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Significant market power in telecommunications: theoretical and practical aspects

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International Telecommunication Union

This report on the theoretical and practical aspects of the significant market power in telecommunications has been prepared by Prof. Dr Paul J.J. Welfens (welfenspjj@aol.com), President of the European Institute for International Economic Relations at the University of Wuppertal in Germany. It is part of a series of ITU telecommunication studies analyzing economic aspects of telecommunications and carried out by ITU/BDT's Market, Economics and Finance Unit (MEF). This report also reflects the results of the discussions on telecommunication market analysis during the seminar on Economic Dynamics of Newly Liberalized Telecommunication Markets in CEE Countries and Baltic States, held in Vilnius, Lithuania, in October 2004 (http://www.itu.int/ ITU-D/finance/work-cost-tariffs/events/tariff-seminars/lithuania-04/index-results.html).

Note: The views expressed in this paper are those of the author and do not necessarily represent the opinions of ITU or its membership.

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1 Introduction: efficiency gains and innovation in competitive markets

Telecommunications markets throughout the world economy are characterized by a high level of economic and technological dynamics. The latter can be partly attributed to digitization, which has led to a convergence of previously existing markets, such as cable TV, fixed-line telecommunications and broadcasting. Modern digital technologies have created larger markets in which data, voice, video and audio are transmitted in the form of compressed digital signals.

Economic dynamics received a boost with the 1998 liberalization in fixed-line telecommunications and GSM technology in mobile telecommunications, and with the roll-out of UMTS mobile technology, which began in 2004/5. In OECD countries there has also been growing production and use of information and communication technology (ICT), contributing to higher economic growth (AUDRETSCH/WELFENS, 2002); and the expansion of the Internet has also reinforced international trade and growth in many countries (WELFENS, 2003; BARFIELD/HEIDUK/WELFENS, 2003). The telecommunications sector is a crucial pillar of ICT; sustained competition in telecommunications could be quite important for mobilizing crucial productivity and welfare effects in the digital economy.

For historical reasons, the situation in fixed-line telecommunications is unusual, in that, in most EU countries, the former state-owned monopoly operator is the dominant firm, subject to asymmetric regulation in the fields of interconnection and access (local loop issues). Universal service continues to be an important element of fixed-line telecommunications; affordable, broad access to telecommunications is an important ingredient in a social market economy. With advanced mobile telecommunication technologies such as GSM, there are new, mobile elements which could be included in a modern concept of telecommunications and digital universal services.

Mobile telecommunication not only plays an important role in Western Europe, North America and Asia, but also is crucial in transition countries in eastern Europe (WELFENS/YARROW, 1997; WELFENS/YARROW, GRINBERG, GRAACK, 1999) and in many newly industrialized countries. The eastward enlargement of the EU has created many challenges for regulatory reform, restructuring and privatization in the new-accession countries. From the perspective of the EU as a whole, enlargement in the East brings with it a considerable increase in EU market size (SOLBES, 2004).

The technology of mobile telephony being somewhat different from that of the fixed-line networks, it may be observed that, in relatively poor countries, standard mobile services (GSM-based, for example) can be rolled out rather quickly. Mobile telecommunication has its own regulatory problems; two interesting elements are roaming and interconnection. Termination fees are regulated in many countries.

Under EU framework regulation, a crucial challenge for policymakers in EU member countries, where telecommunication is concerned, is to achieve sustained market competition. Governments have chosen different approaches to support functional long-term competition. The main arguments in favour of strengthening competition are as follows.

- Competition is a means of enhancing efficiency and forcing firms to bring prices down to costs (static efficiency), plus a normal rate of return.
- Competition stimulates innovation, especially product innovation – bringing more valuable products to customers – and process innovation, lowering costs to make products or services more affordable (dynamic efficiency).
- Competition creates the right conditions for newcomers from other sectors or newly created companies to enter the market; it is therefore a prerequisite for economic freedom.
- Competition extends to imports, and thus contributes to an international division of labour.
- Competition in one sector should not distort competition in another.

Anti-collusion laws are typically aimed at a range of practices.

- Collusion between firms, which includes bid rigging, price fixing, market division (agreements among firms not to compete in each others' markets) and group boycotts (refusing to do business with a specific supplier, competitor or customer).
- Restrictions or prohibitions on mergers and acquisitions with the potential for a significant negative impact on competition.
- Problem of dominant position, i.e. significant market power. The existence of significant market power is the major reason for regulation: the aim is to prevent abuse of dominant position.

Enforcing sustained competition in telecommunications brings benefits in three ways.

- Direct benefits to consumers in the form of lower prices and innovative services.
- Lower production costs for all firms which use the product/service as an input. In the case of tele-communication, this is enormously important, since almost every firm uses telecommunications services.
- Growth of regionally or globally competitive firms, which is the starting point for developing owner-specific advantages; those in turn are the basis for successful production abroad. Thus, successful multinational investment abroad requires a competitive home market. (Domestic monopoly power is also useful for multinationalization, in that a monopoly generates high profits which can be used to finance production abroad; however, in technologically dynamic markets the more important aspect is ownership-specific advantages which emerge in a competitive domestic home market.)

The problem in many countries is that competition in fixed-line telecommunications is vulnerable to distortion because of abuse of market power by the dominant incumbent (often holding a 60-90 per cent share of the local-access market); international mergers have the potential for creating even larger dominant firms, concentrating not only economic but also political power. Establishing a regulatory authority for the telecommunications sector is useful because this sector has certain characteristics that make it almost impossible to apply generic competition law. For example, competition law takes a reactive approach to dealing with abuse of dominant market power, while, in many countries, pro-active regulation is required to ensure functioning competition in telecommunications. At the same time, the need for an effective regulatory authority must not obscure sight of the fact that regulation is associated with costs.

Clear, consistent and reasonably stable regulation of public telecommunications is needed not only to bring the benefits of competition to household and business users; it is also important for investors in the telecommunications sector. A stable regulatory climate means that regulations can evolve, but sudden changes are avoided as much as possible. There are two approaches the regulatory authority can take.

- Emphasizing competition in telecommunications *services*, which would mean essentially splitting the operation of the fixed-line network from digital services, and providing an incentive for the network operator (or operators) efficiently to generate as much value-added digital service as possible. Such an approach is promising for obtaining full exploitation of existing network capacities, but it is unclear whether there would be sufficient incentives for network expansion over time.
- Emphasizing competition in *infrastructure* ("facilities-based competition"), thereby encouraging incumbents and newcomers to invest in infrastructure. At the same time, with vertical integration, network providers would be given an opportunity to operate on their networks and provide a range of services. An important potential problem is the existence of massive economies of scale (and density) in network operation, favouring the emergence of natural monopolies, as only a small number of companies will survive in the market. Where only one major operator is left, there is the risk that the dominant company will be a weak innovator. If it is anticipated that dynamic inefficiencies will exceed the benefits accrued through the static exploitation of economies of scale, government should restrict mergers and acquisitions, or impose a break-up of the network held by the dominant incumbent.

The telecommunications sector is also unique because of the imperative of universal service, with its requirement that all people have access to telecommunications and that certain public interests (e.g. life-line services) be taken into account by network operators and service providers.

Mobile telecommunication has become very popular in most countries. From a regulatory point of view, there is a need to allocate a scarce resource, namely radio spectrum. This can be done in various ways: by means of a lottery, a "beauty contest" (a detailed comparison of the commercial and technical merits of competing offers) or via an auction. From an economic perspective, auctioning off licenses is the best way to allocate spectrum. A major problem occurs if different modes of allocating frequencies are applied within the relevant market. For example, in the EU mobile market it is illusory to talk of a level playing field as long as Telefonica, for example, obtains a national UMTS frequency for its mobile subsidiary practically for free, while Deutsche Telekom has to pay a high price for the national UMTS license in the auction held in Germany.

In the following analysis, a closer look is taken at the problem of market power. We look at some common problems, and examine aspects of network effects, vertical integration and technological progress. A new argument against vertical disintegration in telecommunications is presented. We present a new view on how competition can function in oligopolistic markets, and argue that new dynamic limit-pricing models could be useful to analyse telecommunications markets. Finally, policy conclusions are presented.

2 Market power

2.1 Market power as a theoretical concept

In fixed-line telecommunications, one must clearly distinguish between the access markets and long-distance/international telecommunications markets. Access to households or firms (the telecommunication services users) is vital for all services to be provided. In the case of an incumbent firm holding a very large share of the access market, the regulator will have to make sure that other network operators are able to obtain interconnection at non-discriminatory and cost-oriented prices.

Market power is an economic concept which has two key elements:

- The relevant market and product or service (as the case may be): the market power of a firm concerns its ability to influence the price of a specific product or service.
- The issue of sustainability of market power: a dominant market position which could easily come under attack by newcomers is obviously less of a problem for the regulator than a sustained dominant position in the market.

How can one measure market power? The most obvious way is to look at market share. The EU considers a market share of more than 50 percent as a strong indication of significant market power. However, there could be a serious market power problem even with a lower market; for example, a firm might have not only a strong market position but also enormous financial clout, allowing it to embark upon aggressive, predatory pricing as a means to drive competitors out from the market.

A simple approach might be to distinguish on the basis of the intensity of competition:

a) polypolistic competition, with many firms and many users;

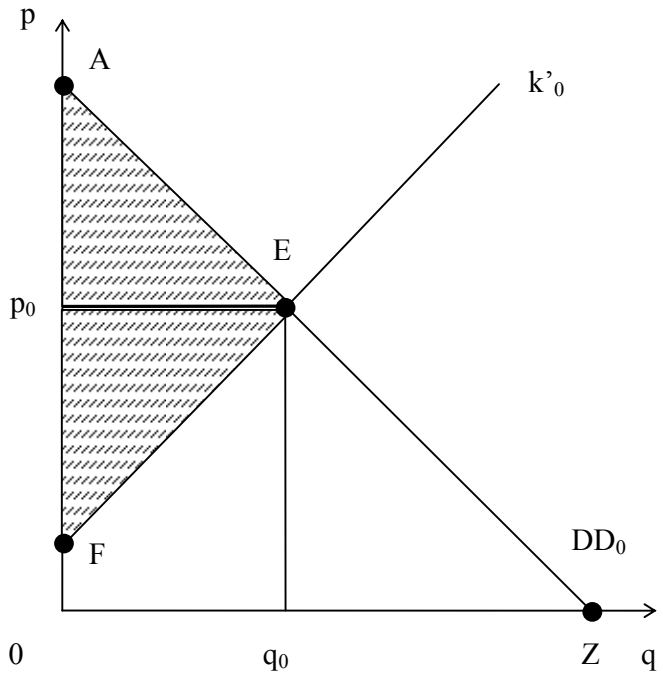
b) oligopolistic competition, with a few firms and many users – depending on the strategies chosen by the firms, various sorts of market equilibrium are possible;

c) monopoly, which means that there is one firm and many users (another special case would be a duopoly, where there are two competing firms).

As a point of reference, economists often take a simple but useful approach to analysing the benefits of competition: the sizes of the consumer and producer surpluses are indicators of economic welfare, so that intensity of competition and regulatory interference, respectively, can be judged on this basis. Let us take first the case of rising marginal costs *k´*; here it is important to note that profit-maximizing firms plan the quantity of goods to be produced (or services to be provided) on the basis of the marginal cost curve, which is identical to the supply curve. The marginal cost *k´* is the additional cost of producing one extra output unit. The integral over the marginal cost curve – that is the area under the *k´* curve (this includes a normal yield on capital input) – gives the cost of production. In a situation of competition, all firms are price-takers in the market, and the intersection of the sector supply curve SS_0 and the demand curve DD_0 determines market equilibrium. There is a market-clearing price, p_0, at which all users can buy. If equilibrium output is q_0, then revenues – or total added value, if there are no production inputs from other sectors – are p_0q_0. Costs being given by the area OFEq_0 (read point q_0), residual profits are seen to be equal to the area of the triangle p_0EF.

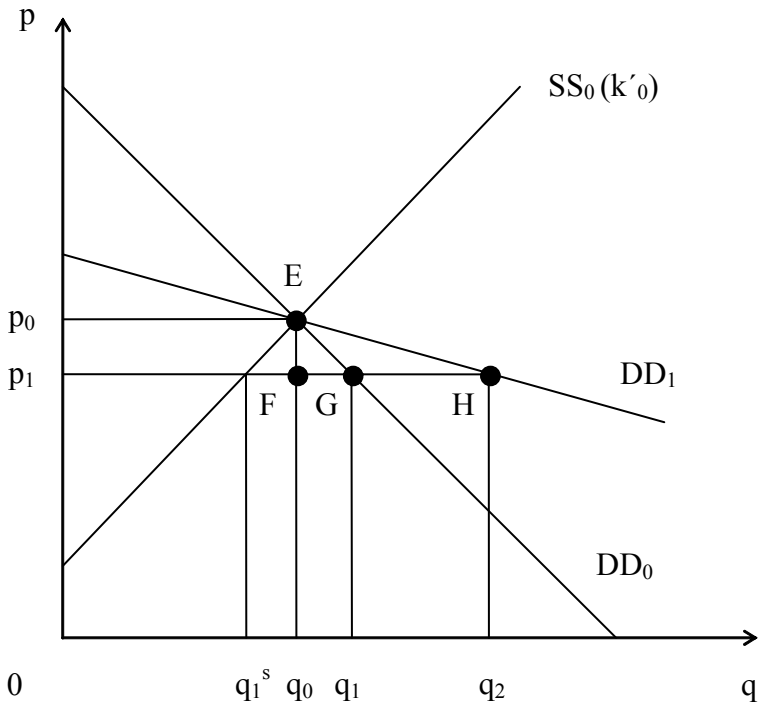
Although all users buy at the uniform market-clearing price p_0, many would have been willing to pay more, as is obvious from the arc AE on the demand curve: Hence, the triangle AEp_0 represents an extra or bonus for the users; this is known as the consumer surplus. In polypolistic competition, all firms are price-takers. Each firm accepts the market-clearing price and then decides – based on its cost curve – how much it will produce (hence, the market supply curve consists of many individual supply curves, each one representing one of the firms; the cost curve starts with the firm which has the lowest marginal costs of production). The opposite of polypolistic competition is a monopoly, in which the firm has no competitors on the market, and acts in the knowledge that the market price is not given; rather, the price it charges will influence demand. Profit-maximization in a monopoly leads to the well-known condition that marginal costs, *k´*, equal marginal revenue *R',* (defined as the extra revenue from selling an additional unit: since revenue equals *pq*, we have *R'=dR/dq* is *p* if price is given, as in the case of polypolistic competition when the intersection of the supply curve and the demand curve determines market equilibrium; but under a monopoly, *dR/dq* is equal to *dp/dq q + p*; and *dp/dq* is, of course, negative as the price falls if quantity is increased). In a monopoly the market price is always higher than in polypolistic competition, and in this way, quantity is lower.

Figure 1 – Consumer surplus and producer surplus



An important aspect of market dynamics is the elasticity of demand, which can be defined either on a given demand curve ("point elasticity"), or with respect to the slope of the demand curve: the higher the price-elasticity of demand, the larger the number of customers that will defect once the price is raised; and the larger will be the increase in demand if the price is lowered. We can clearly see that the relatively elastic demand curve DD_1 will bring about a relatively larger increase in demand than the case of DD_0. The flatter the curve, the easier consumers can switch to a substitute, for example by replacing ISDN access with cable TV access or satellite access.

