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Six Degrees of Separation

Operational Separation as a Remedy in European Telecommunications Regulation

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Abstract: Numerous proposals have been made for separation in the telecommunications sector, some of which have been implemented, including the break-up of the Bell system in the 1980s and the widespread implementation of accounting separation. In recent years, attention has been focussed on operational separation. This paper identifies the problem that this is intended to tackle, lists a number of possible variants and discusses experiences in the UK. Having specified the circumstances under which operational separation may be justified, it suggests how provisions for such separation could be made in European legislation.

Key words: telecommunications, regulation, operational separation.

The idea of separating incumbent telecommunication firms as a regulatory device to combat dominance and promote competition has a twenty-year history. The break up of the U.S. Bell system in 1984 into local and long distance components was a spectacular inauguration of the process, which was accurately described by a well-known U.S. commentator shortly afterwards as "a reckless gamble – which paid off". In the 1990s attention turned in Europe to two alternative forms of separation—some form of horizontal separation between different platforms, and vertical accounting separation of different components in the telecommunication value chain, such as retail, wholesale or access. The 1995 Cable Directive sought to ensure ownership separation between the telecommunication and cable networks in EU member states. It had mixed success. Deutsche Telekom finally sold off its last cable networks in 2004, but common ownership of cable and telecom networks is still observed in Denmark, Portugal and (outside Europe) in Australia. Accounting separation of the telecommunications incumbent value chain became, however, a standard

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and significant weapon in the regulators' armoury, when accompanied by a rigorous examination of the operator's cost allocations.

Attention refocused upon more radical forms of separation than the accounting variety in the current decade. In BT's early years several of its competitors in the UK- notably Cable and Wireless- called for the break up of the incumbent into variously specified wholesale and retail components, which would fall under separate ownership. This general proposition received a mixed response from commentators, the division being neatly illustrated by the OECD, two separate committees of which at one time expressed opposing views on the subject. In the absence of any regulatory attempt to achieve ownership separation of this kind (no doubt influenced by the absence, in most EU countries, of a viable procedure for accomplishing it) attention has swung back to a form of separation intermediate between the accounting variety and ownership or structural separation. An 'operational' or 'functional' separation of this kind (the former term will be used here) has been achieved in the United Kingdom, and, in a recent speech, the European Commissioner for the Information Society and Broadcasting has clearly ruled it in as a possible element in the review of European regulatory arrangements due to take effect in 2010. As Commissioner Reding said on June 27th 2006 (using the term structural separation to include operational separation in particular):

"I believe that the policy option of structural separation could answer many of the competition problems that Europe's telecoms markets are still facing today. Perhaps we have to be as radical as regulators were in the USA in the 1980s to make real progress? Of course, we will have to find our own European solutions, adapted to the needs of our continent. But 'a European way of structural separation' is certainly a policy option that needs to be discussed intensively in the forthcoming months." (Reding, 2006)

It is thus likely that some form of regulator-enforced operational separation will play a role in the discussion of regulatory reform.

This paper reviews options for operational separation. The first section identifies the problems that the regulatory remedy is designed to remedy. The following one considers the hierarchy (or ladder) of options for achieving operational separation. Then we give a brief account of UK experience, and the last section offers some tentative conclusions and proposals relevant to the new European regime.

■ To what problems is separation a remedy?

The answer to this question revolves around discrimination. Consider a vertically integrated incumbent providing a variety of narrowband and broadband services, untroubled by the presence of an alternative wire-based access network, such as cable. Regulation is likely to be applied under the existing European regulatory regime in the form of mandatory access (at either cost-based or 'reasonable' prices) to some of the incumbent's assets, such as the local loop, wholesale broadband access, call origination, termination and transit, leased lines etc. Such 'pro-competitive' regulation is seen as an increasingly viable alternative to 'consumer protection' regulation in the form of retail price controls.

The success of this approach hinges upon the appropriateness of the terms and conditions of access to the assets in question. Discrimination by the incumbent in favour of its own retail affiliate will diminish the competitive constraints it faces in downstream markets from access seekers.

