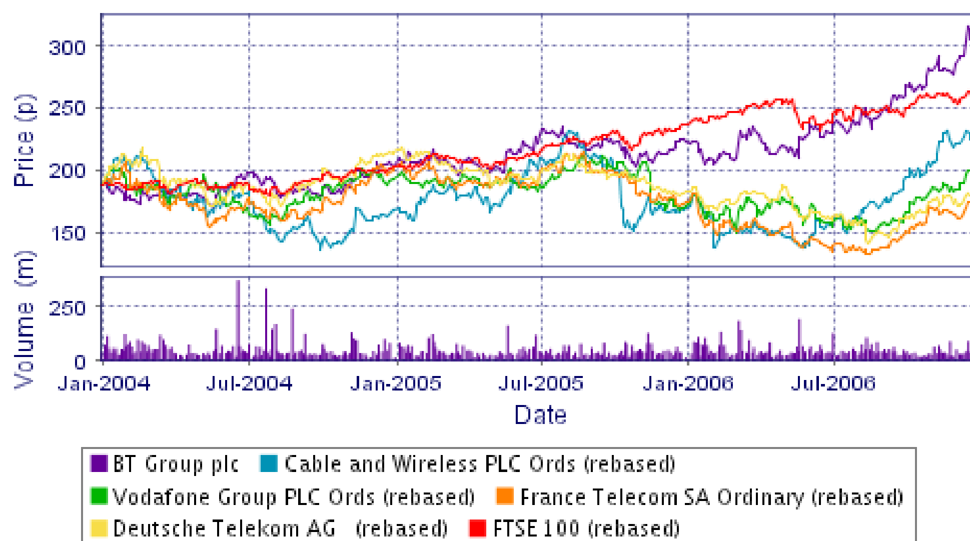

Figure 8.1. Source: BT's website

The positive effects ought to predominate for the shareholders of other operators. These companies should also benefit from the reduced regulatory uncertainty and greater transparency since the model ensures equal treatment in connection with unbundled access to the local loop. The greatest positive effect ought to result from the latter, as this means that the company should be able to compete for end users on equal terms, which in turn should benefit shareholders.

- *Effects on investment:* This area has two main aspects. The first aspect is based on the new, functionally separate unit focussing on the provision of services both to

external and internal wholesale market customers. The unit ought to be well aware of the investment needs present in the market in order to meet these in the future in the best way possible. Following market studies, there are then opportunities to tie future customers to the company in order to ensure a certain level of demand in connection with investment decisions. In this context, one positive socioeconomic effect is that an overall assessment is made; subsequently, investment is ideally made when the need arises. This reduces the risk of investments being made too early, which may be the case if a dominant stakeholder finds it easy to pass costs on to customers.

Profit maximisation in a functionally separate unit is implemented by selling access to the infrastructure (the previous bottleneck resource). This behaviour involves greater transparency and a more efficient utilisation of the existing infrastructure. Overall, increased efficiency should yield lower costs, which releases resources in the economy. For example, the greater transparency clarifies investment needs both when they arise in time as well as where they are in the value chain. This has a positive effect on the investment climate in existing infrastructure.

The other aspect of this area arises from the fact that there was an opportunity for coordination within the vertical structure, which was broken up prior to the establishment of the functionally separate unit. Socioeconomically, this means that, following the creation of the separate unit, the opportunities available for compiling information about and making use of synergies within the vertical chain are made more complicated. This could have a negative impact on investment incentives. Functional separation retains ownership within the same group of companies, and there are opportunities to create scope for this type of investment coordination within the parameters of the obligation to establish a functionally separate unit. This has been observed in connection with the introduction of functional separation in the United Kingdom, where a model was strived for that took vertical coordination into account as well as investment considerations.

Overall, it is difficult to identify a clear effect on investment in the future following the implementation of the proposal. However, the overall assessment is that the introduction of a functionally separate unit does not signify negative effects on the investment climate, as greater transparency and efficiency in the utilisation of the existing infrastructure should provide opportunities for coordination so that more effective investment decisions are made over time.

- *Regulatory resources:* The current regulatory system entails significant costs both for PTS and the regulated operator in terms of extensive court proceedings. This applies in particular to a large number of court proceedings concerning the local loop and access to it. There are also a number of lengthy dispute cases[142] still proceeding involving LLU, bitstream, pre-selection, WLR and price regulation.

[142] During the period 2003 to 2006, 30 to 60 cases were submitted to the County Adminstrative Courts each year. According to the report 'A more effective LEK' (SOU 2006:88), it is the handling of appealed dispute resolution matters and SMP decisions that takes up the most time in the County Administrative Courts.

This need should reduce in the long run following the implementation of the proposal and the creation of a functionally separate unit. The new unit has incentives to provide unbundled access to the local loop on equal terms. This will mean that the need for supervision should generally decline and also that the number of disputes arising and the need for supervision will reduce, which will make the work of both PTS and the regulated operator easier. This will also benefit other operators in the event that they are involved in or affected by these disputes.