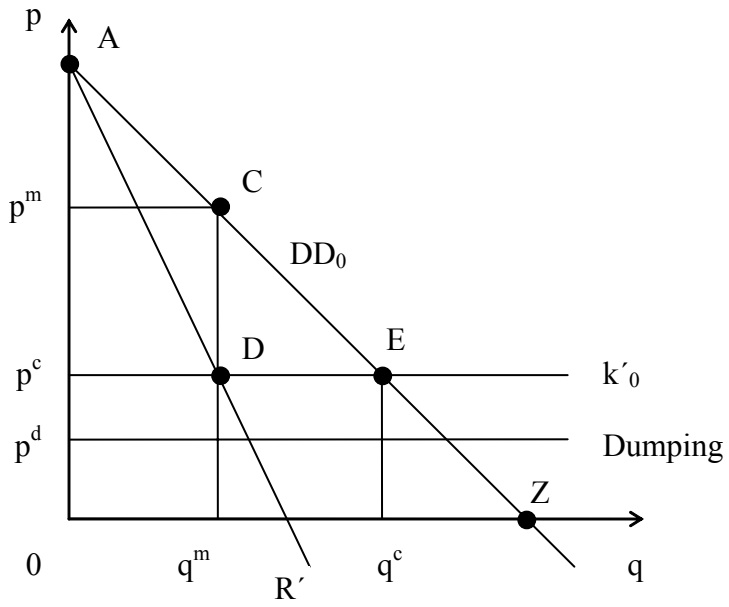
Figure 2 – Elasticity of demand and market equilibrium



2.1.1 Market share and size of the firm

Market power is heavily associated with the ability to raise the price above marginal (or average) costs. A simple illustrative case is a monopoly in a situation with constant marginal costs. A profit-maximizing monopoly will produce according to the rule that marginal costs equal marginal revenue, so that point C on the demand curve is realized: the monopoly price is p^m, output is q^m. By contrast, under competition (where equilibrium is determined by the intersection of the marginal cost curve and the demand curve) we have a much lower price p^c and a much larger output q^c. Under competition, the consumer surplus is equal to the triangle AEp^c, but in a monopoly it is only **AC**p^m; there is a permanent loss in consumer surplus which is equal to the **triangle CDE**. Part of the consumer surplus under competition is redistributed in favour of the monopolist; its residual profit is equal to the rectangle p^mCDp^c. While a monopoly normally overcharges consumers, there could also be a different problem. A powerful dominant firm, when faced with potential new entrants, can engage in dumping or predatory pricing, aimed at fencing off market entry; in this case, the dominant firm actually charges prices below costs.

Figure 3 – Competition versus monopoly (with constant marginal costs *k´*)



In telecommunications there are therefore two potential challenges: overcharging and dumping. The regulator can assess these problems only if it has some basic knowledge about cost structures, which presupposes some analytical expertise on the part of the regulator.

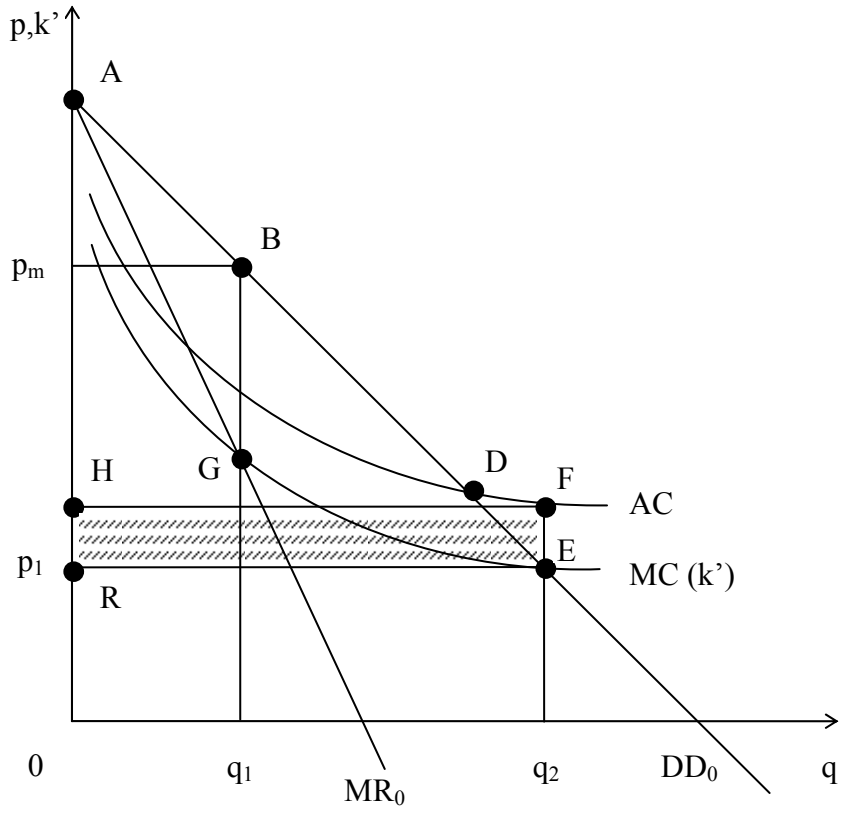
Potential problems associated with the existence of a dominant position concern:

- Refusal to deal: this is related to the essential facilities doctrine: an essential facility is a facility supplied on a monopoly basis which is required by competitors and cannot be reasonably duplicated by competitors, for economic or technical reasons. This problem of a monopolistic bottleneck often is crucial.
- Predatory pricing: the (dominant) operator charges prices below a normal cost standard, and there is evidence that this is not sporadic or reactive price-cutting. This strategy aims to keep newcomers at bay.
- Cross-subsidization: a firm uses revenues from a market in which it is dominant to cross-subsidize the price of a service or product it provides in other markets – thus impairing competitors and keeping out newcomers. In some cases, the threat of predatory pricing alone will suffice to keep newcomers out of the market.
- Tied sales/bundling: Service 1 sold only if service 2, 3...n are also bought. This is anti-competitive if the firm has a dominant position in one of these markets, as it extends the firm's dominant position to other markets.
- Excessive pricing: the price is above the level under competition so that there is a monopolistic element in pricing.

As many former monopoly operators enjoy a market share above 50 percent in fixed-line telecommunications, the potential problems associated with dominance have to be studied carefully by the regulator.

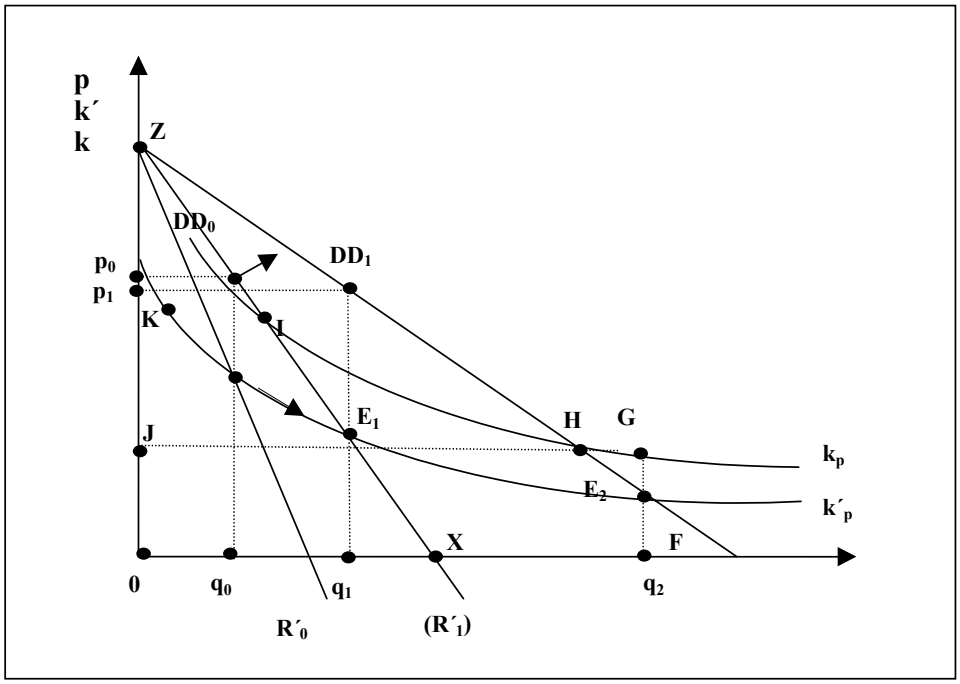
The problem of market dominance in telecommunications is serious to the extent that there is a natural monopoly in fixed-line telecommunications. Indeed, there are economies of scale and economies of density in part of the fixed-line network operation which imply falling average costs (AC) and falling marginal costs *k´* (or MC). From an economic perspective it would be optimal to realize point E, that output where marginal cost is equal to marginal benefit. However, this will require a subsidy, since average costs exceed marginal costs by the distance EF. The overall subsidy would be equal to the area FEp_0H. One of the many problems associated with subsidization is that other industries will also call for subsidization. Moreover, every subsidy has welfare costs through the necessary financing and raising of taxes, respectively. Fixing output in accordance with the intersection of the average cost curve and the demand curve would be a second-best optimum, which might indeed come very close to an optimum – subsidization is avoided. If part of telecommunication is a natural monopoly – in many countries, the access market is in fact monopolistic – it is clear that there will be the problem of a dominant operator or even a monopoly. Regulatory action is necessary in this case.

Figure 4 – Natural monopoly/economies of scale



Telecommunication is more complex than other industries, and one of the important reasons why this is so is the existence of network effects. The early users of a certain service will enjoy higher benefits if other consumers/firms are also linked to the network and use the service. Such network effects imply an endogenous growth of sector demand (for an economist this looks superficially similar to the case of positive external effects on the demand side; in such a case the social benefits exceed private benefits, so that the relevant demand curve is farther to the right than individual willingness to pay indicates). It is unclear whether telecommunication firms can fully anticipate network effects; correct anticipation would be crucial for adequate investment planning. Assuming that network effects show up as an outward rotation of the demand curve we can portray an initial demand curve DD_0 (without network effects) and the dynamic demand curve DD_1 (with network effects).

Figure 5 – Network effects and natural monopoly



The demand curve DD_1 is drawn in such a way that the initial demand curve DD_0 coincides with the marginal revenue curve (R'_1) for DD_1. We can immediately see there is a large discrepancy between monopoly pricing on the basis of DD_0 and the optimum solution in point F or the second-best solution in point H. The existence of network effects means that it is useful to have several suppliers, ideally in an oligopolistic setting with considerable interdependence among firms. For example**,** where several firms have been active in the mobile telecommunications market, the spreading of new services has been very fast, since each major operator wants to be a leader in product innovations while making sure that novel services can also be transmitted to other mobile operators, or to fixed-line network users.

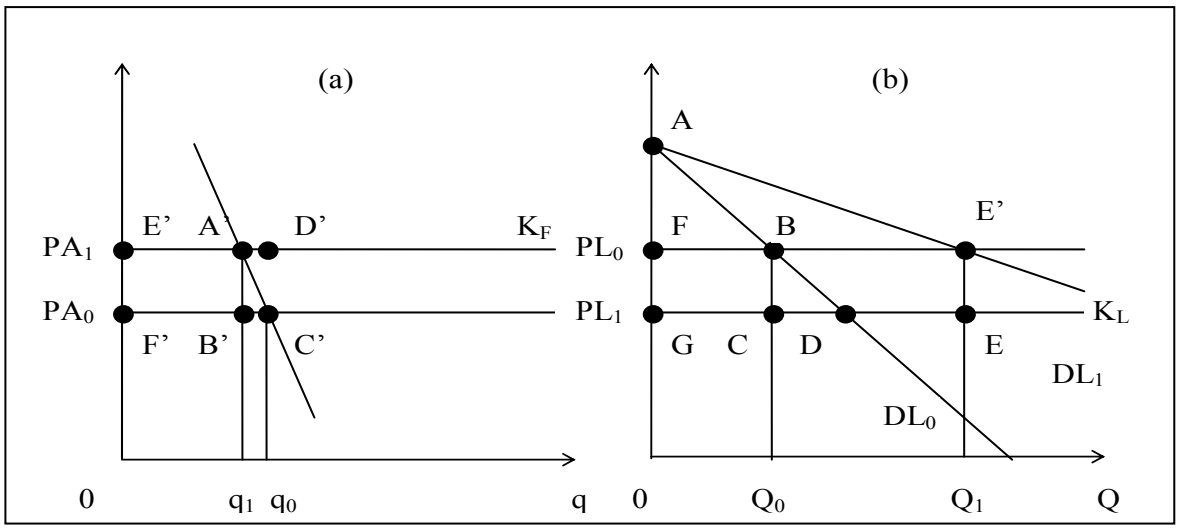
Network effects are also crucial when it comes to process innovation. Take the simple case of constant marginal costs, where process innovations imply a downward shift of the k' curve. With network effects there is an additional increase in consumer welfare. Therefore, it is crucial that the regulatory framework stimulate process innovation.

Another problem related to the telecommunications market and market power concerns the interdependence between the access market and services markets (e.g. the long-distance market). Typically, the demand curve in the access market is rather steep. The long-distance market is relatively price-elastic, and it is characterized by network effects, so that DL_1 is the relevant demand curve, rather than DL_0, which is the static short-term demand curve (without network effects). In the presence of network effects in the services market, it pays for an integrated network operator to subsidize access, and hence to charge only PA_0 while average fixed costs are K_F. Cross-subsidization can be realized if firms are able to charge PL_0 in the long-distance market, higher than average costs in the long-distance market (K_L). Without network effects the quantity in equilibrium (in line with the simple original demand curve DL_0) would be Q_0, but due to network effects (see DL_1), stimulated in part by the subsidization of access, it will be Q_1. One may note here that the principle of cross-subsidization in combination with network

effects can be applied to many topics; for example, membership in international organizations where access could be offered at an effective discount price in order to generate the more important benefits of enlarged network effects with a higher number of "club members" – an offsetting effect is, of course, related to rising marginal costs of consensus building in a club with a growing membership base.

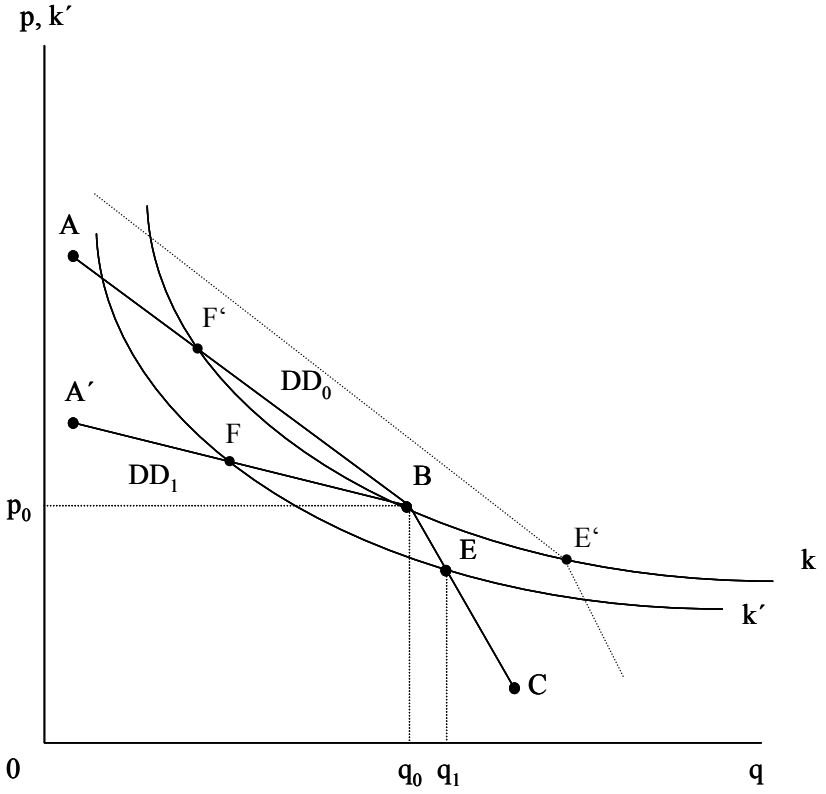
While subsidizing access generates only a small increase in the customer base, the associated network effects could be considerable; they would certainly be the more significant aspect, in economic terms. Anticipation of network effects in the digital services market is comparatively easy for an integrated tele-communications firm. On the other hand, if the telecommunications operator is split into a pure network operator and a pure service provider, anticipation is likely to be more difficult. This is an important reason for *not* pursuing vertical disintegration in telecommunications. (However, this argument does not hold for the electricity sector, which also provides services based on networks, because that sector does not have network effects on the demand side.)

Figure 6 – Access market and long-distance market



There is an asymmetrical interdependency under oligopoly: if there is a price reduction from supplier 1, the other firms will follow, which makes the effective demand curve less price-elastic (steeper than a normal demand curve). If firm 1 raises the price other firms will, by assumption, not follow so that the effective demand curve is more elastic above point B: see the segment BA´. If the oligopoly is widening in an asymmetric way, with firm 1 establishing itself as a clear leader, more firms could follow the pricing strategy of the leader (firm 1) so that the demand curve becomes steeper above point B: see segment BA; temporary pricing according to marginal costs implies a reduced quantity in this situation with a more pronounced price leadership (compare point F´ and F), If the situation is a stable oligopoly with no clear leadership there is not a big difference between the hypothetical optimum defined by equality of marginal costs and the demand curve and pricing based on average costs (point B and equilibrium quantity q_0 versus optimum output q_1 and point E, respectively). The problem of a dominant market position – and hence, the situation of a leading competitor – is likely to emerge in an oligopoly in which one firm has a clear lead in market share. The existence of network effects would not change the fundamental mechanism, only the equilibrium point would move from E to E´.