Such discrimination can take two forms: price and non-price. Accounting separation is designed to ensure parity between transaction prices paid by competitors for access and accounting prices paid by the separated entity's downstream affiliate. Excessive prices will show up in excessive return carried by the access-providing component of the incumbent. A generalised margin squeeze might be illustrated by negative returns for the downstream unit. Of course such 'parity' is not complete in the sense that competitors' access payments are a genuine marginal cost for them, whereas the marginal cost of the same service to the vertically integrated incumbent is its marginal resource cost (the extra physical cost of producing one extra unit, translated into monetary units). The latter is likely to be much lower than the former, when access prices are based on long run average incremental cost, with mark up, while the production process exhibits economies of scale.

Accounting separation might thus deal with price discrimination. But non-price discrimination is a different matter. Much of the UK case in favour of operational separation rests on the proposition that BT had the means and the motive to practise non-prices discrimination in relation to such products as unbundled loops, wholesale line rental, and bitstream, had in fact done so, and was likely to persist in doing so (Ofcom, 2005; CAVE, CORREA & CROCIANI, 2006). The proposed remedy is a redesign of business processes, – operational separation – to ensure precisely equal treatment – 'full equivalence' – for both internal and external purchasers of the same service.

Thus in principle, a combination of accounting and some form of operational separation might outlaw discrimination, both price and non-price. But is this always a legitimate objective. Can discrimination be desirable in any circumstances?

The answer to this question depends on the overall regulatory strategy of which a non-discrimination remedy is a component. Roughly speaking, this is likely to involve a regime of mandated access, the form of which depends upon the replicability of the assets in question. If they are clearly non-replicable, then a policy of cost-oriented pricing will probably be adopted. If they are more readily replicable, then a higher access price may be appropriate to encourage innovative investment by both the access provider and the access seekers.

To be more concrete, consider unbundled local loops, an input the terms of supply of which (compared with 'bundled' loops) are likely to have a major effect on competitive developments in broadband. The effective prohibition of discrimination is likely to chill investment in competing loops, but it will encourage investment out to the local exchange. If the former effect predominates, then a policy of non-discriminatory cost-based pricing may hamper infrastructure investment in the long term. If the latter effect predominates, it will promote competitive investment. But either way, this issue should be addressed explicitly by the regulator, for example through the access pricing rule adopted. Leaving the solution to the vagaries of non-compliance with anti-discrimination rules is not likely to be good regulation.

■ Separation options

If separation has been chosen as a regulatory measure, then two dimensions of it have to be defined, one structural, the other behavioural. Firstly the separated components (retail, wholesale; monopoly, competitive) have to be defined. Then rules governing transactions over these boundaries have to be established.

The logic of the argument in the previous section is that what has to be policed is the boundary between markets where the incumbent exercises persistent market power (and hence can discriminate with anti-competitive effect) and markets which are competitive. It follows from this that the appropriate division depends upon current and predictable market developments.

There is a crucial question of priorities. In Europe, proposals for operational separation focus on current generation access networks - notably copper loops providing ADSL. Telecom New Zealand, by contract, has proposed focussing its separation efforts, aimed at achieving full equivalence between third party buyers of access services and its own retail affiliate, on next generation networks (NGNs) (TCNZ, 2006). The context of this article is primarily current generation networks.

In discussions of separation, the two principal candidates for making the split are between retail and wholesale and between access and non-access services. Underlying this is a three-way split as follows:

Retail	Marketing and selling services to end-users and managing the end-user relationship
Network (non-access)	Core network services Call origination, termination, transit etc Trunk segments of leased lines Some backhaul
Network (access)	Unbundled local loops Wholesale line rental Some backhaul Tail segments of leased lines

At this very high level of aggregation, it is hard to identify persistent competition problems with retailing or core network services. Other network products may present harder, but not insoluble problems. Where such problems are likely to be found is in access services in areas without cable or effective wireless networks. The intermediate function is backhaul, which will probably be (actually or potentially) competitive in some areas but not in others. This issue acquires particular significance because backhaul is one element (together with the local loop) in wholesale broadband access or bitstream. A national bitstream product will include all backhaul, while a regional product will enable the purchaser to provide its own backhaul, at least from selected regions.