In the longer term, this should also provide the authority with opportunities to save resources within this sector. The need for supervisory measures is reduced and supervision is generally made easier. Supervision is also demanding for the regulated operator in terms of resources. According to the proposal, a model could thus result in releasing resources for the regulated operator in addition to what was mentioned in previous sections.

- *Transparency and predictability:* The proposal means that a functionally separate unit is created. The autonomy of this unit will mean that transparency in the market will increase. The dominant stakeholder has an information advantage in relation to other operators, as well as in relation to the supervisory authority. This information advantage applies to both regulated and unregulated products. An information disadvantage, and the uncertainty that this creates for other operators, may mean that they choose not to invest in products or to take development measures that they would otherwise have taken.

There is yet another aspect in step with current access regulation focussing increasingly on unrefined wholesale products; that is, it is becoming more difficult for PTS and other operators to assess whether the regulated operator is satisfying the existing requirements on non-discriminatory terms. The greater transparency entailed by the establishment of a functionally separate unit should make this assessment easier, at the same time as the unit's incentive to provide wholesale products to both the internal group and external customers helps to define the products.

Greater transparency and the increased predictability associated hereto also benefit society in several ways. This increased predictability increases the potential for effective investments to be made by the market and customers. Furthermore, transparency also increases the opportunities for an improved analysis of the dominant operator, as it could make the value of the group more evident. The dominant operator would also benefit from increased clarity and predictability in the market, which was observed in the business economics effects discussed above.

- *Effects on consumers:* The proposal means the introduction of a functionally separate unit at a wholesale level in the vertical chain. There is significant potential for this to have an effect on end users also. The proposal assumes that all operators will be treated equally in connection with unbundled access to the local loop.

This implies greater potential for competition on equal terms without distorting tendencies. Increased competition should yield effects for consumers in the form of a larger and broader range of products and services focussed on the consumer. The price of the products is an important factor for consumer benefits and this should also involve an increased focus on end-user prices. Here, a comparison can be made with the United Kingdom, which experienced a clear downward price trend for broadband offers during the period following the implementation of functional separation.

Another effect on the retail market that has been observed in the United Kingdom is the increasing rate of growth in LLU. LLU growth was relatively slow in the United Kingdom up to mid-2005. However, a change occurred in 2005 when a large number of operators started to offer broadband based on LLU, which in turn meant that the number of LLU access lines began to rise at an ever-increasing rate. Since then, this development has continued and a link can be made to the introduction of functional separation and the shift in the LLU market. However, it is worth pointing out that the markets in Sweden and the United Kingdom differ, and for this reason direct comparisons are not always straightforward.

In this connection, the anticipated effects of PTS's proposal are less ambiguous. Increased competition will mean a larger range of products and a higher level of service, by which waiting times should reduce, so that consumers obtain the products and services demanded. At the same time, an increased price squeeze should result in lower prices where scope for this exists. In terms of consumer benefits, this means an anticipated, positive development over time following the implementation of the proposal.

- *Effects on small undertakings:* The effects of the proposal for small undertakings are similar to those for other consumers. The proposal, which means the introduction of a functionally separate unit at wholesale level in the vertical chain, means that all operators should be treated equally in connection with unbundled access to the local loop. This implies greater potential for competition on equal terms without distorting tendencies. Increased competition should yield effects for small undertakings in their role as broadband customers through a larger and broader range of products and services.

In addition to a larger range of products, the anticipated, increased level of competition will mean an increased level of service by which, for example, waiting times should be shortened so that customers obtain the products and services demanded. This, together with a greater price squeeze, should lead to positive effects for small undertakings in their role as customers.

- *Effects on employment and public services in different parts of the country:* The effects of the proposal on employment and public services in different parts of the country are expected to be relatively limited in the short term, particularly as regards public services in different parts of the country. The effects that may be expected to arise mainly concern employment and, in the longer term, a higher degree of competition and a larger range of products and services should have a positive effect on the growth potential within those market areas where broadband is an

important prerequisite for the rate of development. Increased competition and a larger range of products and services should also have a positive effect on the potential to provide public services in different parts of the country, since those utilising the services will have more opportunities to communicate due to increased access to broadband products. Overall, it is assessed that the implementation of the proposal will yield positive effects on employment and public services in different parts of the country in the long run.

- *The proportionality of the proposal:* In the market analyses stipulated by the proposal, and which constitute a crucial component of the final definition of a 'functionally separate unit', PTS guarantees that that the *ex ante* regulation imposed shall be proportionate and reasonably well-balanced in the light of the long-term objectives of sustainable competition towards which the authority is working.

- *Overall direct effects:* PTS considers that the objectives of equal treatment in connection with unbundled access to the local loop can be satisfied by the proposal to create a functionally separate unit through obligation decisions and that the potential gains that the model entails exceed any costs that may arise.

The costs that arise are mainly generated from the transactions costs incurred by the regulated operator in connection with the implementation and formation of a functionally separate unit. There are also potential costs in the form of efficiency losses as a result of the fact that the synergies present in the original vertical structure can no longer be fully realised.