Figure 7 – Modified Hitch-Sweezy approach to oligopoly



In the case of dynamic limit pricing we have a situation in which one dominant operator acts as the undisputed leader, and fixes the price in a way that minimizes the incentive for newcomers to enter the market. A simple approach (see the model in the appendix) shows that under certain conditions the price can be lowered by one-half of the quantity offered by newcomers. Thus, we can conclude that newcomers help to reduce the price charged by the industry leader to a level below the monopoly price, but at the same time we can see that the equilibrium price is clearly above the price under competition.

2.1.2 Market entry, substitution aspects, bundling and innovation

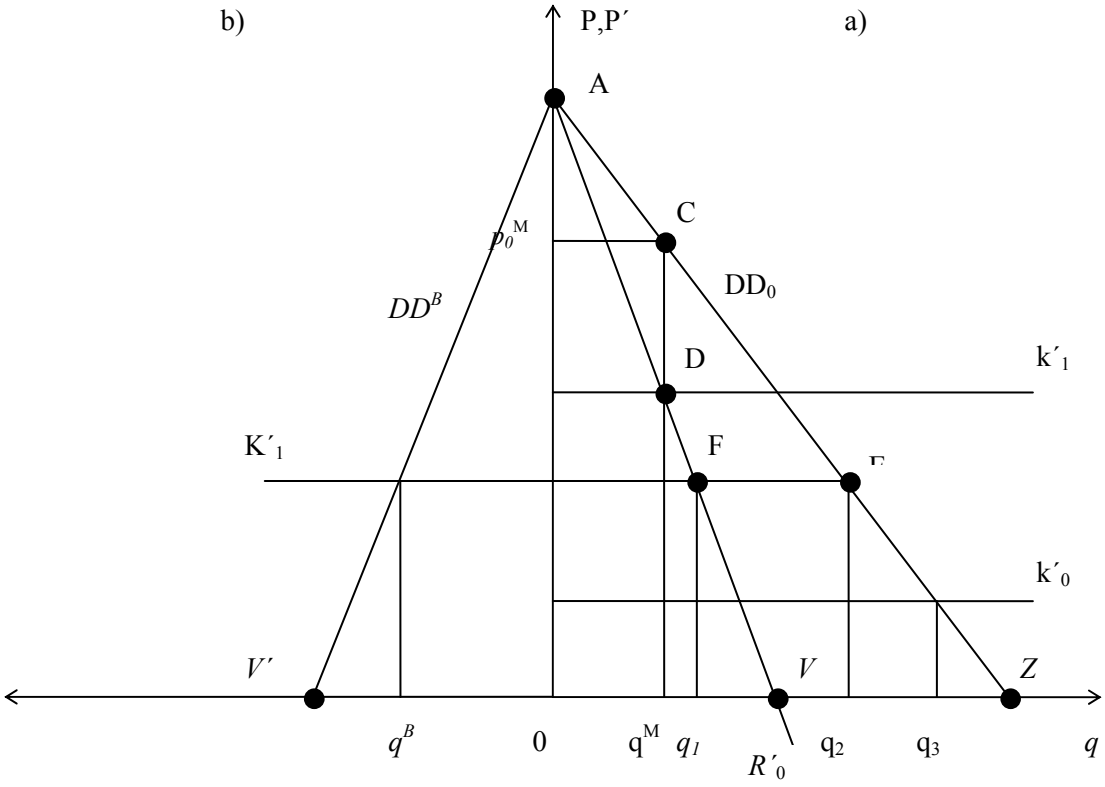
Market entry in telecommunication is limited by the high level of sunk costs. From this perspective, rising marketing expenditures in telecommunications markets are an impediment to newcomers. However, it seems that, following the economic opening-up of the telecommunications markets in the EU in 1998, network operators have reduced expenditures on research and development (R&D), while equipment producers have raised their share of R&D. Such a development suggests that the markets for telecommunications network operation and for digital services have indeed become more open. There can also be political impediments to market entry. Such impediments are more likely when the government in the holds a share in the incumbent telecommunications operator. The solution is for the government fully to privatize the telecommunications sector.

Assume that initially we have only one firm, which acts as a monopoly and therefore charges price p_0^M (see part (a) of the following graph). If a second firm, B, with relatively low marginal costs K'_1 (see part (b) in the graph), considers entering the market, one may assume that both firms will attract half of the initial demand *DDo* (DD_B is half of *DDo*). If the new entrant, for whom all costs are non-sunk prior to

entering the market, indeed would enter the market it might force the incumbent firm to adopt a price equal to K'_1 so that q_1 is output for the incumbent firm and q_B for firm B. The problem for the firm is that in such a setting it would suffer losses as it could not fully recover its marginal costs. This creates a strong disincentive to market entry.

If the incumbent has marginal costs k'_1, there is an incentive to pursue limit pricing: the incumbent lowers price below k'_1 in order to fend off market entry. The exact size of the temporary price reduction depends on the size of sunk costs. It is only rational for the incumbent to lower its prices at the maximum down to this level. So if we assume that $k'o$ is the size of the sunk marginal costs, the incumbent might be able to effectively discourage market entry. (Such a case occurred in Germany in 2002-2003, when the incumbent fixed-line network operator decided to drastically reduce DSL prices overnight, effectively killing the prospects for market entry for cable TV firms hoping to enter the broadband digital services markets outside the narrow market of TV broadcasting).

Figure 8 – Problem of sunk cost, limit-pricing and long-run equilibrium



Market entry also is impaired if there is a tendency toward unnatural bundling of products or services. Competition authorities typically will not object to conventional bundling, which emerges under competitive conditions. However, if the dominant operator, the former monopoly firm, is the driving force behind bundling (and indeed sets the standard for bundling), then doubts may arise as to whether this is still a legitimate practice. A major motive for the incumbent to embark upon bundling is the desire to transfer market power from market A, where it enjoys a dominant position, to market B, in which it does not enjoy a dominant role. In this way bundling can serve to reinforce market power across market

boundaries in a simple way; in addition, it supports market power by raising barriers to entry. Newcomers willing to enter the market cannot simply enter a narrow market niche, but are required to offer a broad range of services, which is both risky and costly.

Market power is a relative concept. From a demand-side perspective, market power is diminished by the presence of substitutes in other markets. For example, if broadband DSL fixed-line access is not available at reasonable conditions, cable TV could be a welcome and cheap alternative. Another example is UMTS mobile services: mobile telecommunications continues to be considered as a complement to fixed-line telecommunications, an assumption that looks dubious in some market segments, such as young users, and some newly industrialized countries. Countries which have cable TV systems thus would be wise to encourage users to also use that system for telecommunications, Internet services and other digital services.

3 Practical aspects

As long as there is a clearly dominant operator, there is a need for some basic pro-active regulation. As that operator's market share declines and the signs of sustained competition become undisputable, pro-active regulation can be gradually phased out. A serious problem in most countries is bundling. This is a very common practice, and it is difficult to prove that a particular instance of bundling could not have emerged in competitive markets is generally far from easy. From this perspective, the few markets characterized by particularly vigorous competition, such as Finland (with three competing long-distance companies), the Netherlands, or the UK (the latter two with a strong role of cable TV in telecommunications services), are quite important. Germany has also been rather successful in opening up telecommunications markets. However, the government's artificial splitting of transmission layers in cable TV in the late 1980s has undermined the ability of cable TV firms to upgrade the network for modern digital services, including the Internet; moreover, the competition authority ("Federal Cartel Office") has imposed very high barriers for mergers in the cable TV system, which seriously curbs the prospects for investment in cable TV, and in the long run is likely to lead to a broadband gap in Germany.

Mobile telecommunication has problems of its own. It is not easy to adequately regulate mobile termination fees. The Ramsey Rule calls for charging fixed costs on those services whose price-elasticity is rather low – following this rule makes sure that welfare losses from regulation are low (raising the price of a good with a low price-elasticity will bring about a minor change in the equilibrium quantity!). While a simple cost-oriented pricing approach would suggest that mobile termination fees should be rather similar across OECD countries, Ramsey-pricing suggests that there could be considerable price differentials across countries, if the elasticities of demand vary greatly.

If there is a dominant market position, regulatory authorities normally try to avoid the abuse of dominant market power in the relevant market. Market power can be measured in various ways:

- market share
- import competition
- barriers to entry (mainly in the form of sunk costs such as R&D and marketing costs, which cannot be recovered after going out of business)
- absence of countervailing power on the demand side

Merger control (national and supranational) is often concerned with the problem of significant market power. Therefore, it is useful to take a closer look at what the courts have considered as a problem in the context of planned mergers. In almost all countries, avoiding monopolies is considered a self-evident goal, since a monopoly brings economic inefficiencies and, through economic market power, may lead to political power emerging, quite apart from the prospect of unproductive rent-seeking.

Regulatory policy in EU member countries is fairly straightforward: it encourages newcomers by limiting the market power of the incumbent operator which could deny interconnection, impose price discrimination, pursue discriminatory pricing, offer the threat of predatory pricing and so forth. For the regulatory authority, impartial regulation is difficult as long as the government retains a major stake in the incumbent operator. Government might put pressure on the regulator to adopt regulations that guarantee high prices and consequently, high profits for the incumbent operator. The short-term attractions of such a course of action (for the national treasury, which reaps the benefits from high dividend payouts by the incumbent operator) are evident. However, it ignores the more important long-term benefits that a more competitive framework would offer: lower prices and innovative services that can stimulate overall economic growth, with the prospect of greater tax revenues than would be obtained under a protective strategy favouring the state-owned incumbent.

Determining the relevant market in an environment with digital convergence is far from straightforward. The easiest way to determine the relevant market is to consider substitution on the demand side: if the cross-price elasticity is very high (i.e. a price rise on market A generates a major increase on market B), it is clear that the two markets are effectively one. Here, empirical studies are needed. One cannot rule out that mobile telecommunications will become over time a very strong substitute to fixed-line telecommunications. This is quite likely for young users, and for countries undergoing economic transition (e.g. the new members of the EU from eastern Europe). Market demarcation and market shares would look very different if the fixed-line and mobile markets were to be considered as a single market. This will be an interesting issue in the future.

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Appendix: Dynamic limit pricing – a new model

Fixed-line telecommunication was a state monopoly in EU countries until 1998, except for the UK, where it had already been liberalized in 1984 in the context of a transitory duopoly approach. After market liberalization, the former monopoly operator, in many countries partly or fully privatised within a few years, faced emerging competition from newcomers. Despite asymmetric regulation which imposed price regulation under an RPI-*x* approach, based on baskets of telecommunications services, the market share of newcomers remained low over many years (except for Finland). The situation of one dominant operator facing many newcomers which accept the price leadership of the large company can easily be analysed in terms of price dynamic limit pricing. Such an approach is not only useful with respect to the economic opening-up of markets in telecommunications but also is interesting with respect to the OPEC cartel, if Saudi Arabia is considered as the accepted leader in global oil markets; alternatively, one may consider OPEC as a dominant quasi actor which sets the price for all suppliers.

In the following analysis we will use the standard approach of GASKINS (1971) to dynamic limit pricing, refine it by assuming that the growth rate of output of newcomers reacts to the price of the incumbent, and apply it to fixed-line telecommunications. We will also develop a useful graphic presentation.

It is assumed that the incumbent operator in fixed-line telecommunications exhibits rational profit-maximizing behaviour in the core business of voice telephony by taking a broad definition of the basket. Demand in industry at time *t* is represented by a linear demand schedule:

$$q(t) = a - bp(t) \tag{1}$$

$$P = A - Bq; \text{ where } a/b=A;\ 1/b=B \tag{2}$$

The incumbent operator sets the price, and a fringe of small firms accepts this price (in a more refined model, they take this price minus *Z*, which represents the marginal cost advantage of newcomers) and sells their entire output. *x(t)* is the output of the newcomer firms where fringe firms enter the market if the dominant operator charges a price greater than p^0. The initial $x(0)$ at $t=0$ is given. Hence,

$$dx/dt = v(p(t)-p^o)x \tag{3}$$

The incumbent operator has a sales volume of *q(t) – x(t)*, and marginal costs $k'=c$ that are constant. Thus, the discounted present value of its profits is

$$\int_o^\infty (p(t)-c))[a-x(t)-bp(t)]e'^{-\varphi t}\,dt \tag{4}$$

The Hamiltonian for this problem, with π denoting the shadow price, is:

$$H = (p(t)-c))[a-x(t)-bp(t)]\ e'^{-\varphi t} + \pi v(p(t)-po)x \tag{5}$$

The optimum price is given by setting $\partial H/\partial p = 0$, hence

$$0=[(a-x)-2bp+bc]\ e^{-\varphi t} + \pi vx \tag{6}$$

which results in the optimum leader price p^L:

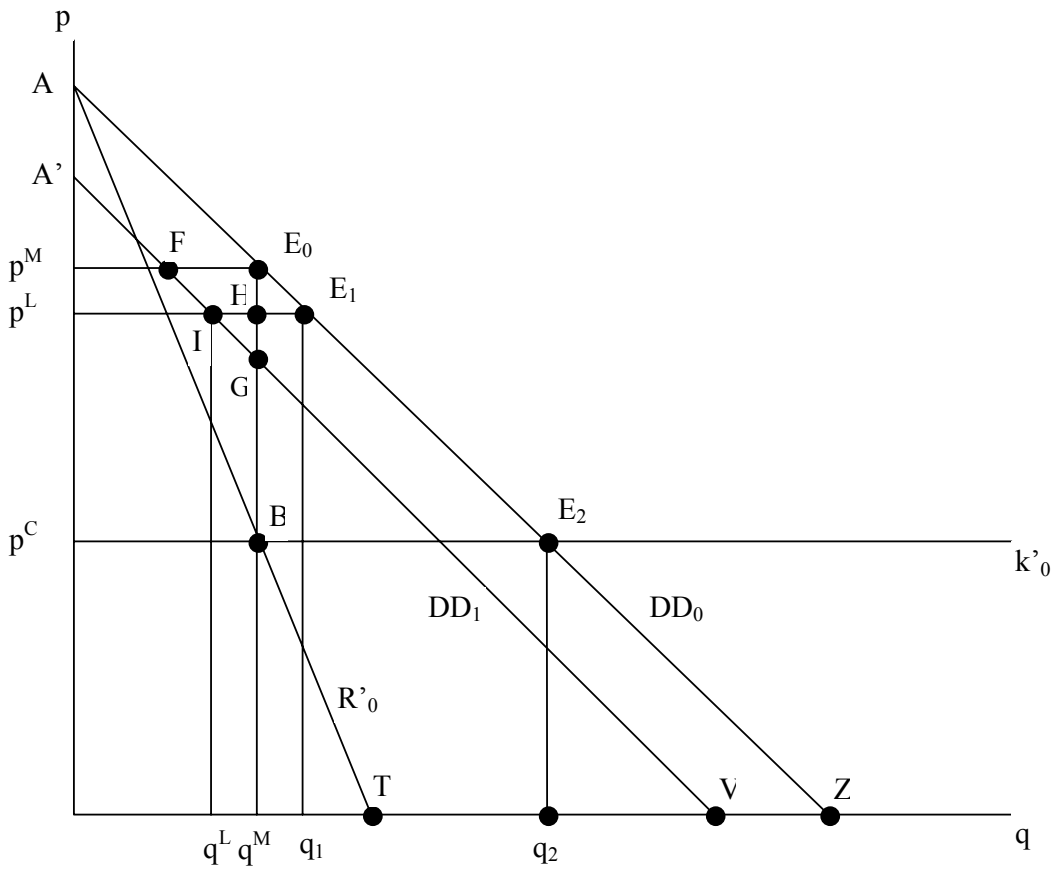
$$p^L ==[(a-x)/(2b)]+(c/2) + \pi(v/(2b))xe'^{\varphi t} \tag{7}$$

With t approaching 0 we get an interesting result for the initial period if $x(0)$ is taken to be zero, describing an incipient market that is just opening up:

$$p^L ==[(a\text{-}x)/(2b)]+(c/2) \quad (7')$$

Compared to the monopoly price (Cournot solution p= [a/($2b$)] +(c/2)]), this price is smaller by the amount of x/($2b$). We can easily show a graphical solution for the special case of b=1 for the initial period, namely t approaching zero. Taking the monopoly price as a point of reference, the market price under full leadership is reduced by ½ of the output of newcomers. Hence, the price is lower than in a monopoly but it also will be higher than under full competition (p=c).