On the basis of these arguments, the balance of advantage seems to lie heavily with an access/non-access separation, leaving wholesale broadband access in an uncomfortable half-way house position, to be resolved on the basis of individual market conditions.

The second step in establishing a separation regime is to specify the behaviour required. In one sense, the focus should be transactions on the boundary between the separated components, but the objective of achieving non-discrimination here may have to be supported by wider-ranging constraints on the separated entity.

Figure 1 below contains a specification of separation options varying from accounting separation at the bottom of the 'ladder' to partial or full ownership separation at the top.

Figure 1 - Separation options

Ownership separation(in whole or part)
6-Legal separation (separate legal entities under the same ownership)
5-Business separation with separate governance arrangements
4-Business separation with localised incentives
3-Business separation (BS)
2-Virtual separation
1-Creation of a wholesale division
Accounting separation

The focus here is on the six degrees lying between (and excluding) accounting separation and ownership separation. These options are now described in more detail.

Accounting separation itself entails separate profit and loss statements and balance sheets for the separate entities. This can be accompanied by the creation of a special wholesale (or otherwise named) unit, with a dedicated management (1 in fig. 1). This will be responsible at a managerial level for the production and supply of the relevant products, but with no guarantee, at this degree of separation, of non-discrimination between affiliated and competitive access seekers. This is broadly the modus operandi of European telecommunications incumbents at present (with the exception of BT – see below).

Under this regime, the regulator can make attempts to ensure some loose equivalence between services to affiliated units and to competitors. However these efforts are hampered by two factors in particular:

- The absence of a clean target level of equivalence – an ambiguity that leads to opportunities for the incumbent to continue to discriminate;
- The fact that the incumbent's network, IT system and business processes were broadly designed within the context of a fully integrated firm supplying end users directly, but not supplying access services to third parties. Access products were grafted onto this framework, through the adoption of special procedures and technological fixes. This provided a means of introducing discrimination, which was obviously attractive if the commercial motive to discriminate were present.

A variant of the wholesale division which has surfaced in Australia is Telstra's proposal for operational separation, now accepted by the Australian

Government. This involves creating a separate wholesale division dealing exclusively with access seekers – the supply of the same products to the company's retail side being accommodated in an integrated framework (Telstra, 2006). This approach seems singularly ill-equipped to achieve any kind of equivalence in the services offered by to internal and external customers, as it exaggerates the differences in institutional arrangements between them. In any case, these considerations suggest that creation of a wholesale division by itself will be ineffective.

The next variant to consider is virtual separation (2). This refers to the imposition by the regulator of an obligation to achieve full equivalence in the services offered to internal and external customers without any physical separation of networks, signalling systems, business premises etc. Vertical separation thus effectively requires a reengineering only of the transactions boundary to achieve equivalence, but no change in the underlying production processes. Virtual separation might be achieved, inefficiently, by degrading the quality of services provided to internal customers (for example, the speed with which orders are transmitted and processed) or by upgrading services provided to external customers. Virtual separation is likely to be much less costly than more comprehensive 'physical' separation.

The key issue here is the actual and perceived feasibility of achieving full equivalence in such circumstances; both are important since lack of trust in the arrangements will deter investments by competitors almost as severely as actual discrimination. Still, as this approach has not yet been tried in the context of achieving full equivalence, it is only possible to speculate about how it would work and what it would cost. However, its similarity to previous attempts to outlaw non-discrimination, which in several jurisdictions are regarded as failure, is a handicap.

The next step up (3) involves physical business separation, which requires reworking of underlying business practices and not just changes at the transaction boundary, as with virtual separation. The aim is to segregate particular assets and other inputs within a separate unit, which then trades using identical processes with both internal and external customers in way that can be verified transparently.