On the revenue side, the value of greater transparency and increased predictability for market stakeholders is retained. The value of all operators being treated equally in connection with unbundled access to the local loop is mainly expressed through improved competitive terms for the operators in addition to product development, level of service and a price squeeze for consumers. Greater transparency also contributes by reducing the number of potential disputes and legal conflicts, which releases resources from operators, PTS and the judicial system.

PTS assesses the overall direct socioeconomic effect of the Inquiry's proposal as positive, by which the potential revenues from the proposal exceed the costs, which mainly arise at the initial phase of implementation.

8.2.3 Indirect effects

The proposals formulated in the Inquiry aim to improve the potential for effective competition and to reduce the risk of competition being distorted. Effective competition results in efficient market offers to end users. The undertakings and other customers that depend on a developed broadband market are provided with an opportunity to plan their work in the long term.

A profit-maximising undertaking that operates in a vertically integrated structure, and has control over a bottleneck resource in the form of an infrastructure, has the potential to operate in a way that involves a socioeconomic sub-optimisation. This means that the result is a sub-optimal utilisation of the infrastructure.

A separation can be made which involves a division of the control of the bottleneck resource in the form of a functionally separate unit; this opens up the possibility of different behaviour in the event of profit maximisation. The profits for the separate unit will hinge on sales of access to the bottleneck resource, which should provide a more efficient utilisation of the infrastructure. In the long run, this means lower costs for operators, which in turn releases resources in the economy.

The focus on sales that results from profit maximisation for the functionally separate unit also means greater transparency and increased predictability for market stakeholders. This clarifies the investment needs over time and applies both to regulated and other operators. This, in combination with the releasing of resources as a result of increased efficiency over time, has a positive impact on the investment climate in the existing infrastructure. Also, the regulated operator's reduced uncertainty regarding the utilisation of infrastructure should increase the propensity to invest in new infrastructure.

The proposal implies greater potential for competition on equal terms without distorting tendencies. In the long run, increased competition contributes to effects on consumers in the form of a larger and broader range of products and services. An important factor for consumer benefits is the price of the products, and an effect of increased competition should also involve a greater focus on end-user prices. In the longer term, increased competition should ensure a downward pressure on end-user prices, which may have a positive effect on the level of benefits for end users.

One consequence of the formation of a functionally separate unit is an increase in transparency. This, combined with equal treatment in connection with unbundled access to the local loop, should reduce the number of supervisory and dispute resolution matters. A reduction in the number of cases in the legal system will eventually contribute to greater market confidence and reduced uncertainty among market stakeholders. This shortens the delay between making different decisions and their impact on the market.

Greater transparency should also mean reduced regulatory uncertainty for market stakeholders. In the long run, reduced regulatory uncertainty leads to lower capital costs and increased investment, in addition to a more rapid development of new services. This in turn means lower prices.

PTS's overall assessment is that the socioeconomic effects will be positive.

8.3 General consequences

PTS has considered whether these proposals might have effects on municipal self-government, criminality and work to prevent crime, equality between men and women, and the opportunities to achieve the objectives of integration policy. The overall assessment is that the proposals do not affect any of these objectives.

9 Explanatory comments to the proposed legislation

Chapter 4, Section 9 a of LEK

This section is new and is mainly dealt with in Sections 7.3 and 7.4 of the general reasoning. Article 8.3 of the Access Directive stipulates that the imposition of an obligation under this section must be approved by the Commission of the European Communities.

Requiring an operator to separate a certain operation from other parts of its organisation can represent a considerable encroachment on the individual undertaking's legal protection of its property. Consequently, the aim of the measure – to increase competition in the market – should be weighed against the individual undertaking's right to independently make use of its property. There should be grounds for applying this section; for example, if the other obligations identified by the Act cannot be deemed to be a sufficient impetus for achieving effective competition or preventing non-discriminatory behaviour.

The first paragraph stipulates that the obligation may include operations and assets attributable to an obligation on access to such a network as specified in Section 9. It follows from the second paragraph that the obligation may also include such operations and assets as are covered by an obligation on access to the network in the form of a more refined service, i.e. 'bitstream access'. Here as well, a precondition for separation is that the resources are attributable to access to bitstream access lines in such a network as specified in Section 9. An obligation on separation will not be included in the event of a corresponding access service being provided entirely through other infrastructure.

In order to realise the access obligation stipulated in the first and second paragraphs, access to other types of essential infrastructure or resources may also be required in addition to access to the network. These assets and resources are encompassed by the requirements for such access and may thus need to be separated in order to achieve the intention of the section. Examples of such assets may include transmission network capacity and equipment for collocation.

Only a vertically integrated operator, i.e. an operator providing wholesale services to undertakings with which the operator is competing at subsequent levels in the markets, can have obligations imposed in accordance with this section.

Clause 1, network and network elements, refers to all parts of the network encompassed by an obligation decision; for example, ducting, poles, copper and fibre.