Figure 9 – Competition vs. monopoly vs. leadership model: dynamic limit pricing (case of constant marginal costs)



Applying the maximum principle we get the following differential equations:

$$dx/dt = \partial H/\partial \pi = v(p(t)\text{-}p^o)x \quad (8)$$

$$dp/dt = -\partial H/\partial x = [p(t) - c]\, e^{r\text{-}\varphi t} - \pi v \quad (9)$$

Equations (8) and (9) are differential equations for x and p so that we can determine the steady-state values for x and p. In p-x space, we set equation (8) equal to zero and obtain the unsurprising result that the output of fringe firms rises when $p(t)$ exceeds p^o. Taking (9) and setting dp/dt=0, we get $\pi v = [p(t) - c]e^{-\varphi t}$, so that we can substitute πv in expression (7) and obtain for the steady-state value of p#:

$$p^{L\#} == [(a-x)/(2b)] + (c/2) + ([p(t) - c]/(2b))x \quad (7.1)$$

Hence, the explicit solution for the steady state is the following leader price:

$$p^{L\#} == \{[(a-x)] + (cb) - cx\}/[2b - x] \quad (7.2)$$

For the case of b=0.5 we can derive an approximation, namely:

$$\ln p^{L\#} == \ln\{[(a-x)] + (cb) - cx\} + x \quad (7.3)$$

Comparing (7.3) with (7'), we see that the steady-state solution is higher than the early market-opening price. Since the leader price increases over time until the equilibrium value has been reached, we know that the fringe output will increase provided that $p(t)$ initially was not lower than p^0.

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ICT Market Liberalization Reports for CEE Countries and Baltic States

Increasing the competition in the Polish mobile telecommunication market

by Rafał Zieliński

International Telecommunication Union

This report on increasing the competition in the Polish mobile telecommunication market has been prepared by Mr Rafał Zieliński, Chief Expert from the International Department of the Polish Office of Telecommunications and Post Regulation (URTiP) (R.Zielinski@urtip.gov.pl). It is part of a series of ITU telecommunication studies analyzing economic aspects of telecommunications and carried out by ITU/BDT's Market, Economics and Finance Unit (MEF). This report also reflects the results of the discussions on telecommunication market analysis during the seminar on Economic Dynamics of Newly Liberalized Telecommunication Markets in CEE Countries and Baltic States, held in Vilnius, Lithuania, in October 2004 (http://www.itu.int/ITU-D/finance/work-cost-tariffs/events/tariff-seminars/lithuania-04/index-results.html).

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Abstract

The presentation will describe the history and development of the Polish mobile market, including a brief description of the characteristics of the mobile operators. Among other things, the structure, segmentation and penetration rate will be analysed. Particular attention will be paid to the problem of oligopoly. A separate section will focus on the role that is played by the National Regulatory Authority in strengthening competition in the mobile market and the instruments it has at its disposal. In a brief summary, the future of mobile telecommunications in Poland will be discussed.

Keywords: Market, Competition, Oligopoly, Rivalry.

1 Introduction

There are three crucial questions I should like to address in this presentation:

1. Is there a need for increasing the competition in the Polish mobile telecommunication market?
2. How to tackle the problem: with stricter regulation or free market *laissez-faire*?
3. What is the role of a regulatory authority?

One important consideration should be taken into account: although the protection of competition does not always have to be achieved through strict regulatory measures, an adequate level of regulation is definitely necessary for securing consumers' rights.

2 History and development of the market

1. June 1992: the first mobile company, Centertel, commenced operations (NMT450i analogue system).
2. October 1996: Polkomtel S.A. commenced operations (GSM 900) after winning the "beauty contest". The other winner was Polska Telefonia Cyfrowa (PTC).
3. March 1998: the Idea Centertel network commenced operations (GSM 1800).
4. Year 2000: Polkomtel launched its HSCSD (High Speed Circuit Switch Data) service and provided its customers with Internet access based on WAP (Wireless Application Protocol) technology. December 2000: Centertel, Polkomtel S.A. and PTC were granted UMTS licences.
5. March 2004: the first mobile virtual network operator (MVNO), known as "Heyah", commenced operations.
6. September 2004: Polkomtel introduced 3G services (currently limited to the Warsaw area).

3 Operators

There are three mobile market players in Poland:

1. **PTC**: operates under the brand name "ERA", over 8 million customers including "Heyah" (shareholders: Deutsche Telekom; Elektrim Telekomunikacja, which is co-owned by Vivendi Universal and Elektrim S.A.).
2. **Centertel**: operates under the brand name "IDEA", over 6 million customers (shareholders: Telekomunikacja Polska S.A., France Telecom).
3. **Polkomtel**: operates under the brand name "PLUS", almost 6 million customers (shareholders: KGHM, PKN Orlen, PSE S.A., Weglokoks, Tele-energo, Vodafone, TeleDanmark).

Possible expansion of foreign operators in Poland:

1. Deutsche Telekom has 49 per cent of PTC shares and is interested in securing sole control over the operator. In November 2004, it obtained the Commission's approval for that intention. Another round of negotiations with Elektrim and Vivendi may commence as early as this year.
2. France Telecom owns 34 per cent of Centertel's shares. The remaining 66 per cent belong to Telekomunikacja Polska S.A., whose main shareholder is… France Telecom!
3. The case of Polkomtel is slightly more complicated: KGHM owns 19.61 per cent, PKN Orlen owns 19.61 per cent, Węglokoks owns 4 per cent, Tele-Energo owns 1.01 per cent, TelBank owns 0.5 per cent, Vodafone owns 19.61 and TeleDanmark also owns 19.61 per cent.

   Vodafone in particular was very interested in increasing its share in Polkomtel, but because of the numerous co-shareholders it was very difficult to reach an agreement. In November 2004, moreover, the biggest Polish shareholders, KGHN and PKN Orlen, announced plans to float their shares on the stock exchange.

4 Structure

	USERS IN 2001	%	USERS IN 2002	%	USERS IN 2003	%
ERA	3.776	37.7	4.868	35	6.211	35.7
IDEA	2.785	27.8	4.480	32.2	5.700	32.8
PLUS	3.443	34.4	4.500	32.7	5.488	31.5
TOTAL	10.004		13.898		17.399	

5 Penetration rate

By comparison with the penetration rate of mobile services in other EU countries (Italy 101.8 per cent, Czech Republic 96.5 per cent, Greece 78.5 per cent,) the penetration rate of mobile services in Poland is still relatively low, having stood at only 42 per cent at the end of 2003.

In the second quarter of 2004 it reached 48.2 per cent, which is still far below the former 15-member EU average (80.9 per cent in 2003).

6 Segmentation

POSTPAID

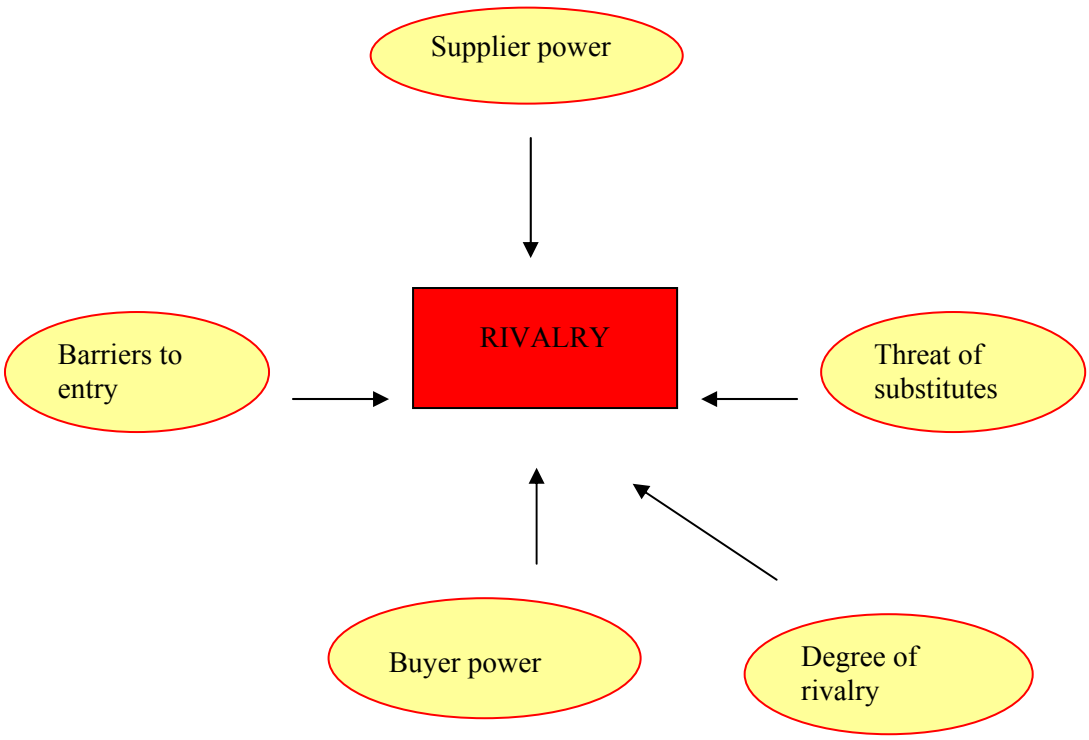
	POSTPAID USERS IN 2001	%	POSTPAID USERS IN 2002	%	POSTPAID USERS IN 2003	%
ERA	2.356	42.7	2.530	38.9	2.867	35.8
IDEA	1.203	21.8	1.740	26.7	2.600	32.4
PLUS	1.961	35.5	2.241	34.4	2.546	31.8
% SHARE OF ALL USERS	55.2		46.9		46.1	

PREPAID

	PREPAID USERS IN 2001	%	PREPAID USERS IN 2002	%	PREPAID USERS IN 2003	%
ERA	1.419	31.9	2.337		3.344	35.6
IDEA	1.540	34.7		37.0		
PLUS	1.483	33.4	2.310			
% SHARE OF ALL USERS	44.4		53.1		53.9	

7 Oligopoly or competitive market?

Diagram of Porter's 5 Forces



Results of analysis of the Polish mobile telecommunication market: weak buyers, no threat of substitutes, barriers to entry for new players, **low level of rivalry**.

Is the Polish mobile telecommunication market an oligopoly then?

- limited number of operators with almost equal share of the market? **YES!**
- high termination rates? **YES!**
- copycat behaviour? **YES!**

The answer is: **YES,** there is an oligopoly on the Polish mobile telecommunication market. How to solve this problem? The answer is presented in in the next part of this report.

8 The role of the President of the Office of Telecommunications and Post Regulation (URTiP)

The objectives of the President of URTiP, including those concerning competition and consumer protection, are defined in the Telecommunications Act of 2004.

In accordance with Article 189, paragraph 1, of the Telecommunications Law, the President of URTiP is a central organ of administration. Article 190 provides that the President of URTiP is a regulatory organ for the telecommunication and postal services markets.

In accordance with Article 189, paragraph 2, it performs its regulatory functions to ensure:

1) the strengthening of fair competition in the provision of telecommunication networks and services, including:
   a) securing maximum benefits with reference to prices, diversity and quality of service for users (including disabled users);
   b) preventing distortion or restriction of competition in the telecommunication market,
   c) effective investment in infrastructure and the promotion of innovative technologies.

In accordance with Article 192, paragraph 1, the President of the Office of Telecommunications and Post Regulation (URTiP) is required to cooperate with the President of the Office of Competition and Consumer Protection (the central administration's antimonopoly body) in order to: secure observance of the rights of telecommunication and postal services consumers; and counteract practices restricting competition and anticompetitive concentrations of telecommunication operators.

9 Introduction of new UMTS and GSM operators

One of the strongest incentives for stimulating competition in the Polish mobile telecommunication market is the planned introduction of new GSM and UMTS operators.

In line with the official tendering concept presented by the President of URTiP on 15 September 2004, two separate invitations to tender will be organized:

– one for one or two GSM 1800 operators;
– one for a fourth UMTS operator.

Crucial criteria when assessing the bids will be:

– preservation of competition conditions;
– the amount declared by the candidate for reservation of the frequency band.

Preference will be given to bids from players that do not have the right to use 1800 MHz frequencies and the UMTS band (and are not associated with such entities).

Candidates for GSM 1800 operators will have to provide a network construction schedule during the tender procedure.

The tender proceedings will begin in 2004 and end in May 2005. The very important issue of concern to new mobile operators entering the market is that of internal roaming. According to the President of URTiP, new operators should be entitled to use the networks of existing mobile operators. It goes without saying that PTC, Centertel and Polkomtel strongly oppose this possibility. If new and existing operators are unable to come to an agreement, the only alternative will be an administrative decision issued by the regulator.

10 Proposal for an Act on restructuring the licence liabilities of mobile operators

1. In 2000, following the granting of UMTS licences to three mobile operators, each of them had to pay the treasury some EUR 260 million. The remainder of the licence fee (EUR 390 million per operator) was to be paid in instalments until 2022. At the time of writing, the licence liabilities of three mobile operators in respect of UMTS licences still exceed EUR 1 billion.
2. On 3 September 2004, the President of URTiP submitted to the Minister of Infrastructure a proposal to convert the UMTS liabilities into investments in infrastructure. The precedent for this took place in 2003 when the licence liabilities of fixed telecommunication market operators (alternative operators including Netia and Szeptel) were converted into investments in infrastructure.
3. This act is intended to reconcile the interests of operators and consumers and to contribute to:
   - the development of modern telecommunication infrastructure that integrate telecommunication, information and audio/video services in order to ensure access to pan-European and global networks and telecommunication services;
   - achievement of the aims of the "E-Polska 2004-2006" strategy.

11 The regulator as mediator

In recent years, the concept of a regulator acting on the market as a mediator rather than as a strict watchdog has been gaining in popularity. The basis of that theory is that regulation may be seen as a contract concluded between service providers and consumers and administered by an independent regulator.

In Poland, one very recent argument in favour of this concept resides in an agreement on lowering inter-connection rates concluded, in August/September 2004 with assistance from the President of URTiP, between the incumbent and three mobile operators. As a result, rates for connections from TP S.A. to mobile operators may be up to 30 per cent lower. The President of the Office of Telecommunications and Post Regulation (URTiP). However, there are still some problems with the signing of annexes to this agreement. So far, Centertel/IDEA has formally signed all the relevant annexes. PTC makes its approval conditional upon the lowering of retail prices in the TP S.A price list. But it seems that acceptance of all of the agreement's conditions by all the mobile operators is just a matter of time, failing which the only alternative would be administrative fixing of interconnection rates by the regulator.

12 Self-regulation of the mobile market?

The President of URTiP has issued 19 licences for MVNOs. However, it was only in March 2004 that PTC, the biggest Polish mobile operator, introduced "Heyah", the first Polish MVNO. It is an extremely rare situation for an MVNO to be exclusively owned by the biggest mobile operator, which, moreover, very strongly opposed opening up the market to MVNOs. The new operator offered a cheap "starter kit", lower tariffs and per-second billing. Its attractive, innovative offer enabled it to reach the level of one million users in just over three months.

Centertel/IDEA and Polkomtel/PLUS, two rivals of PTC, introduced some adjustments to their offers which caused a significant drop in tariffs throughout the mobile services market in 2004. However, it has to be pointed out that the most significant fall in termination rates is to be seen in the prepaid market. Centertel/IDEA introduced "Nowy Pop", even simpler than "Heyah" (one termination rate, exactly the same as the one offered by "Heyah", to each mobile network, plus per-second billing). Polkomtel lowered its tariffs in a special holiday offer.

Recently, PTC prepared a special offer for the postpaid segment of the mobile market, with a termination rate of PLN 0.5 PLN per minute.

Since the launch of "Heyah", copycat tactics on the part of operators are still to be seen; however, the oligopoly system has certainly been weakened.

Because "Heyah" was introduced by the biggest Polish mobile operator, some have voiced doubt as to whether its introduction was a truly competitive action. According to them, by introducing "Heyah" PTC simply tries to make it difficult for a potential fourth GSM operator or a potential MVNO to enter the market. They also wonder whether "Heyah" is a real MVNO or just pretends to be one. The concept of anti-competitive action will be verified in the future. At the moment, the benefits to consumers, including a significant reduction in mobile termination rates, prove that the introduction of "Heyah" has had a positive impact on the level of competition in this market.

13 Summing up – the future of mobile telecommunications in Poland

Having analysed the situation of the Polish mobile telecommunication market and the role of the President of the Office of Telecommunications and Post Regulation (introduction of new UMTS and GSM operators, proposal for an Act on restructuring of the licence liabilities of mobile operators, its actions as a mediator), it is now possible to answer the three crucial questions asked in the introductory part of this presentation.

1. In response to the first question, I believe it is true to say that there is strong need for increasing competition in the Polish mobile telecommunication market.

2. Regulation is to be seen in terms of coordination and monitoring rather than the creation of additional barriers to entry. This response to question No. 2 leads me to conclude that the regulator will come to be a coordinator and a mediator rather than a strict watchdog. Of course, the need to protect the interests of telecommunication service users, including ensuring universal access to telecommunication services, must constantly be borne in mind.