However the separation is not complete; otherwise we would be observing something equivalent to full ownership separation. Instead, the firms' assets can be separated in different degrees, as shown below:

Premises	Staff can readily be physically separated in different offices and workplaces
Operational support systems (OSS)	These can be separated at a cost.
Labour force	Separate units can have different internal labour market – i.e. no movement between them, or they can be integrated
Brand	The organisations can bear the same or different means, or a compromise – e.g. 'x' a division of 'y' corporation
Management information systems	Their separation will increase trust in prohibitions on illegitimate information transfers across the boundary
Strategy	Strategy, especially strategic investment decisions, such as construction of a fibre to the node (FTTN) network, is likely to fall to the main board and not be 'separated'.

There seems no obvious impediment to a high degree of separation of processes, support systems, management information systems, labour forces and brands. Clearly each process will have associated costs, which will have to be taken into account in the regulatory impact appraisal.

The separation of major investment decisions in the access network raises more formidable problems. Such a large investment has clear commercial and financing implications at the group level, yet it can be used anti-competitively. One non-European incumbent justified an acknowledged loss-making investment in a network for the delivery of broadcast services on the grounds that it was a 'telephony defence measure' - it prevented a rival operator proposing to offer telephony and broadcast services on a single network from making headway in the telephony market. The UK regime for operational separation (described below) requires that any investment in access products are considered solely on their own merits, and do not take account of increases in downstream profits. It is not clear, however, a) whether this is a big problem, and b) how it can be policed, although the local incentive arrangements described below may go some way to defuse it.

The next level of separation (4) involves incentives for senior managers in the separated entity, and if externally imposed, it involves more detailed regulation not only of the transaction boundary and production processes, but also of the relations of production of the separated services. The simple argument in favour of separation is that, in the absence of appropriate incentives, senior managers will maximise group shareholder value rather than divisional profits, as a means of personal advancement and a response to share options. This may lead executives to practice discrimination against competitors whose success in downstream market would otherwise jeopardise group profit. To prevent this, managerial remuneration should be tied to divisional performance and (where possible) restrictions should be

imposed on the movement of senior staff from the separated unit to the group.

A further escalation of measures in a similar vein (5) would require the creation of a divisional board with non-executive directors independent of the group. This could take the extra form of legal separation (6), a regime in which a separate board is created and separate statutory accounts are filed - all designed to emphasise and support the independence of the separated entity. These options represent the highest degrees of operational separation listed above.

Six separation options have been described with their associated internal behavioural rules. Running in parallel are enforcement mechanisms. These can be internal or external. For example, the group can set up an independent complaints body to investigate the conduct of the separated entity. Alternatively, the regulator can investigate and impose sanctions for breaches of license conditions or of undertakings. As in other areas of activities, an effective external enforcement system with a high level of deterrence can, to some degree, secure the achievement of goals that go against the grain of a company's or a manager's incentives. Equally, a well-designed incentive mechanism can relieve the pressure of enforcement.

Before evaluating the alternatives listed here, it is worth briefly reviewing the development of operational separation by BT in the UK.

■ Operational separation in the UK

This article does not examine the genesis of the undertakings relating to the form of operational separation offered by BT to Ofcom (and accepted by Ofcom) in September 2005, but simply describes their provisions and impact to date.

The undertakings offered by BT fell within the framework not of sector-specific regulation, but of UK competition law, in the form of the Enterprise Act 2002. Breaches of the undertakings lay BT open to fines and to legal action by private parties.

In terms of the distinctions made in the section above, the separation chosen is between access (including backhaul) and non-access (core and retail) services and involves 'business separation' with local managerial

incentives. It is supported by a complaints and enforcement regime described below:

In more detail, BT undertakings, expressed in a 55-page document (Ofcom, 2005b), are as follows:

- To establish an operationally separated access services divisions (subsequently named Openreach), located on separate premises;
- To ensure full equivalence for key access products by the following dates:
 - IPStream- December 31st 2005
 - metallic path facility-June 30th 2006
 - shared metallic path facility- June 30th 2006
 - backhaul extension service-September 30th 2006
 - wholesale analogue line rental-June 30th 2007
 - wholesale ISDN2 line rental-September 30th 2007
 - wholesale ISDN line rental-December 31st 2007;
- To establish an equality of access board (EAB) with a majority of independent members to police BT's adherence to the undertakings;
- To consult on the development of its next generation networks.