Clause 2, associated facilities, refers to assets used jointly which are needed to support obligations imposed; for example, technical houses and ducts.

Clause 5 prescribes that financial resources must be separable. This requirement aims to ensure that the separated part has the financial resources needed to be able to run the operation and compete in the market; for example, the financial

resources needed to ensure the supply of machinery and equipment, premises and relevant personnel.

Chapter 4, Section 9 b

This section is new and is mainly dealt with in Section 7.4. The provisions stated in the first paragraph of the section provide an opportunity to introduce requirements for organisational and behavioural changes.

Clause 1 prescribes that the separate part should be organised with a certain legal status. The main rule should be that the separate part is to be an independent legal entity in the form of a limited company. It should be possible to deviate from this requirement if a separate section can be established within the existing organisation of the operator; for example, in its own business area, which can satisfy the requirements that may be imposed on a limited company in order to achieve non-discrimination and openness. In order to ensure the independence of the separate part, account should also be taken during the assessment of other requirements that may be imposed under this section.

Clause 3 states that the composition of the board and its powers may be restricted. This can happen by restricting the right of the annual general meeting to appoint board members. The restrictions referred to include the fact that a certain number of board members can be appointed or are to be appointed in consultation with an external party such as PTS. Furthermore, this clause enables the powers of the board to be restricted by requirements for regulations on when the board is quorate; for example, that a certain number of members must be present for the board to constitute a quorum or the majority that is required for issues of importance for compliance with obligations imposed.

Clause 5 prescribes that requirements may be imposed on the establishment of rules of conduct. This refers to rules that aim to strengthen the independence of the separate part in relation to other parts of the operator's organisation so that an organisation is created that treats wholesale customers on equal terms. Examples of such rules include guidelines on how information may be provided to wholesale customers, both internal and external ones. Furthermore, rules of conduct may entail requirements on employees not being allowed to work for the separate part while working at the operator's other operations. Rules of conduct can focus on both the operator and the separate part.

Clause 6 states that it is possible to impose requirements limiting value transfers and internal transactions to and from the separate part. The aim of this clause is to ensure that the separate part has the financial resources needed to operate in the market and to be able to make the necessary investment decisions to run the operation. It should be possible to achieve restrictions in value transfers and internal transactions by means of requirements for a certain solvency, liquidity and equity in the separate part. Such requirements can in turn create requirements for capital being injected into the separate part.

Clause 7 imposes requirements on the establishment of an audit committee. The committee’s field of work consists of the supervision of accounting and internal

control procedures with the aim of ensuring compliance with obligations that have been imposed. The committee should also propose procedures to increase compliance with obligations that have been imposed. The committee should comprise at least three members who should be appointed by the board in collaboration with PTS. The committee should have the competence needed to carry out its assignment. Furthermore, the majority of committee members should be independent in relation to the separate part or another operation or legal entity within the same group of companies.

Clause 8 prescribes that requirements may be imposed on the preparation of accounts. The accounts should aim to follow up obligations that have been imposed and should be based on relevant key ratios; for example, delivery times, fault rectification and interruptions to supply, which are developed together with PTS. The accounts should also be based on the work of the audit committee. These accounts should be prepared on a regular basis and submitted to the authority.

Clause 9 stipulates that an external auditor shall submit an annual statement in a special certificate on compliance with the obligation. This certificate should be prepared by the authorised public accountant of the separate part and may include such accounting as stated in Clauses 7 and 8, in addition to a further assessment of compliance with the obligation. The certificate is to be submitted to PTS.

The regulatory authority may specify terms to be stipulated in accordance with the section based on the aim stated in Section 9 a: the guarantee of non-discrimination and openness.

The second paragraph also provides scope for imposing requirements other than those stipulated by the first paragraph.

Chapter 4, Section 9 c

This section is new and is mainly dealt with in Section 7.5. Article 8.3 of the Access Directive stipulates that a decision on whether to accept a voluntary commitment under this section must be approved by the Commission of the European Communities. This section was formulated using Section 23 a of the Swedish Competition Act (1993:20) as a model.

Explanation of terms and abbreviations used

ABL	Swedish Companies Act (2005:551) (*Aktiebolagslag*)
ADSL	Asymmetric Digital Subscriber Line. ADSL2+ is a development of the ADSL technology used on a large scale; see also xDSL.
AGCOM	Autorità per le Garanzie nelle Comunicazioni
BT	British Telecom
DSLAM	Digital Subscriber Line Access Multiplexer, modem for xDSL placed at a telecommunications exchange.
EAB	Equality of Access Board
ECTA	European Competitive Telecommunications Association
ERG	European Regulators Group
FTTB	Fibre To The Building
FTTC	Fibre To The Cabinet
FTTH	Fibre To The Home
GSM	Global Service Mobile
IP	Internet protocol
IRG	Independent Regulators Group
ISDN	Integrated Services Digital Network
ISP	Internet Service Provider
IT	Information technology
ITU	International Telecommunication Union
KKV	The Swedish Competition Authority (*Konkurrensverket*)
KL	The Competition Act (1993:20) (*Konkurrenslag*)
LAN	Local Area Network
LEK	Electronic Communications Act (2003:389) (*Lag om elektronisk kommunikation*)
LLUB	Local Loop UnBundling, access to the nationwide metallic loops.