As for the future of mobile telecommunications in Poland, it has to be pointed out that the relatively low penetration rate (the lowest among all 25 EU members), together with the growing popularity of mobile telecommunication within Polish society, makes it a very promising market for mobile operators. And there is definitely a place for new mobile telecommunication operators, both national and foreign.

Of course, there are also some issues which will have to be resolved in the future, such as the question of MVNO and internal roaming, the restructuring of licence liabilities and the terms of tenders for GSM and UMTS frequencies, but the overall impression and prospects are on the whole promising.

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ICT Market Liberalization Reports for CEE Countries and Baltic States

Lithuanian telecommunication market

by Saulius Gelžinis

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This report on the Lithuanian telecommunication market has been prepared by Mr Saulius Gelžinis (sgelzinis@rrt.lt) Head of the Markets and Competition Section, Department of Telecommunications, Lithuanian Communications Regulatory Authority. It is part of a series of ITU telecommunication studies analyzing economic aspects of telecommunications and carried out by ITU/BDT's Market, Economics and Finance Unit (MEF). This report also reflects the results of the discussions on telecommunication market analysis during the seminar on Economic Dynamics of Newly Liberalized Telecommunication Markets in CEE Countries and Baltic States, held in Vilnius, Lithuania, in October 2004 (http://www.itu.int/ITU-D/finance/work-cost-tariffs/events/tariff-seminars/lithuania-04/index-results.html).

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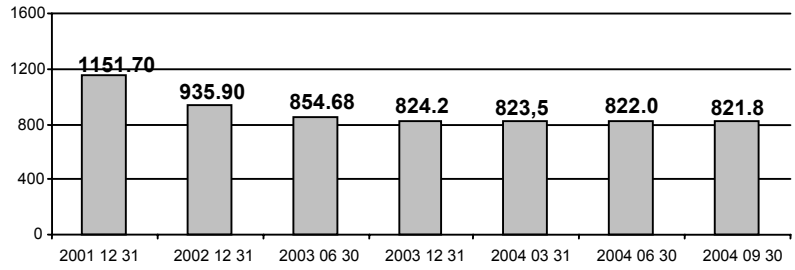
In Lithuania, the public fixed telephone networks and services market was liberalized on 1 January 2003. This meant the end of the exclusive rights that were granted to AB Lietuvos Telekomas to provide public fixed telephone services and networks. Up until that date, the said company was the only provider of public fixed telephone networks and services.

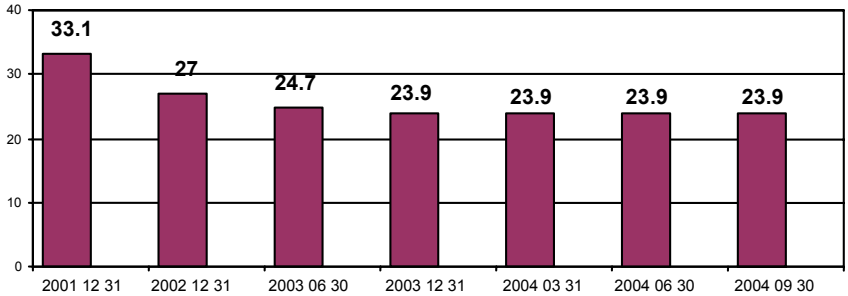
A total of 39 companies gave notification of their intention to engage in the provision of public fixed telephone networks and/or services. To date, 21 companies have commenced their activities. All active operators and service providers offer international call services, while seven of them also offer national (local and long-distance) calls. Public fixed telephony services are mainly provided through the network of AB Lietuvos Telekomas using packet switched technology (VoI, VoIP). Six of the active operators have their own, very limited, infrastructure. The Communications Regulatory Authority has thus far assigned 27 short numbers to 23 operators from the 10XX series, designated for carrier selection.

Figure 1 – Number of fixed telephone lines (thousands)



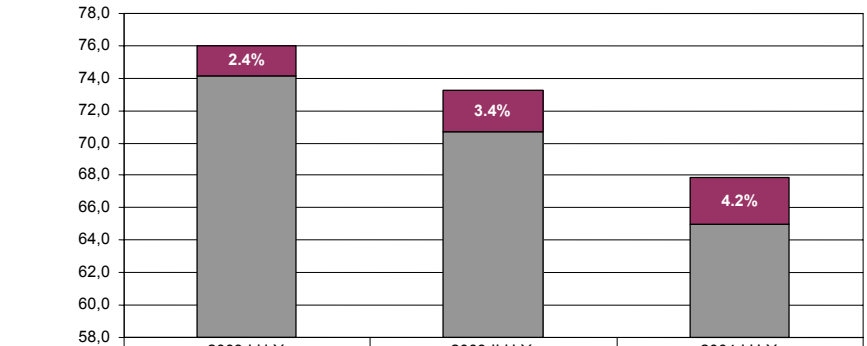
As can be seen from Figure 1, the decrease in the number of fixed telephone lines is much slower than it was three years ago, and because of the population decrease in Lithuania the number of fixed telephone lines per 100 inhabitants has even stabilized since the beginning of 2004 (Fig. 2).

Figure 2 – Number of fixed telephone lines per 100 inhabitants



Total revenues from fixed telephony services are decreasing. However, since the beginning of fixed telephone market liberalization in 2003 the market share of new players is constantly increasing (Fig. 3).

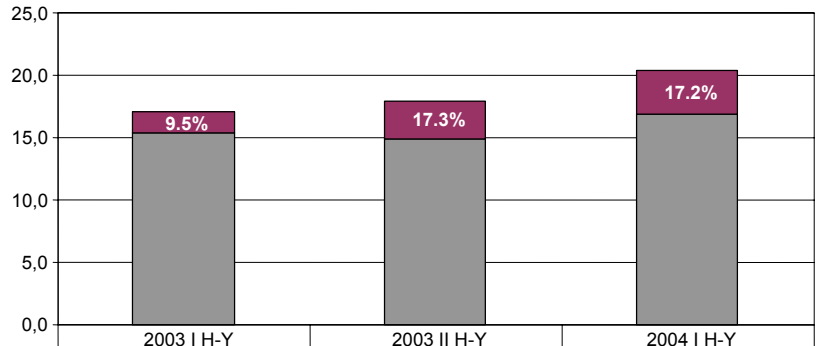
Figure 3 – Total revenues from fixed telephony services (EUR millions)



	2003 I H-Y	2003 II H-Y	2004 I H-Y
New players	1.8	2.5	2.9
Incumbent	74.2	70.7	65.0

International traffic from fixed telephony networks (Fig. 4) is increasing, with 17 per cent of all international traffic being originated by new market players.

Figure 4 – International traffic from fixed telephony networks (millions of minutes)



	2003 I H-Y	2003 II H-Y	2004 I H-Y
New players	1.6	3.1	3.5
Incumbent	15.5	14.9	16.9

A total of 31 companies have to date given notification of their intention to engage in the provision of mobile telephony services. The following mobile telephony operators and service providers are active in the market: UAB “Omnitel”, UAB “Bitė GSM” and UAB “Tele2”, as well as four new service providers that have already commenced their activities: UAB “Eurocom”, UAB “Laracijos telekomunikacijos”,

UAB "Teledema" and UAB "AKN". All new service providers use the UAB "Bitė GSM" network. By the end of the third quarter of 2004, the total number of subscribers had, since the beginning of that year, and in contrast to the public fixed telephony sector, risen by as much as 26.6 per cent to stand at 2979.5 thousand, meaning that 86.7 per cent of the population of Lithuania make use of public mobile telephony services (Figs 5 and 6).

Figure 5 – Total number of mobile subscribers (thousands)

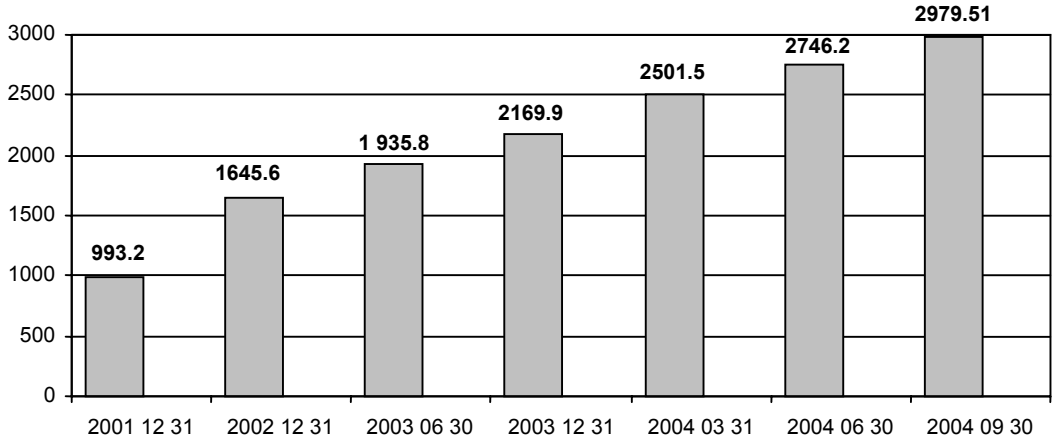
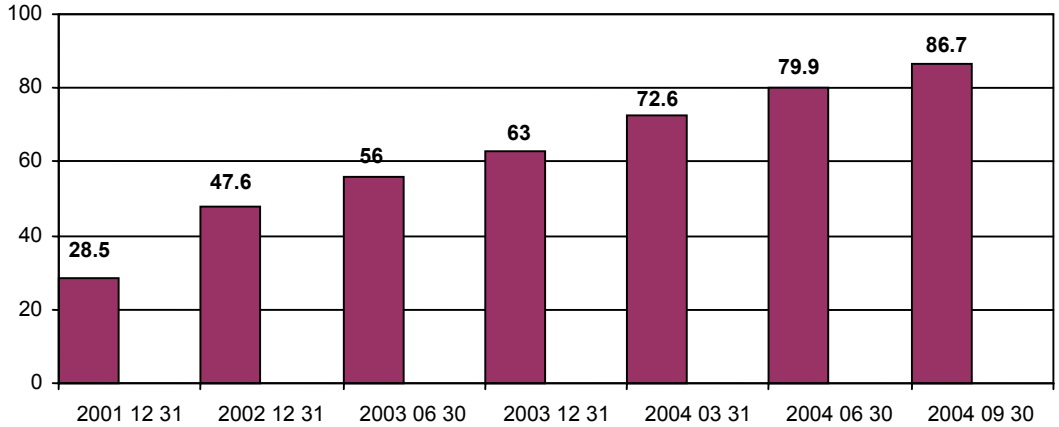
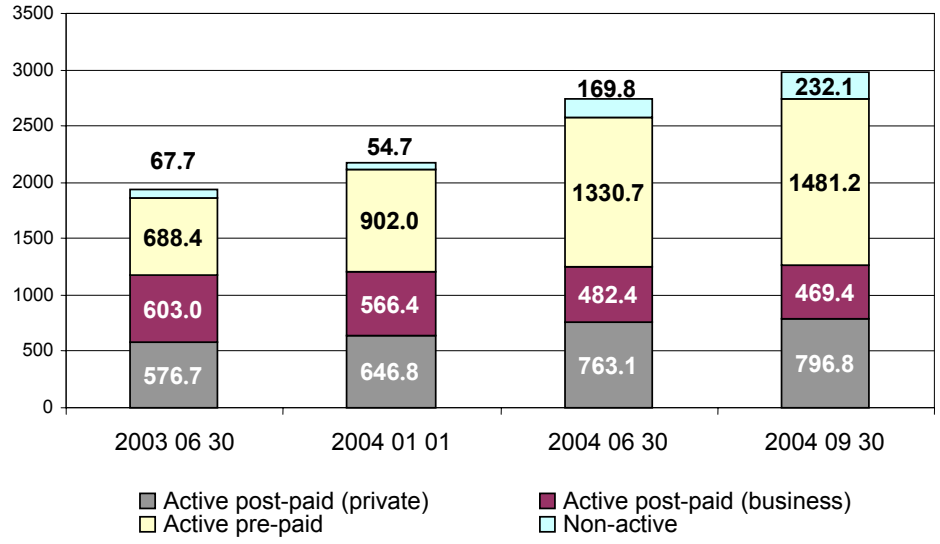


Figure 6 – Mobile penetration (%)



The number of active mobile postpaid subscribers is not changing much; the main growth is in the prepaid segment (Fig. 7). An active subscriber is one who, during the past three months, has made use of mobile telephony services or paid fees.

Figure 7 – Distribution of mobile subscribers (thousands)



New service providers account for 0.65 per cent of all mobile subscribers (Fig. 7), their market share in revenues having reached 1.8 per cent by the end of the third quarter of 2004 (Fig. 8).

Figure 8a – Mobile market shares based on revenue

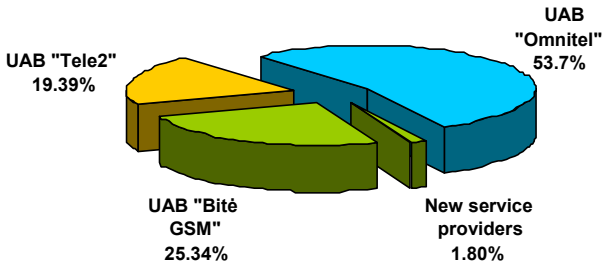
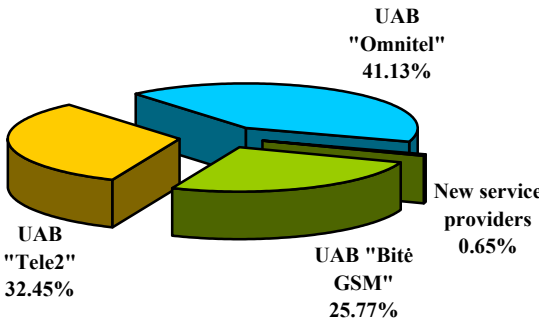
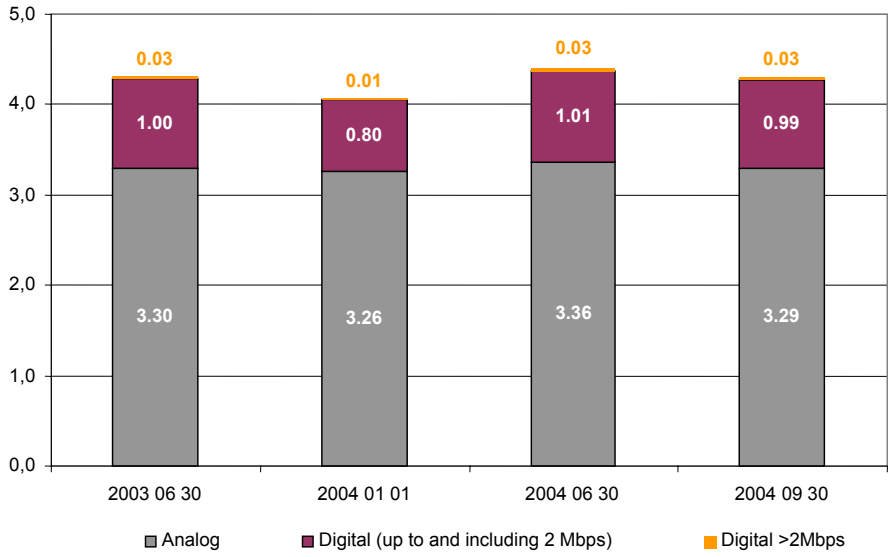


Figure 8b – Mobile market shares based on subscribers



In the leased lines market, 15 players were active in the third quarter out of 25 having submitted notifications. The types of leased line are presented in Figure 9.

Figure 9 – Types of leased line (thousands)

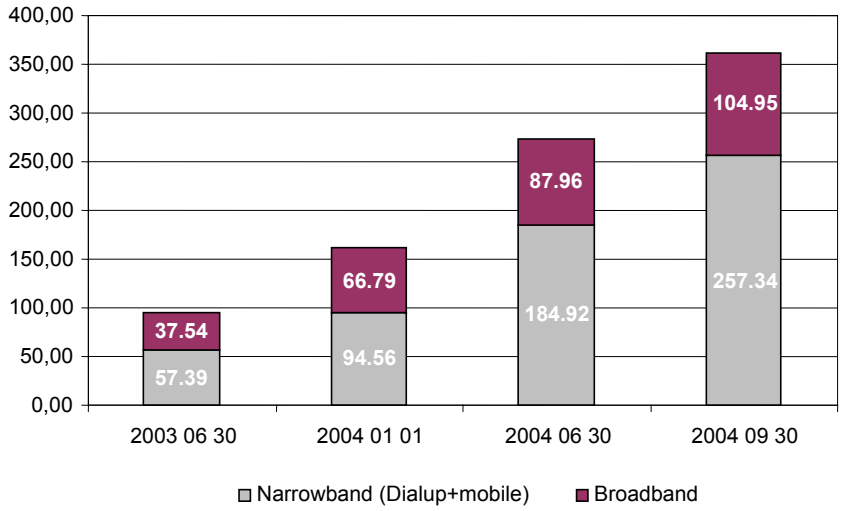


The largest market share of leased lines provided, based on revenue, is held by AB "Lietuvos telekomas", the company's revenue from the provision of leased lines having accounted for 44.3 per cent of the entire leased lines market in the third quarter of 2004.