To date, an access services division has been established under the name of Openreach; fully equivalent services are available for IPStream and local loops: the EAB has been established; and collaboration on NGNs has progressed via an industry group called NGNUK. BT's progress in meeting its key performance indicators is shown in BT (2006a and b).

Ofcom has also conducted a survey (Ofcom 2006) of BT's wholesale customers of Openreach and BT Wholesale (which provides wholesale services not provided by Openreach). This survey concluded that not much had changed so far. Openreach management was enthusiastic and approachable, but there were doubts whether it would deliver, doubts which were reinforced by Openreach's teething problems. Respondent identified priorities as:

- scaling up staff,
- focusing on resolving hands-on operational and service issues,
- ensuring that focus on equivalence "does not result in the lowest common denominator and, consequently, 'equally poor' instead of 'equally good' services for all concerned".

On the cost side, BT's Annual Report and Accounts for 2006 record a specific item for operational expenditure of £70 million for the estimated incremental and directly attributable cost arising from the obligation to set up Openreach.

■ Conclusions and proposals

The UK experience of functional separation is still in its infancy, but regulators close to the process have detected a major change in the way BT's anti-discrimination obligation now operates. Previously it was fuzzy, responding to the injunction: "do not discriminate in a way which has a material effect on competition". Scores of complaints from competitors were investigated and inquiries by the regulator undertaken, not one of which led to a formal finding adverse to BT.

The new requirement in the undertakings, by contrast, is sharper – the 'bright line' of full equivalence of services supplied to internal and external customers – and for that reason much more easily verifiable and justifiable. It is supported by a complaints body, which is still finding its way, and a senior management incentive scheme only recently completed. It is also combined with a major change in BT's strategy and rhetoric. The company now denies that it benefits in the UK from the advantages of incumbency. Instead it sees as its key strategic advantage its ability first to succeed in a more symmetrical home market and to take the benefit of that experience abroad in the lucrative market for corporate telecommunications services in Europe and the wider world, where it will face incumbents still enjoying, but about to lose, the fruits of continued discriminatory behaviour. Hence its incessant support for regulatory interventions, which draw down the benefit of incumbency elsewhere and create level playing fields everywhere. It is reasonable to suppose that the outcome of operational separation in the UK will be the joint product of regulation and this strategic shift.

In the UK, operational separation emerged as an undertaking in a procedure under *ex post* competition law (the Enterprise Act 2002). This enabled the competition authority in the UK (which, in the communication sector, is also Ofcom, the NRA) to accept undertakings in lieu of a reference to the UK's Competition Commission. No other member state has the same legislation, even though competition authorities in others have access to powers under an EU Regulation (no. 1, 2003) which permits the break-up of

a company found to have infringed competition law, if it can be shown that no alternative behavioural remedy is equally effective. In some circumstances, this could be used to promote operational separation, but the process would be tortuous. It seems, therefore, that any widespread and timely recourse to operational separation with the EU would have to be achieved via *ex ante* regulation, through revised Framework and Access Directives.

A possible new remedy under their Directives is outlined below, but it is important that this remedy be applied proportionately. This requires that the detriments resulting from non-price discrimination exceed the costs of imposing an operational separation remedy, where those costs are not only those of changing the incumbents' business processes, but also of any chilling effect on investment in new assets, by both the incumbent and competitors.

Ofcom undertook an analysis of the regulatory history of key access products, which led it to the conclusion that BT had been obstructive in their provision. It also undertook a careful analysis of the scope for competition in various markets, in order to delineate those services which were immune from competitive pressure in the medium term, and hence should be placed in the separated access services division.