LRIC	Long Run Incremental Cost
NGA	Next Generation Access
NGN	Next Generation Network, collective term for future IP-based network.
NMT	Nordic Mobile Telephony system
OECD	Organisation for Economic Co-operation and Development
Ofcom	Office of Communications
Opta	Onafhankelijke Post en Telecommunicatie Autoriteit
OR	Openreach
PLMN	Public Land Mobile Network
PSTN	Public Switched Telephone Network
PTS	Swedish National Post and Telecom Agency (*Post- och telestyrelsen*)
RSS	Remote Subscriber Stage
SLA	Service Level Agreement
SMP	Significant Market Power
SUB	Sub-loop unbundling
UDSL	Uni-Digital Subscriber Line; see also xDSL
UK	United Kingdom
UMTS	Universal Mobile Telecommunications System
VDSL	Very high data rate Digital Subscriber Line; see also xDSL.
WLR	Wholesale Line Rental
xDSL	Digital Subscriber Line, collective term where 'x' represents various technologies; for example, ADSL, VDSL and UDSL.
YGL	Fundamental Law on the Freedom of Expression (1991:1469) (*Yttrandefrihetsgrundlagen*)

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Appendix 1

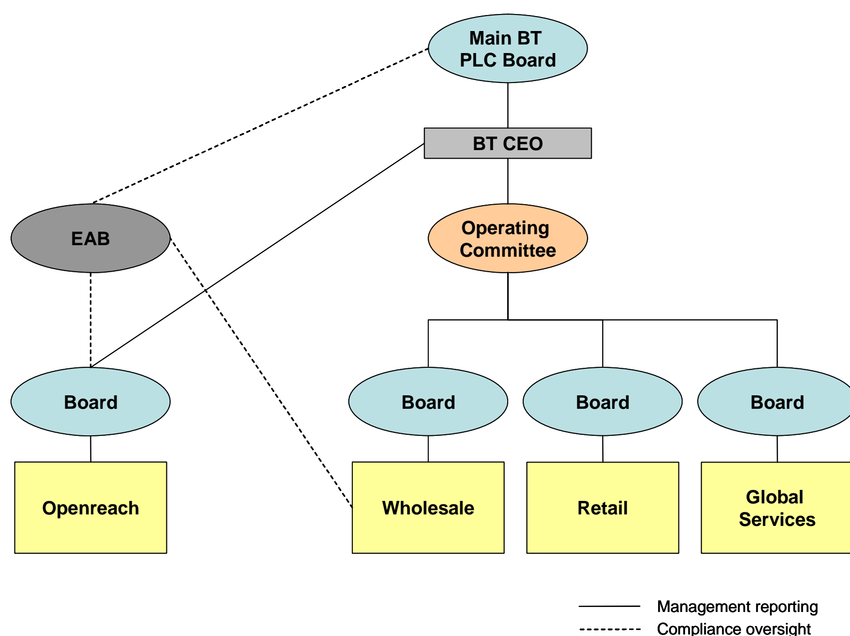
Organisation and management

The undertakings in this section involve comprehensive organisational changes within BT; above all within the division that was previously responsible for all of the wholesale products, BT Wholesale. This is to be able to control the flow of information and the potential for influence between the different parts of the organisation.

According to the undertakings, OR shall be a separate division within BT with its own chief executive officer reporting directly to the BT Group plc CEO. The OR CEO may not be a member of the BT Group Operating Committee, but may attend where matters pertaining to OR are discussed. The EAO (Equality Access Office) is to be notified of such attendance. The OR Management Board undertakes to operate on the basis of the undertakings between Ofcom and BT and on the basis of the guidelines decided by the BT Group plc CEO and agreed with Ofcom.

According to the undertakings, BT shall develop a separate brand name for the new division that does not include the words 'BT' or 'British Telecom'. A branding strategy shall be implemented and stationery, relevant websites, web addresses and relevant buildings shall feature the new name and logo. Work clothing and vehicles shall also make use of the new branding, as these are replaced.

Figure Appendix 1.1.



Source: 'Openreach – an open network for all', presentation by Joanna Taylor, November 2006

BT also undertakes to establish a special board, an 'Equality of Access Board' (EAB). It consists of five people, three of whom are independent members, in addition to a non-executive director and one BT senior manager. The independent members shall be appointed by BT following consultation with Ofcom. They may not be employees or former employees of BT Group plc, executives of any other communications provider in the market or any consultancy firm engaged by BT or any other communications provider, employees of Ofcom, or material shareholders in BT or in any other communications provider. The BT Group plc Chairman shall appoint the two board members representing BT and these may not be employees of OR, specifically, the Upstream or Downstream Divisions. EAB shall be chaired by the non-executive director from BT.