By the end of the third quarter of 2004 there were some 362 000 Internet subscribers and 95 Internet service providers. The dynamics of Internet subscriptions is presented in Figure 10. Since the beginning of 2004 the number of broadband connections[1] has increased by 57 per cent, totalling almost 105 000 (29 per cent of all Internet subscriptions) by the end of the third quarter.

[1] All connections that allow speeds of 144 kbps and above.

Figure 10 – Internet subscriptions (thousands)



Of all Internet subscribers, 58 per cent use mobile networks to access the Internet (Fig. 11).

Figure 11 – Breakdown of Internet subscribers by type of connection

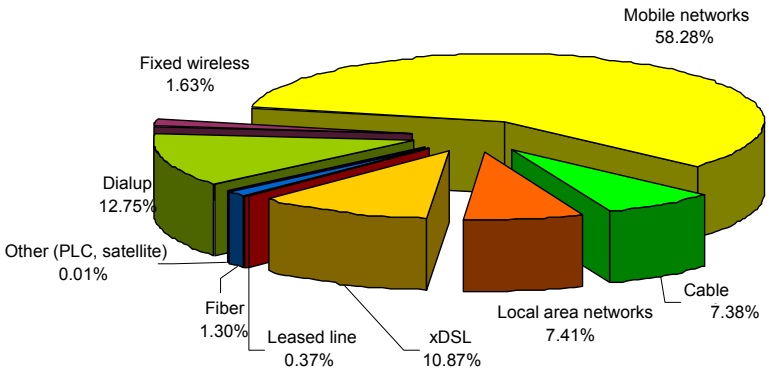


Figure 12 – Internet market shares. Total revenues in the third quarter of 2004: EUR 11.54 million

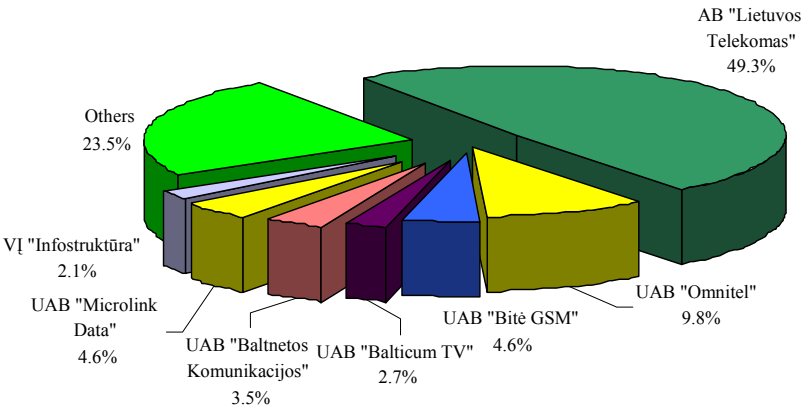
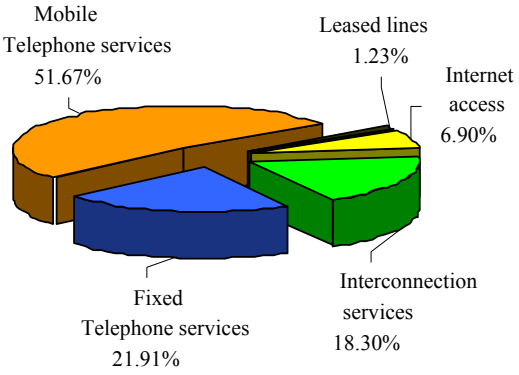


Figure 13 – Telecommunication market value in the first half of 2004 (EUR 301 million in total)



The telecommunication market value in the first half of 2004 was EUR 301 million, having increased by 5.6 per cent compared to the same period in 2003. More than half of the revenues are generated by mobile services (Fig. 13). Revenues generated by the Internet increased by 27 per cent, while those from mobile services increased by 11 per cent, although the traffic originating from mobile networks increased by 36 per cent. Revenues from fixed telephony services fell by 7 per cent, but the traffic originating from fixed networks increased by 16 per cent. This shows that the use of telephone services is increasing and that those services are getting cheaper.

International Telecommunication Union

ICT Market Liberalization Reports for CEE Countries and Baltic States

Liberalization of the ICT Market in Bosnia and Herzegovina

by Nadžida Sarić M.Sc. and Fikret Kasumagić M.Sc.

ITU International Telecommunication Union

This report on the Liberalization of the ICT Market in Bosnia and Herzegovina has been prepared by Nadžida Sarić M.Sc. (nsaric@rak.ba) and Fikret Kasumagić M.Sc., from the Communication Regulatory Agency in Sarajevo, Bosnia and Herzegovina. It is part of a series of ITU telecommunication studies analyzing economic aspects of telecommunications and carried out by ITU/BDT's Market, Economics and Finance Unit (MEF). This report also reflects the results of the discussions on telecommunication market analysis during the seminar on Economic Dynamics of Newly Liberalized Telecommunication Markets in CEE Countries and Baltic States, held in Vilnius, Lithuania, in October 2004 (http://www.itu.int/ITU-D/finance/work-cost-tariffs/events/tariff-seminars/lithuania-04/index-results.html).

Note: The views expressed in this paper are those of the author and do not necessarily represent the opinions of ITU or its membership.

The terms and definitions used are the author's own and can on no account be regarded as replacing the official ITU definitions.

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Abstract

This paper looks at the situation in regard to liberalization in the field of information and communication technologies (ICT) in Bosnia and Herzegovina (B&H) from the standpoint of inclusion in the global ICT market. Following a presentation of the projected dynamics of the telecom sector's liberalization, based on the document "Telecom Sector Policy in B&H" and of the current situation, there is a brief overview of the privatization process and ownership structure of companies in the telecom market. After this, there is a short review of the characteristics of the telecom market from the point of view of the emerging markets. The role of the Communications Regulatory Agency is presented in terms of its objectives, duties and significance in the liberalization process and regulation of the telecom market, after which there is a presentation of the regulatory framework for the implementation of interconnection in B&H, which will play a crucial role in accelerating the liberalization process.

Finally, emphasis is laid on the role of the "new economy" and future legislation in the ICT sector in B&H, which will be only one of the segments of the global information society in the near future.

1 Projected dynamics of the telecom sector's liberalization

The telecom market liberalization process in Bosnia and Herzegovina is precisely defined in the document "Telecommunications Sector Policy of B&H" (TSP), adopted by the B&H Council of Ministers in 2002.

In accordance with the generally accepted expert opinion that telecom services are best provided in a competitive environment, the final aim of the TSP is full liberalization of those services.

1.1 Liberalization: fixed telephony services

Liberalization entails provision of the prerequisites for the commencement of private investment in public networks and services and for the introduction of competition and new participants in the telecom market. The aforementioned investment must be accompanied by appropriate legal provisions, including regulations relating to concessions.

Taking into consideration the level of development and inadequate penetration of fixed telephony in B&H, the steps to be taken in regard to the implementation of Universal Service Obligations (USO) and achievement of the general aims of telecom sector privatization and fixed telephony services liberalization have been planned in several phases (TSP, pp 3-5):

a) *By the end of June 2002 – liberalization of non-voice services (transfer of data and Internet services)*

Data transfer networks, although *de jure* liberalized, were owned by the existing public operators, in which a certain form of *de facto* monopoly existed. It was therefore necessary for the conditions, quality and prices relating to use of the data transfer infrastructure to be provided and clearly regulated.

To this end, in 2002 the Communications Regulatory Agency introduced the licensing process for the provision of Internet services, as an interim measure pending full liberalization of this sector.

The Agency has also adopted regulations enabling non-discriminatory access to telecom networks, leasing of circuits and interconnection under real cost-oriented conditions, and which foster the construction of separate networks for the provision of telecom services, i.e. the startup of new network operators.

The proposed liberalization precludes the commercial provision of IP telephony services until the balancing of prices for international and national services and liberalization of international voice services have been completed.

b) By the end of June 2002 – national voice telephony services

In the previous period, fixed voice telephony services were provided under the exclusive right of the existing operators in certain parts of B&H and under tariffs that were not cost-oriented and did not enable national telephony services to be profitable or economic.

The Communications Regulatory Agency therefore drafted, in March 2002, the Interconnection Rule, which introduced harmonization with the applicable European regulations and allowed for the awarding of licences to the existing incumbent telecom operators, giving them the right to provide fixed telephony services throughout the territory of B&H while requiring them to establish interconnection.

The planned liberalization of non-voice services and national voice services has already been completed in the B&H telecom market.

c) By the end of 2005 – international voice services

The funding of universal services and implementation of the privatization strategy in the telecom sector depend to a large extent on the degree of liberalization of international voice services. Since it is necessary to achieve the USO goals and implement the final adjustment of cost-oriented tariffs by the end of 2005, international voice services will be liberalized no later than 1 January 2006, until which time those services are reserved for the operators already licensed to provide them. Other operators needing to use international voice services for the provision of their services will be able to do so through the inter-connection that the licensed operators are obliged to provide.

1.2 Liberalization: mobile telephony services

The mobile market in B&H is divided into three geographic segments, with one mobile operator in each. Such market specificity is to be found almost nowhere else in the world in the initial phase of market liberalization, but in complying with the obligations laid down in the licences awarded to them, the operators are obliged to roll out their respective networks and offer their services to users in all parts of B&H.

The main question facing regulators in the start-up phase is: what is the optimum number of licences to issue? On the one hand, a smaller number of licences is far more attractive to investors, especially in small markets; while on the other hand, more operators means greater competition and more benefits for mobile service users (Hall, R., 2004, p. 2).

The Telecom Sector Policy document adopted by the Council of Ministers provides, based on the size and power of the available market, for limitation of the number of mobile operators to three until the end of 2005.

Hence, mobile telephony services, as a specific means of accessing voice services, have been completely liberalized.

2 Current status of sector liberalization

If we observe the telecom market from the point of view of those services that have been liberalized and those that have not yet been through the process, we can divide all telecom services into two groups: a) liberalized services, and b) non-liberalized services.

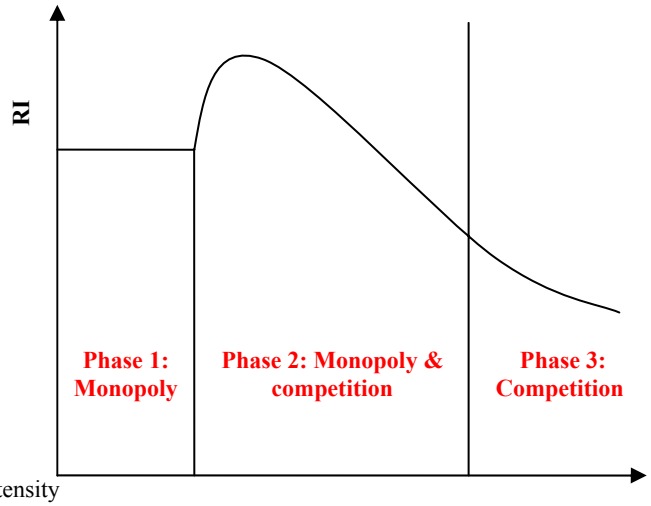
In liberalized services, which include premium rate and Internet services, it is necessary to anticipate the increase in the intensity of competition that the process of full opening of the telecom market and entry of new participants will bring about.

Within the group of liberalized services there are a large number for which competition still does not exist. This applies to the following market segments: public telecom networks, including local networks for voice services, leased circuit market, local and national services market, provision of services for closed user groups, VSAT (very small aperture satellite transmission), fixed satellite communications and transfer of data.

The group of non-liberalized services includes international voice services, over which the incumbent operators hold the rights until the beginning of 2006.

If we observe the telecom market from the point of view of liberalization evolution and regulation intensity, we can identify three phases of development: 1) monopoly, 2) monopoly and competition, and 3) competition. The telecom market in B&H is now in phase 2 (see Figure 1) (Saric, 2004, p. 12).

Figure 1 – The evolution of regulation over three phases of market structure



RI – Regulatory intensity

Source: Bergman et al. (1998): Europe's Network Industries: Conflicting Priorities, Centre for Economic Policy Research, London, p.10 and 11

Phase 2, monopoly and competition, is characterised by the gradual introduction of competition to some or all segments of the market, as well as the presence of monopoly. The regulator's task during this phase is to prevent abuse by the monopoly operators, not only in terms of service provision, but also of access to incumbent operator infrastructure.

3 Telecommunication privatization process

The process of telecom sector privatization can be considered as initiated, although it is relatively lengthy in the preparatory sense (initial balances, information memos, etc.), as well as in the sense of definition of the privatization policy.

Where the existing three incumbent operators are concerned, the present situation in regard to change of ownership structure is as follows:

- Telekom Srpske a.d. Banja Luka is 65 per cent Government-owned, while the remainder of 25 per cent is privatised (vouchers);
- BH Telecom d.d. Sarajevo is 90 per cent Government-owned, and only 10 per cent is privatised (certificates);
- HT d.o.o. Mostar is 62.76 per cent Government-owned, 30.29 per cent is owned by Hrvatske Telekomunikacije (HT) d.d. Zagreb, and 6.95 per cent belongs to the company Hrvatske Pošte (HP) d.d. Zagreb (joint venture).

Public opinion has recently been increasingly clear – and this should be reflected in official policies – that the privatization process needs to be conducted on an ongoing basis and that the major shareholders' main focus should be on developing the telecom sector (UNDP, 2004, The Privatization of Natural Monopolies, p. 23).

In 2004, we have the trend of intensive market development in the network operator and Internet service provider segment. In September of 2004, there are 65 private network operators and 41 private ISPs operating in B&H. This clearly shows that the agency responsible for formulating telecommunication sector policy is pursuing the right approach in regard to telecommunication sector liberalization.

4 Characteristics of the telecom market

By its nature, the mobile communications market in B&H is one of the emerging markets. The characteristic of emerging markets is that they offer numerous possibilities that can be divided into the following groups (Domazet, A., 2001, p. 161-162):

- Expansion of competitive companies in emerging markets, with global companies having achieved significant results using the 'first mover' strategy;
- Use of highly cost-competitive countries for outsourcing ;
- Investment of capital in the privatization process of State-owned enterprises, which included the transfer of technologies and administrative knowledge to the companies of those countries;
- Development of new financial markets and services needed by those countries as a matter of;
- Restructuring of national companies with the goal of global competitiveness.

For the purposes of illustration, we will present the development of the telecom market in B&H using the example of mobile telephony, noting that the number of fixed telephony subscribers in 2004 was around one million, with a penetration level of 27 per cent. The penetration level of the Internet in B&H is extremely low (only 4 per cent in 2004).

The number of mobile telephony subscribers of all the three operators in B&H in September 2004 was 1 211 498. As is shown in Table 1, this market displays constant growth in terms of the number of subscribers, with a penetration level of 31.8 per cent.

Table 1 – Growth in the number of mobile telephony subscribers in Bosnia and Herzegovina

	Q_4 2001	Q_4 2002	Q_4 2003	Q_3 2004	Note
No. of mobile subscribers	435 000	749 000	1 050 000	1 211 498	
Growth index	166	172	140	115	
GI (penetration level)	11.4	19.7	27.6	31.8	

Q_3 = 3rd quarter of the year in question

Q_4 = 4th quarter of the year in question

GI = growth indicator

Source: Communications Regulatory Agency of Bosnia and Herzegovina, Database, 2004

The data presented in Table 1 show that the mobile communications market in B&H is constantly growing in terms of the number of subscribers. It is important to note that the growth indices are very high, this being one of the characteristics of a developing market.

The mobile communications market in B&H is characterised by a high level of demand, the existence of potential markets and permanent growth, which, we predict, will continue in the future.

5 The role of the Communications Regulatory Agency

In Bosnia and Herzegovina, the Communications Regulatory Agency (RAK), was established by a Decision[1] of the High Representative. Its duties and competencies are clearly stipulated in the Communications Law[2], with a note to the effect that the Law is completely harmonized with the new documents setting forth the European Union's regulatory framework (Package 2002). Since its establishment, the Agency has awarded three licences to GSM operators, three licences to fixed operators, 65 licences to network operators and 41 licences to Internet Service Providers[3]. It has also adopted specific legislation, in the form of rules, instructions, guidelines and decisions, relating to various aspects of telecommunication regulation in B&H.