Any NRA proposing to avail itself of a new operational separation remedy should undertake the same analysis. It would also be desirable if some form of scrutiny of remedies, by the Commission or the European Regulators Group, were in place to prevent 'copy-cat' use of a fairly draconian remedy

Operational separation would have to appear as a new or enhanced discrimination remedy, or a combined transparency / discrimination remedy, normally accompanied by accounting separation and some form of price control.

A Directive has only to set out the broad terms of an obligation, leaving it to national legislation or the NRA to fill in the details. The remedy should also be as parsimonious as possible, to avoid micro-management by the NRA of the SMP operator's conduct.

This involves consideration of what provisions are indispensable to the achievement of the goal of eliminating non-price discrimination by operational separation. The essence of the remedy is the creation of a uniform transaction boundary for internal and external customers at which a

'bright line' test of equivalence can be performed. This will involve separation of an appropriate number of the physical inputs into the production process enumerated above. This paper suggests that all of those considered (premises, OSS, labour, brand, MIS and there may be more) can be separated, if necessary. Incentive and governance changes seem an issue of a different order, as they concern the relations of production within the access component of the firm, not what transpires on the boundary. Equally, a requirement can be made for an internal complaints and monitoring process, but an expanded regulator-driven process can (perhaps inefficiently) substitute an internal process, and must in any case lie behind such an internal process should the latter fail. In other words, with business separation in force, there is scope for substitution among the sustaining mechanisms of incentive changes, governance arrangements and internal and external appeal mechanisms. The details of such arrangements can be crafted by NRAs, if they find such a remedy necessary and proportionate.

A further point of difference between a putative operational separation remedy and other current remedies in the Directives is that separation in its nature might apply to several SMP markets simultaneously, rather than the single market now analysed and remedied under the current Access Directive.

Taking these points into account, an operational separation remedy could be designed as a general article, accompanied by a non-binding annex, which listed some of the dimensions of intervention that NRAs would take into account. An example of such an approach is given below:

"Whereas

Concerns about non-price discrimination on the part of access seekers may deter entry into the supply of electronic communications services, and in some circumstances can only be resolved by imposing a regime of full equivalence in the supply of access or wholesale products more generally to internal (affiliated) customers and external customers; it is thus important that NRAs dispose of effective remedies to ensure such equivalence.

This can be achieved by imposing operational separation on the access provider, ensuring that a range of products using non-replicable assets are transferred to customers in fully equivalent form. This requires the separation of the business process involved in the production of the specified services from those involved in other retail and wholesale products; this separation of business process may be accompanied by incentive and governance changes.

This remedy should be strictly confined to markets where there are limited prospects for the development of effective competition.

ARTICLE X-Obligation to separate the production of specified access products operationally

1. A national regulatory agency, in the interest of transparency and non-discrimination, may impose obligations on operators to prevent non-price discrimination by means of a separation of inputs into specified access products and other downstream markets. The obligation will extend to requiring exact equivalence in the nature of the access service and the process by which it is acquired by all customers. Such products must therefore be sold at the same prices and the same terms and conditions (including price and service levels), by means of the same systems and processes.

2. The NRA may also impose obligations relating to the transfer of information between the access provider and its customers, to ensure that affiliated organisations do not benefit from insider knowledge.

3. The precise form of the remedy will be chosen by the NRA. The annex identifies options relating firstly to the inputs in the production process which may require separation and secondly to a range of relevant supporting measures.

4. The NRA may choose to apply this measure to several markets simultaneously, thereby creating a single operationally separated set of access services.

ANNEX

The inputs or activities subject to separation may include (non-exhaustively) the following:

- premises,
- labour force and the creation of a firm-specific (internal) labour market,
- brands,
- operational support system,
- management information systems.

The NRA may also impose supporting measures including (non-exhaustively):

- restrictions on the incentive systems for senior managers to be employed by the separated business;
- an internal complaints and appeals body, which may be made up of a majority of outside members, with a duty to communicate its evaluations and conclusions to the NRA;
- rules governing the operation of company boards supervising the production of access services."

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