In the main, EAB's work tasks comprise examining and following up BT's compliance with the conditions of the undertakings. This includes, among other things, reviewing the content of the 'Code of Practice', complaints from employees in terms of observance of these requirements, BT's results compared with target key ratios with reference to the conditions, etc. EAB shall also be responsible for monitoring and reviewing the product roadmaps, volume forecasts and investments. It shall also be kept informed of the SLAs set by OR and have the opportunity to evaluate the results against the goals set. EAB shall report regularly to the BT Group plc Board on BT's compliance with the conditions of the undertakings, and keep Ofcom informed if there has been a non-trivial breach of these conditions. Each year, EAB shall compile and submit a report on the results of the examination of BT's compliance with the conditions of the undertakings. This report shall be communicated to Ofcom and a summary shall be published officially as an annual report. The annual report shall be audited by independent external auditors as part of their annual audit of BT's regulatory compliance report.

EAB shall have the backing of a function called the EAO (Equality of Access Office) with resources drawn from BT. EAO's role is, among other things, to assist EAB with analyses and reports.

Product range

OR shall control and operate the assets contained within the physical layer[143] of BT's access network and transmission network ('backhaul') including such tasks needed to support these assets (such as line testing and remote diagnostics). OR shall also determine any appropriate enhancements to the functionality of these assets and have full responsibility for investment decisions (which shall be stated in the annual Operating Plan) related to these assets. Furthermore, OR shall have full responsibility for buildings, maintenance and the repair of these assets.

[143] This simply means that OR shall manage the physical network ("'Physical Layer' means the duct, fibre, copper, and other non-electronic assets in an Electronic Communications Network", Statement, p.64)

OR shall provide, internally or to other operators, the SMP products that are produced mainly by using the physical layer and/or the transmission layer of BT's access network and/or transmission network (backhaul). These products shall be provided on equal terms. Furthermore, OR shall provide future products that have not yet been identified, but which will be identified in connection with future market analyses if and when BT, as a result of its SMP status, is ordered to provide new access products.

For example, the provision of products includes product management, sales (or corresponding internal provision between OR and other parts of BT), in-life service management, the specification of products and their functionality, and pricing.

BT Wholesale can operate as both a customer of and supplier to OR. In its capacity as customer, it gains access to the SMP products that must be provided by OR and which BT Wholesale can then develop to meet the demand from other operators. BT Wholesale can act similarly as regards other products provided by OR on a voluntary basis. BT Wholesale can also provide products to other operators that do not require any input goods at all from OR.

Thus, OR can act as a customer in relation to BT Wholesale; as mentioned above, OR might need to utilise the transmission layer of BT Wholesale's access network and/or transmission network with the aim of providing products to other operators.[144]

In conclusion, it should also be mentioned that, not only will existing products be subject to a set of undertakings, but wholesale products (in the access network) based on NGN (Next Generation Networks) will also be subject to them.

Financial statements and reporting

The undertakings include a description of how business plans, budgets and investment plans should be managed. Here it is stated that OR should produce a business plan annually, including a budget, which should be approved by the board of the BT Group plc and be communicated to EAB. The CEO is also provided with an annual investment budget amounting to £75m (approximately SEK 1 012m) for 2006/2007, which OR has at its disposal. As regards accounting and financial statements, the following is stipulated with effect from the start of the financial year 2006/2007:

[144] Due to the original lack of clarity as regards the relationship between BT Wholesale and OR, Ofcom formulated in its final Statement (p.49) a number of principles for this: (1) OR shall be the primary sales channel for its products and services; (2) OR can only provide products that are actually provided by other parts of BT if these products require detailed operational coordination with OR's products, if another operator mainly purchases OR products and wants a uniform interface with BT, or if an agreement has been concluded for this with Ofcom; (3) OR can only sell to other operators, not to other types of business and household; and (4) other parts of BT may provide OR products only if the products require detailed operational coordination or if an operator wants the product to be supplied by another part of BT.

- charges and prices shall be calculated on the same basis for BT and for other communications providers,
- information relating to those charges and prices shall be provided on the same conditions for BT and other communications providers,
- transfer pricing to and from OR and other BT divisions shall be separately identified and based on the transfer charging principles set out in the regulatory financial statements in accordance with an earlier directive from Ofcom,
- OR's assets shall be capitalised and depreciated in the division's financial statements and in line with BT's accounting policies,
- OR's financial results shall be presented separately in the regulatory annual financial statements produced by BT, and
- BT shall report OR's financial results in the BT Group plc's annual and quarterly reports in the same format that is used for other divisions/business categories.

Exchange of information

The main rule is that information may be exchanged within BT unless such information is prohibited or restricted by the undertakings or otherwise by legislation. The undertakings shall not prevent normal commercial relationships, but shall only ensure fair and transparent treatment. In general, the following restrictions apply to the flow of information between OR, BT Wholesale, BTWS, BTS and other Downstream Divisions.