5.1 Definition, goals and duties of regulatory authorities

The definition of "national regulatory agency (NRA)" established by the European Union (Open Network Provision (ONP) Framework Directive) emphasizes that an NRA is a legally-established body that is functionally independent from other telecommunication organisations. The ITU definition refers to the term "independent", which means independent in terms of funding, organisational structure and decision-making from all operators in the market and from the relevant government ministries. An NRA should be independent in its implementation of a telecom sector policy, without being subject to political pressure or industry lobbying (Sarić, 2003, p.132).

Telecom operators and investors generally have more confidence in those national markets in which an independent regulatory authority regulates the telecom market by following principles of objectivity, non-discrimination and transparency. In any case, all participants in the telecom market should be clear that the "independence" of a regulator does not mean independence from the country's laws and telecom policy (Intven, H., Oliver, J., Sepúlveda, E., 2000, p. 1-6, 1-7).

The main goals of each NRA are the following (Framework Directive, 2002, Article 8, p.L 108/42):

- Promotion of fair competition for the purpose of realisation of maximum benefit to telecom service users in terms of choice, price and quality;
- Support for efficient investment in infrastructure and promotion of innovations;
- Prevention of jeopardizing or limiting competition in the telecom market (or, more broadly, in the communications sector);
- Initiation of internal telecom market development in order to promote development of Trans-European networks and interoperability of pan-European services;
- Promotion of telecom service user interests through implementation of the Universal Service Obligation and protection of consumers' rights;
- Enabling access to basic telecom services;
- Realisation of the interconnection regime;
- Optimization of limited resources.

---

1 Decision on combining of competencies of the Independent Media Commission (IMC) and the Telecommunications Regulatory Agency (TRA) of 2 March 2001.

2 "Official Gazette of Bosnia and Herzegovina", No. 33 of 12 November 2002.

3 Data from RAK, October 2004.

In order to achieve the stated goals, the authorities have the following duties:

- Adoption of rules in the field of telecommunications and ensuring compliance therewith;
- Licensing telecom operators and monitoring of compliance with the terms and conditions of licences issued;
- Planning, management, designation and allocation of the frequency spectrum, monitoring of its use and publication of the spectrum usage plan;
- Ensuring the application of technical and quality standards;
- Definition and maintenance of the technical licence fee system.

6 Liberalization of the information and communication technology (ICT) sector

Liberalization of the ICT sector is defined in the regulatory framework in force in B&H. With a view to achieving the speediest and most systematic development of this sector, the B&H Council of Ministers is in the process of adopting two crucial documents: Information Society Development Policy in B&H and Information Society Development Strategy in B&H.

Information Society Development Strategy in B&H is a document that provides strategic guidelines and an action plan for development of the information society in the period 2004-2010. The strategy is based on the vision and goals set out in the Information Society Development Policy.

As a part of planned activities to monitor and support the development of ICT and acquire an insight into the role and significance of the regulator in this process, RAK organised a symposium on the theme: "ICT in support of economic development and inclusion in globalisation trends", which was held in Sarajevo on 29 and 30 September 2004. The symposium concluded, among other things, that (Kasumagić, F., 2004, p. 2):

- ICT should be the vehicle for economic development and technological reform in B&H;
- The priority activity in the sector is the rebalancing of telecom service prices and organisation of the pricing system in general. This would be conducive to a better competitive environment and would contribute to more intensive development of services in the ICT sector. This activity should also include improving the quality of business cooperation between the incumbent operators and service provides in the ICT sector;
- It is necessary to establish broadband networks in B&H, since this represents a crucial prerequisite for the serious development and application of ICT services. This means that one should either establish a separate project or harmonize existing operator network construction plans, connecting the various networks into a single backbone IP network;
- The application of economic principles of interconnection should create equal conditions for all participants in the ICT service market. This is expected to flow from application of the Interconnection Rule, under which telecom operators are required to begin charging for all services on a cost-oriented basis as from 1 July 2005.

7 Establishment of the interconnection regime

Good interconnection arrangements are conducive to efficient infrastructure development, providing proper incentives for operators to build their own networks and use parts of other networks. Inappropriate interconnection requirements, on the other hand, can act as barriers to competitive entry, undermining investment in new infrastructure and depriving the public of innovative and attractive service options.

Economic efficiency entails setting prices that are equal to some measure of costs.

Effective interconnection arrangements are essential to the efficiency and development of today's integrated global telecommunication networks. Interconnection is one of the foundations of viable competition, which in turn is the main driver of growth and innovation in telecommunication markets. Indeed, the availability of price and conditions for interconnection in a given market is a major determinant of the extent to which competition will emerge (ITU, 2001, p.19).

Table 2 summarizes the key issues of interconnection in B&H:

Table 2 – Interconnection issues (II) in B&H

Key issues	Current status
Are II agreements subject to express regulator or individual negotiation?	Agreements are subject to individual negotiation by the parties. Incumbent operator's agreement has been approved by RAK.
Are there special rules for dominant operators or industry-wide rules?	RAK Rule No. 16 on interconnection has been adopted.
Are there specific network locations where II must take place?	No, subject to the principle of non-discrimination. Interconnection should in principle be offered wherever sought unless not technically feasible.
Is there unbundled access to internal network functions?	No, but there is a general obligation to offer interconnection in a sufficiently unbundled form. RAK to make a rule concerning this issue.
Is there a preferred pricing formula for II charges?	No, but LRAIC-based costing approach will be introduced.
Are there rules on collocation?	No

Source: Communication Regulatory Agency of Bosnia and Herzegovina

In accordance with the Law on Communications of B&H, Rule on Interconnection of the Agency and Licencing of the fixed public telephony operator, RAK's Telecom Division prepared a document entitled *"Guidelines for establishment of interconnection regime"*, which was distributed to the dominant telecommunication operators. This document specifies the roles and activities which must be carried out in a timely fashion in order to ensure the establishment of an interconnection regime in the B&H telecommunication market. Owing to the complexity of the issue and the close relationship it bears to other aspects of telecommunication services such as tariff-setting, universal services, economic issues relating to the identification and separation of expenses, and the definition of cost-orientated interconnection prices, it will be discussed during 2004.

Interconnection charges shall consist of a) charges to cover physical interconnection based on the cost of providing the specific interconnection requested; b) charges for leasing and maintaining equipment; c) variable charges for such ancillary and supplementary services as access to directory services, operator assistance, data collection, charging and billing; and d) traffic-related charges for the conveyance of traffic to and from interconnected networks based on per minute/second usage and/or additional network capacity required.

Defining the cost-oriented charges for interconnection services would result in optimum efficiency in the telecommunication sector in B&H.

8 New economy and market society

By following European processes and through the accelerated application of contemporary ICTs, B&H will build a modern economy and society in which information, knowledge and human resources are a key factor. By developing its information society, B&H will transform the current underdeveloped economy and society into a medium-developed economy and society, ready for integration into the European Union by the end of 2010.

The economic development of B&H will be based on knowledge and ideas and on the use of natural resources and economic assets in a globalized environment of open and unlimited competition and large-scale technical and technological progress. The main foundation of the "new economy" (Internet and e-commerce) and economic development will be the human resources that constitute the information society (UNDP B&H, CoM of B&H, 2004, p. 11).

By using the technological assets of the information society, economic development will be faster, better and safer. Communications and the exchange of information between people will stimulate economic development by optimizing, among other things, business cycles and timeliness.

Implementation of the new ICTs will also enable the implementation of new services in the B&H communications market, such as e-government, e-commerce, e-business, e-banking, e-learning, e-health and e-legislation.

The emerging problem in regard to the realisation of ICT is the lack of a clear definition of the “new economy” and, for the time being, the necessary legislation for development of the information society. B&H should therefore work on implementation of the axiom that without a unique economic and legal environment in a country there is no unique information society.

9 Future regulation of the ICT sector

The development and establishment of the information society will be followed by the timely introduction of legislation governing all aspects of the application of the new technologies and processes that are being introduced and promoted, including harmonization with the existing laws, such as documents and regulations of the European Union.

The legal infrastructure will be put in place as a whole and as an open system that does not suffer any territorial or political divisions. It will then make for rapid progress of the propulsive sectors, as well as the unhampered inclusion of less-developed areas into a single unit.

Systematic research will be conducted into the influence of computerisation on the whole legal system in B&H, from administrative, through criminal and right up to international privacy law. The strategic focus will be on e-business legislation, covering such areas as e-commerce, e-trade, e-contracts, e-procurement, digital signatures, e-banking, etc. (UNDP B&H, CoM of B&H, 2004, p. 18).

The regulation of ICT sector development will be completely neutral, without any consideration of technological, ownership, political or ethnic influences.

The basic legal and political guideline is establishment of a process of harmonization with the EU legislation and regulations and compliance therewith.

10 Final considerations

To conclude this paper on liberalization of the ICT sector in B&H the following remarks:

- The regulation of ICT sector liberalization is in accordance with the defined dynamics laid down in the Telecom Sector Policy.
- Market competition is enabled but still insufficiently developed.
- Establishment of the interconnection regime will significantly improve development of ICT sector.
- New ICT-based services will be offered in the market.
- Future regulation of this sector is necessary.
- The role of the Communications Regulatory Agency in the whole process of ICT sector liberalization is very important.

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International Telecommunication Union

ICT Market Liberalization Reports for CEE Countries and Baltic States

Economic and institutional implications of network convergence in Hungary

by Zsuzsanna Kosa

International Telecommunication Union

This report on the economic and institutional implications of network convergence in Hungary has been prepared by Dr Zsuzsanna Kosa (kosa@alpha.tmit.bme.hu), from the Budapest University of Technology and Economics. It is part of a series of ITU telecommunication studies analyzing economic aspects of telecommunications and carried out by ITU/BDT's Market, Economics and Finance Unit (MEF). This report also reflects the results of the discussions on telecommunication market analysis during the seminar on Economic Dynamics of Newly Liberalized Telecommunication Markets in CEE Countries and Baltic States, held in Vilnius, Lithuania, in October 2004 (http://www.itu.int/ITU-D/finance/work-cost-tariffs/events/tariff-seminars/lithuania-04/index-results.html).

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Abstract

Digital convergence is a foregone conclusion for the telecommunication, information and media industries. Regulatory bodies seem to be slow in reacting to converging markets. The presentation highlights the ongoing convergence processes influencing the infocommunication industry. The proposed co-regulatory approach seems to meet the increased expectations vis-à-vis the regulatory bodies. There are also some special issues to considering the case of a newly-joined EU Member State.

1 Convergence is one of the development processes

The development process flows on different levels. Convergence of the telecommunication, information and media industries is based on common digital technology which enables the output of combined products at lower costs. The combined products (tangible products and related services) are able to substitute or complement each other on the market. The changing product positions change the market structure in longer run. Regulation starts to handle the combined services and market changes too.

The speed and extent of convergence can be measured using different methods. Our department has recently produced a methodology for measuring the extent and speed of convergence on three levels:

– on the level of technology, as it is the capacity to produce and provide common products from different converging business lines;

– on the level of the market, as the combined products are available in the market and have an effect on the market share, market strength, market structure and capital concentration;

– on the level of regulation, which is mainly a reaction to the previous levels, such as regulation of the technical means (scarce resources, standards, interoperability) of developing common technologies, and economic regulation in response to changes in the market, to protect or enhance competition and to control capital concentration processes.

The aforementioned layers of convergence are interrelated, but may have different extents and different speeds. The extent and speed can be measured by putting a set of direct questions to well-selected professionals, whose replies may provide a number of statistics and summarized indices. (The model is a step beyond the study by Samarajiva and others in the context of the World Dialogue on Regulatory Approaches, published as a 2002 Theme)

2 Dependency calls for regulation of reliability and security

The converging and spreading infocommunication markets provide new services, new publicity and also new risks for society. The networked information society depends more and more on information-based public utilities. This dependency is similar to the dependency on the other networked industries, such as energy networks and the pipelines used for drinking water and drainage. Such networks make for sustainable urban areas and better living and working conditions in suburban and rural areas, but only where they are reliable, safe and secure. Wherever infocommunication networks have become essential to everyday life and business, the issues of safety and security, personal and business privacy and trust and reliability in information networks and related services also become relevant. People are ready to depend on a network which serves them, but are unwilling to put their trust in a network which can be unreliable.

3 Oligopolistic markets need regulation of asymmetry

Networked industries are oligopolies: there are only a few providers, owing to the high sun-cost on the networks. The high cost of innovation means that there is also a tendency towards capital concentration: strategic alliances and mergers are common in the infocommunication sector. In oligopolistic markets, the market power of the different players can vary considerably. Regulation is needed to rebalance the existing and potential differences in market power, enhance competition, slow down the remonopolization process, protect customers and community rights, and eliminate or decrease information asymmetry.

4 The stakeholder structure

Each infocommunication network has its set of stakeholders. Their expectations, and the power they have to enforce them, influence the regulatory regime. An expectation is based on three roots: knowledge, interests and value perceptions. The power of enforcement is also based on three roots: power to choose another solution (switch), power to change the rules (coregulation), and power to convince another interest group to do so (collaboration).

The main stakeholder groups are the following:

Customer group: individual customer, large consumer, related industry using networked services (e.g. banks).

Providers group: network provider, communications service provider, information service provider, content provider, related industries providing substitute products (e.g. newspapers), incumbent operators, newcomers, strategic partners, real competitors, cooperators.

Suppliers group: manufacturers, builders, device developers, equipment sellers, distribution channels, advisers, outsourced service providers, other related subcontractors.

Investors and financial partners group: public owners (if any), private owners, institutional investors, strategic investors, shareholders, small investors, banks, loan providers, bond issuers.

Workers group: managers, professionals, customer care and operational staff.

Redistributors group: tax offices, general market-regulatory offices, sector-specific regulatory offices, civil organizations in co-regulation, social networks, special and local authorities.

General public group: politicians and the electorate, civil organizations, potential customers and workers, international communities, journalists.

All these general interest groups have different relationships to the convergence process, to the extent that it is a relevant change in the market.

Customer group: they are mainly happy with the converged markets because the supply is growing and the customer choice increasing.

Providers group: they may have an ambivalent view of convergence; incumbent service providers may feel their market share to be threatened by the new combined products; newcomers may see convergence as an opportunity to rearrange the existing market shares.

Suppliers group: they may feel a similar ambivalence in regard to the ongoing process of convergence, since it rearranges the market shares of supply. Newcomers might be happy with the new opportunities created.

Investors and financial partners group: the risk is growing in the infocommunication industry with convergence. The former situation whereby all investments could be financed to an unlimited extent now no longer prevails. The reason for that former situation was the huge unsatisfied but feasible demand for communication services. The increasingly saturated market, with growing competition, entails greater risk for investors. So the interest and discount rates should also rise.

Workers group: the risk for workers is also growing, because the converged markets need fewer staff for the same traffic. On the other hand, there are some new opportunities on the customer help side, because the new products need more professionals to install them and to train customers in their use.

Redistributors group: redistributors are in an embarrassing situation, as they are supposed to react to the changes or predict the consequences of the convergence process, but are unable to do so. Expansion of the related markets calls for more general market regulation with fewer sector-specific issues. The capital concentration process as a natural reaction to convergence calls for more sector-specific regulation. Society's growing dependence likewise implies more sector-specific regulation of the networked industries. Thus it is that the policy, role, goals and frameworks of regulation are changing.

General public group: politicians, voters, journalists and civil servants all wish to be informed about and involved in this changing process.

5 Role of regulation in the development of the infocommunication sector

Regulation has different roles in a given market: *Economic role*: redistribute incomes of market players according the value perception of the decision-makers within the society. *Behavioural role*: modify the behaviour of the market players toward expected actions. *Market development role*: provide an understandable framework for investment and business activities. *Legal role*: clarify the rights and duties of the players, including the regulator itself. The regulatoryn regime should fulfil the above expectations, and should also look to enhance future market development.

Market development can be measured in different terms: traffic volume, invested capital, earnings on investment, desired market structure, fulfilled human needs. Markets have life cycles in the same way as products. There are also stages in the market life cycle: embryonic, growing, mature, over-matured. Market development theoretically means that the market goes ahead within this life cycle. Regulation may involve a delay, and has to have defined stages, while market development is continuous. They do not always match each other well, but do influence each other. We refer to regulation as *effective* when it has an influence (hopefully a positive impact) on market development. We refer to regulation as *efficient* when unnecessary or contradictory regulation is eliminated from the entire regulatory regime.