- Employees working for X may not provide Customer Confidential Information to Y or employees within other Downstream Divisions without the consent of the customer or unless it is necessary in order to deliver the product.
- Employees within X may also not communicate Commercial Information to BT employees working within Downstream Divisions if the customer has not consented to this or if the information is not necessary in order to deliver the product.

Customer confidential information refers to information from an operator to BT. The main rule is that such information may not be disseminated between OR and other parts of BT. Nor may it be disseminated between BT Wholesale and other parts of BT or between BTWS and BT Wholesale Value-added Network Services.

Commercial information refers to confidential commercial information related to regulated products, such as product development, pricing, strategies, costs, volumes, etc.

There are also restrictions on BT employees' contacts with OR. They may not directly or indirectly attempt to influence the commercial decisions or policies of OR through channels that are not also available to other communications providers. They should also not have access to Commercial Information or the like that cannot be provided to all communications providers. Corresponding rules apply to employees within OR. Certain exceptions to these rules are specified.

Other operational issues

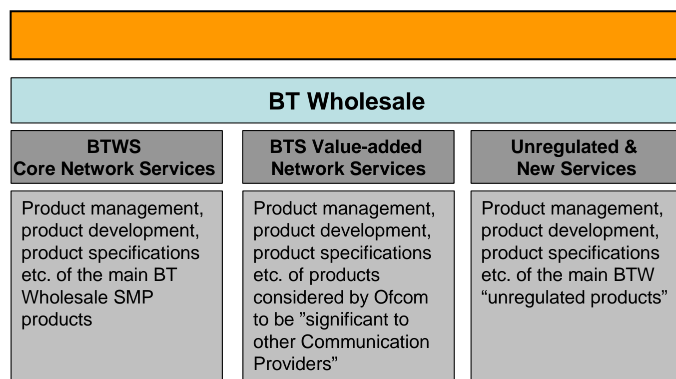
OR's headquarters shall be located within special security-controlled accommodation, which is separate from BT's other operations. OR employees may not work for other parts of the BT Group plc at the same time without Ofcom's written consent. Remuneration and bonus plans for employees shall be linked to the targets achieved by OR and its results. Employees may also not participate in general option or share plans within the BT Group plc while employed by OR.

BT shall ensure that all operational IT systems developed for OR shall be kept separate from the rest of BT's computer systems. The same applies in respect of accounting and reporting systems that should also be run separately from the BT Group plc.

BT Wholesale

The undertakings also include, in addition to the establishment of a new division, guidelines on how BT Wholesale should operate. Two separate product organisations should be implemented within BT Wholesale to be responsible for 1) BTS: products that are relevant to other communications providers, e.g. bulk sales of calls, and 2) BTWS: BT Wholesale's SMP products that do not fall into the first-mentioned category and are not included as part of OR's product range. No changes can be made to the product range within the respective product organisation without consultation between Ofcom and BT.

Figure Appendix 1.2. Openreach



Source: ‘Openreach – an open network for all’, presentation by Joanna Taylor, November 2006

BTWS employees shall be kept separate from the rest of BT and all remuneration and bonus plans shall be based on the results and target attainment of BTWS. Employees may also not work for some other Downstream Division within BT while they are employed by BTWS. Employees working for BT Wholesale may not provide Customer Confidential Information to OR nor to employees within other Downstream Divisions without the consent of the customer or unless it is necessary in order to deliver the product. The same applies for BTWS employees, who may not disclose Customer Confidential Information to BTS employees. BTWS or BTS employees may also not communicate Commercial Information to BT employees working in Downstream Divisions if the customer has not consented to this or unless the information is necessary in order to deliver the product.

The IT systems containing commercial information applicable to BTWS and BTS shall not be available to employees working for Downstream Divisions. IT systems containing BTWS customer information shall not be available to BTS employees.

The undertakings also include an organisational division of Upstream and Downstream Divisions. 'Downstream Divisions' mean BT's divisions that are predominantly concerned with providing end users with products and services. 'Upstream Divisions' mean BT's divisions, in addition to OR and including BT Wholesale, that provide products and services to other communications providers as inputs to their own products. The same rules on the communication of Customer Confidential and Commercial Information are also applicable here.

Code of Practice

In the undertakings, BT agrees to draw up a 'Code of Practice' (ethical rules) that shall be made publicly available and communicated to all BT employees. This Code shall set out how BT employees must act to ensure compliance with the undertakings that BT and Ofcom have agreed on. The Code of Practice shall include special guidelines for employees within OR, BTWS, BTS and other parts of BT Wholesale. The Code shall contain guidelines on access to and the dissemination of Customer Confidential Information and Commercial Information, and restrictions on the possibility of influencing the formulation of commercial decisions and policies. It shall also make clear the disciplinary consequences of non-compliance with the Code. A programme of briefing and training shall be introduced on the launch of the Code of Practice to ensure that all relevant employees of BT are aware of their responsibilities ensuing from the undertakings between BT and Ofcom, namely, that:

- OR shall have a number of rules and procedures to prevent the flow of sensitive information from BT Wholesale (including OR) to BT Retail in order to achieve a functional separation between BT's wholesale operation and the company's retail operation, including a 'Chinese wall' between these two;

- OR shall provide separate financial statements and regulatory reports; and

- OR shall use the Openreach brand, which shall be separated from the rest of BT.

A further aim of these undertakings is that they shall reduce BT's incentives to utilise other forms of discrimination (non-pricing), not for BT as a whole but for key personnel at OR. For this reason, the OR management has been physically separated from the rest of BT, and its remuneration is linked to OR's results, rather than to BT's. Also, a new internal compliance body has been established – the Equality of Access Board (EAB) – to ensure that the undertakings are complied with and, when necessary, to make recommendations to the management of BT about how problems should be rectified.

Appendix 2

Extract from the Swedish Code of Corporate Governance

www.bolagsstyrning.se

Size and Composition, etc.

The board should have a size and composition that enable it to embrace the various qualifications and experience needed and to meet the independence criteria required to manage the company's affairs effectively and independently. The renewal of the board should be paced with due consideration for the development of the company's operations as well as for the need for continuity in the work of the board.

3.2.1 With the company's operations, phase of development, and other conditions taken into consideration, the board is to have an appropriate composition, exhibiting diversity and breadth in the directors' qualifications, experience and background. An equal gender distribution on the board is to be the aim.

3.2.2 The board is not to exceed the size that will allow it to employ simple and effective working methods. There are to be no deputies for the directors chosen by the shareholders' meeting.

3.2.3 No more than one person from senior management may be a member of the board.

3.2.4 The majority of the directors elected by the shareholders' meeting are to be independent of the company and its management. A director is not to be considered independent if he or she:

- is the managing director, or in the preceding five years has been the managing director, of the company or associated enterprises,
- is employed, or in the preceding three years has been employed, in the company or an associated enterprise,
- receives significant remuneration for advice or services in addition to board work from the company or an associated enterprise or from someone in senior management,
- has, or in recent years has had, extensive business ties or other extensive financial dealings with the company or an associated enterprise, in his or her capacity as customer, supplier or part-owner, either personally or as part of senior management or the board or by being a major partner in another enterprise having such a business relationship with the company,
- is, or in the past three years has been, a partner or employee of the audit firm currently or then auditing the company or an associated enterprise,
- is part of senior management in another enterprise having a director who is part of senior management in the company,
- has been a member of the board for more than twelve years, or
- is a close relative or family associate of someone in senior management or of some other person as provided in the preceding clauses, if this person's direct or indirect dealings with the company are sufficiently extensive and important that the director is not considered independent.

An associated enterprise refers to an enterprise in which the company, directly or indirectly, holds at least 10 per cent of the shares or participation or the votes or a financial interest that gives the right to at least 10 per cent of the return of this enterprise. If the company has more than 50 per cent of the capital or votes in another enterprise, the company is considered to have indirect ownership of this enterprise's ownership in other enterprises.

The fourth point is not to apply to the customary bank-client relationships.

3.2.5 At least two of the directors who are independent of the company and its management are also to be independent of the company's main shareholders. A director who represents a major owner or is employed or a member of the board in a company that is a major shareholder is not considered independent.

A 'major shareholder' refers to owners who directly or indirectly control 10 per cent or more of the shares or votes in the company. If one company has more than 50 per cent of the capital or votes in another company, the first company is considered to have indirect control of the second company's ownership in other companies.

3.2.6 Members of the board are to be appointed for one year at a time.

3.8 Accounting and Auditing Issues

The board is responsible for seeing that the company has a formal and transparent system that ensures that the principles established for financial reporting and internal control are observed and that appropriate relations with the company's auditors are maintained.

3.8.1 The board is to document and present information on the manner in which the board ensures the quality of the financial reports and how it communicates with the company's auditors.

3.8.2 The board is to establish an audit committee consisting of at least three directors. The majority of the audit committee management is to be independent of the company and senior management. At least one member of the committee is to be independent of the company's major shareholders. A board member who is part of senior management may not be a member of the committee.

In companies with smaller boards, the entire board may perform the audit committee's tasks, provided that a director who is part of senior management does not participate in the work.

3.8.3 The audit committee is to:

- be responsible for the preparation of the board's work to ensure the quality of the company's financial statements;
- meet regularly with the company's auditors to keep informed of the aims and scope of the audit work and to discuss co-ordination between external and internal audits and views on the company's risks;
- establish guidelines on other services in addition to audit that the company is allowed to procure from the company's auditors;
- evaluate the audit work and inform the company's nomination committee, or where appropriate, the separate nomination committee appointed to propose auditors, of the result of the evaluation; and
- assist the company's nomination committee in preparing nominations for auditors and recommendations on audit fees.

3.8.4 At least once a year, the board is to meet the company's auditors without the managing director or any other company executive being present.