6 Historical regulatory approaches of converging markets

Convergence is one of the reasons, because the telecommunication, information and media industries need common sector-specific regulation. These industries historically take different regulatory approaches:

- The telecommunication sector has huge and combined sector-specific regulation and relatively recent antitrust regulatory practices.
- Information technology is regulated mainly through self-regulation of the market, and is the main area of antitrust cases.
- The technical side of electronic media is based on standards and rules governing scarce resources.
- Content provision through electronic media is regulated mainly by the traditional rules of paper- and celluloid-based media, such as intellectual property rights, the need for political balance, openness of public information, etc.

To combine the traditional approaches of these four areas is rather difficult. The main regulatory issues regulation are:

- compulsory cooperation in the areas of interconnection, safety and security;
- enhancement of new market entrance with new technologies and new service providers;
- reducing cases of monopolistic markets and at least keeping markets competitive,

– rebalancing the information asymmetry among players (small and large providers, providers and customers);

– expanding basic services with a transparent cross-financing method, due to the positive externalities for society, while avoiding distortion of the market structure.

7 Co-regulatory approach to convergence

Converged markets should and could be handled using a co-regulatory approach. This means that there is no one single institution responsible for regulation of the infocommunication market.

– *The reason for the co-regulatory approach comes from the distributed power theory used by sociologists. If a market expands and reaches other relevant markets, stakeholders interested in the market should share their power with other stakeholders interested in the other market. Joining several markets sometimes seems to be chaotic. Spontaneous processes are the best way to rearrange the situation: industry self-regulation, ex-post competition regulation, major complaints by users.*

Regulatory duties should be distributed among the co-regulators:

– sector-specific infocommunication authority,

– general market regulatory authorities (such as competition authority, customer protection inspectorate, data protection office, environmental protection authorities),

– industrial self co-regulators such as standardization, notification and accreditation bodies, industrial chambers and other industrial associations

– civil society acting as co-regulator mainly on the user side and staff interests (trade unions, scientific associations, etc.)

Most of the co-regulatory group also has an international dimension:

– Sector-specific infocommunication authorities have a European network (IRG) and have to report to the EU administration (ERG).

– General market regulatory authorities (such as the competition authority, customer protection inspectorate, data protection office, environmental protection authorities), being part of the government of an EU member state, likewise have to report to their European networks and administrations.

– Industrial self co-regulators such as standardization, notification and accreditation bodies, industrial chambers and other industrial associations also have an international dimension.

– Civil associations acting as co-regulators are basically at the local or national level, but may also have their own international networks (as trade unions have).

The co-regulatory approach also calls for a mechanism for cooperation among the co-regulating partners:

– The institutional side of co-regulation should be codified in legislation. However, if the legislation is not detailed enough, the institutions may (or may be expected to) contract with one another. There is unspoken competition between institutions to have more public responsibility, since this might generate more State budget. However, the relationship between duties and budget is not so close, so this competition for functions is rather weak.

– Industrial self co-regulation is mainly codified in other acts, such as the Act on Standardization, Decree on Industrial Chambers, etc. The situation is not so clear: these bodies are fighting for more responsibility, but later they demand government funding for these functions. The government is also interested in co-regulation when funding is also provided by the industrial groups. In cases where the funding of co-regulation comes from the industry, major incumbents may use it to defend their interests.

– Civil associations are generally less powerful, but the general public (e.g. politicians, voters, journalists) is more sensitive to their issues. The main goal of regulation is also to rebalance the differences in the areas of market power and information asymmetry. Civil associations can be the main players in the rebalancing processes, giving them more informal power to enforce their interests.

8 The globalization of networked industries

Infocommunication networks, like energy, banking and financing networks, are becoming increasingly global: designers, operators, owners, competitors, and also consumers, are from all over the world – more precisely, from the upper- and middle-income parts of the world. The lower-income parts of the world have to import capital to invest in local networks, so the globalization is there too, but in a different way. The network density can be measured naturally. The internationalization could also be measured by the percentage of foreign investment, cross-border services or procurement, and by the ratio of foreign staff used in a global industry.

As a consequence of globalization, traditional State borders are losing their relevance. As a further consequence, the traditional national government's power to redistribute incomes might also decrease. Technical development, including convergence, provides more and more solutions for substituting one service or product with another. So there is no longer any source of cross-financing. The national government has limits when it comes to redistributing revenue from international businesses to local social needs. Were this to be attempted, the international business in question would be substituted with another or would simply take its leave.

As a further consequence of globalization, the relevance of industrial co-regulation is growing. Standardization is a typical example, being a key means whereby multinational electronic device producers can protect their interests.

Government regulatory institutions are also subject to international influences. States participating in international organizations and contracts give and receive information about national regulatory frameworks and may thus learn about best practices.

9 Global regulatory approaches

Of the global regulatory institutions operating in the infocommunication sector, the most important is the International Telecommunication Union (ITU). The major role of ITU is to ensure the global distribution of scarce resources: satellite positions, radio frequencies, telephone numbers. Its second role has to do with the standardization of networks and devices. Standardization is an issue of industrial self co-regulation, and ITU, in addition to its Member States, also has Sector Members. ITU's third function (ITU-D) is to help in infrastructure development at the global level; regulatory issues are handled by ITU-D. ITU has some "coopetitors" (a new word coined from "cooperation" and "competition") in standardization issues, for example the European Telecommunications Standards Institute (ETSI).

Another global approach, embodied in the World Trade Organization (WTO), seeks to eliminate the boundaries to international trade. One of the main topics is how to do away with customs charges on information technology devices. Not all countries have subscribed to these initiatives.

The United Nations (UN) is pursuing an initiative known as the World Summit on the Information Society (WSIS), which seeks to convince developed and developing countries to cooperate in the area of information and communication technology (ICT). The actual process is very slow and fraught with conflicts, because the goals are not very clear. It seems to me that the developing countries are trying to renegotiate many things, including human rights, while the developed nations speak about e-government and e-education. ITU is also participating in this process as the sector-specific UN agency.

The European Union has a rather strong internal market regulatory framework as part of the "acquis communitaire". There are different directorates (DGs) responsible for regulation: DG Information Society (sector-specific), DG for Competition, DG for Internal Market, DG for Standardization. All these directorates are co-regulators for each other and also for the national level of regulation.

The United States' federal regulatory framework can be consulted on the FCC website. It may be used as a comparison for European regulations, but the market situation is different. The US infocommunication sector is filled with wired broadband technologies, so broadband regulation could be an example for Europe. Europe is more characterized by cellular mobile technologies than the US, so wireless regulation seems to be a step ahead in Europe. There is one exception: the secondary market for radio frequencies is commonplace in the US, but is only at the pilot stage in Europe (led by the UK). The regulatory institutions are completely different owing to the differences in history and structure.

10 Institutional policy for regulation

What policy should European national governments be pursuing in regard to regulatory institutions? We shall take a look at the emerging issues, seen from the standpoint of the different interest groups, in order to find a sustainable solution.

a) *Could we allow the spontaneous convergence process to take its course, and handle emerging market failures under antitrust policy?*

- *Customer group*: the customers would be served at differentiated levels.
- *Provider group*: the major incumbents would win, newcomers could lose, and nobody would pay for regulatory services.
- *Suppliers group*: stable partners may be either good or difficult for them.
- *Investors group*: the risk inherent in investing in new businesses is high, and to buy an existing share would be better for them.
- *Workers group*: the strong competition would require cost minimization, including staff reductions.
- *Redistributors group*: nothing specific to do other than monitor the situation in case of slow growth, although it could be necessary to mediate in tough market conflicts between interested parties.
- *General public group*: social expectations of universal service not fulfilled.

b) *Should we expand the existing regulatory bodies to cover information technologies and technology issues in regard to media content provision?*

- *Customer group*: customers would be served more equitably, with the small individual customer being better protected.
- *Provider group*: newcomers would win, incumbents could lose market shares, and both should pay for regulatory services
- *Suppliers group*: there is the potential for new business partners, but the risk is also there.
- *Investors group*: the risk inherent in investing in new businesses is lower, resulting in greater funding for innovation.
- *Workers group*: regulated competition allows for higher staff costs, while new businesses may also bring more opportunities.
- *Redistributors group*: there are many things to do, from monitoring to universal service funding, and including interconnection.
- *General public group*: ambitions to influence the economic structure; social expectations may be fulfilled

c) *Could we merge the existing regulatory bodies for telecommunications and media content provision, just as the US did long ago and the UK just recently?*

- *Customer group*: the merger of regulatory bodies could provide the customer with clearer "one-stop shopping" regulatory services.
- *Provider group*: the merger of regulatory bodies would result in cheaper "one-stop shopping" regulatory services for providers, but the stronger regulator could also control the more complex providers.
- *Suppliers group*: a tough regulator could reduce the abuse of market power by the major players.
- *Investors group*: the merger of regulatory institutions could clear the conditions to invest into complex (converged) industry.
- *Workers group*: the merging of regulatory bodies would result in staff reductions.
- *Redistributors group*: media content provision involves many political issues, so it would be risky to merge the two bodies before achieving a stable political culture.
- *General public group*: the expectations of having an efficient and effective administration can be fulfilled.

d) *Should we organize public utility regulatory bodies in European Member States as is done in individual states of the US?* In the US, the sector-specific regulations are at the federal level, while at the state level there are only public utility regulatory offices, handling all of the networked industries (communications, energy, water). As the EU has a different administrative system, we are not yet able to establish a sector-specific super-regulator in Brussels, having smaller utility regulators at the national level. In the far-off future, however, the possibility remains open.

After looking at stakeholders' interests in different hypothetical situations, we are able to formulate answers based on **scenarios**:

A) **Allowing** a spontaneous convergence process would result in a capital concentration process that could cause huge market failures, without there being the means and institutions to handle them.

B) **Expanding** existing regulatory bodies to cover information services and technical issues of media content provision would appear to be worthwhile.

C) **Merging** sector-specific infocommunication regulators with content-provision media regulators would appear risky at the present level of political culture.

D) **Federalization** in the context of the EU (i.e. building up a huge centralized super-regulator or ECC, similar to FCC) would be unrealistic.

We would conclude this chapter by advocating **expansion of the existing sector-specific regulatory bodies** to cover a converged market in the infocommunication sector.

11 Knowledge management approaches of partnership in regulation

What should be the focus of an expanded system of regulatory bodies covering the converged infocommunication and information services sector?

The main idea is the co-regulation of different governmental, industrial and civil society institutions. There could be different types of knowledge management and different approaches to the handling of co-regulators as partners:

a) *Co-regulation is based on the expansion of sector-specific regulation*

The regulatory body has own knowledge about the technology and situation in the converging markets. A coordination mechanism is established for communication with the other co-regulators.

b) *Co-regulation is based on industrial bodies together with the sector-specific regulators*

Knowledge mainly comes from the industrial bodies. The staff of the regulatory body should not have direct knowledge about the market situation. An industry-influenced coordination mechanism might cause conflicts between administrative co-regulators (Competition Office, Data Protection Office...).

c) *Co-regulation is based on the alliance between the Competition Office and Sector-specific Regulatory Office*

The regulatory body has own knowledge about the technology and situation in the converging markets. The alliance makes for good coordination within the State administration. Communication with other co-regulators could cause some problems. Global players in the industry (incumbents) may try political or informal actions when their interests appear to be thwarted.

d) *Co-regulation is based on communication between the sector-specific regulator and civil society*

The regulatory body has own knowledge about the technology and situation in the converging markets. The alliance with civil society could generate political goodwill at the general public level, but other co-regulators (industrial groups, competition office) might be forgotten.

We see that these knowledge management approaches are not really different, but have different aspects judged to be more or less relevant. The author is convinced that there may be more than one attitude, and that none of them may be termed optimum.

12 CEEC specificities based on Hungarian experiences

Hungary is a new accession EU member state. In terms of GDP, it is a typical upper-middle income country. The opening-up of its infocommunication market began only in 2002, four years later than in the EU. The incumbent telecommunication operator has just recently been fully privatized. The whole ICT industry has seen foreign investment by global players. The local informatics industry consists of small enterprises of outsourced operators, application developers and software or hardware dealers. The provision of media content is relatively developed since most of the population speaks only Hungarian. There are also media programs for Hungarian nationals living outside Hungary. The institutional questions are influenced by the limited State budget. Now there is a big campaign to reduce the level of State administration. Every government cycle brings changes in staff, ideas and priorities in regard to regulation.

There are some special issues to consider where the regulatory regime and institutional framework in the field of infocommunications in the CEEC are concerned:

– *Industrial co-regulatory partners* have a rather big influence due to the foreign investments in the sector. Industrial associations are part of the civil organizations and other type of civil society is rather weak.

– *A limited State budget* may lead to institutional mergers within the government, but politically sensitive issues should be handled separately. The economy cannot sustain a government that is growing in size, although civil servants would not be expensive.

– As it gradually becomes saturated, the telecommunication market *will pay less and less* for sector-specific regulation. The global and the atomized national informatics sectors have no intention of *paying directly* for the regulator.

Step-by-step development would appear to be a ***feasible approach to expanding the scope of the regulatory regime*** from the telecommunication sector to the whole converged infocommunication and media content provision sector.

International Telecommunication Union

ICT Market Liberalization Reports for CEE Countries and Baltic States

Implementation of the new act on electronic communications in Slovenia

by Janja Varsek

International Telecommunication Union

This report on the implementation of the new act on electronic communications in Slovenia has been prepared by Mr Janja Varsek (Janja.Varsek@apek.si), from the Slovenia Post and Electronic Communications Agency. It is part of a series of ITU telecommunication studies analyzing economic aspects of telecommunications and carried out by ITU/BDT's Market, Economics and Finance Unit (MEF). This report also reflects the results of the discussions on telecommunication market analysis during the seminar on Economic Dynamics of Newly Liberalized Telecommunication Markets in CEE Countries and Baltic States, held in Vilnius, Lithuania, in October 2004 (http://www.itu.int/ITU-D/finance/work-cost-tariffs/events/tariff-seminars/lithuania-04/index-results.html).

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A new act of law on electronic communications was prepared, according to the new regulatory package, and entered into force on 1 May 2004.

1 Agency

The Telecommunications, Broadcasting and Postal Agency of the Republic of Slovenia, established by the old telecommunications act and the accompanying government resolution (Official Gazette, 60/01 and 52/02), remains the official post and electronic communications agency under the new Act on electronic communications (*ZEKom*). The Agency is headed by a director, appointed by the government for five years following a public competition. Selection is based mainly on the candidate's professional and international experience. The director may appoint deputies for different areas. The director and deputies are responsible for executing their official duties pursuant to *ZEKom*.

The Agency's legal status is established by law. It is independent of any persons or organizations involved in providing electronic communications networks and/or services, and has a duty of impartiality towards them.

The director issues "general acts" and decides on individual matters within the competence of the Agency. In so doing, he or she may delegate individual matters to persons within the Agency, subject to conditions given in the general administrative procedures. Decisions or other individual acts of the Agency are considered to be final for administrative purposes except where *ZEKom* explicitly stipulates otherwise. The Agency is also responsible for the administrative implementation of its enforceable decisions, and accordingly can issue penalties and use enforcement measures prescribed by the General Administrative Procedures Act. Judicial protection in an administrative case is ensured against a final decision or individual act of the Agency. Procedures relating to suits in administrative cases under *ZEKom* are required to be expeditious. Courts, including appellate courts, are required under *ZEKom* to treat such cases as a priority and issue rulings promptly.

The Agency is financed through revenues, consisting of fees (for notification, spectrum use and use of numbering resources) collected pursuant to *ZEKom* and other acts governing the sector.

Fees for notification take into account the annual revenue of the operator from the provision of public communications networks and services; however, they must not distort competition or create barriers to market entry. Operators are ranked in four categories, from lowest to highest revenues. Operators ranked in the same category are charged the same fee. The Agency uses fee revenues to cover the costs of implementing provisions of *ZEKom* (with the exception of the provisions of the frequency and numbering chapters of *ZEKom*).

2 Secondary legislation

Under *ZEKom*, the Agency is obliged to issue the following secondary legislation:

No.	Name of the act	*ZEKom* basis	Status	Published in	Entry into force
1.	General act on relevant markets	Article 20 Paragraph 1	Published	Official Gazette 77/04	17.07.2004
2.	General act on use of system RDS	Article 117 Paragraph 4	Published	Official Gazette 75/04	28.07.2004
3.	General act on net cost of universal service	Article 16 Paragraph 2	Published	Official Gazette 81/04	24.07.2004
4.	General act on data of quality of universal service	Article 15 Paragraph 3	Published	Official Gazette 81/04	24.07.2004
5.	General act on data transfer rate that is sufficient to permit functional internet access	Article 15 Paragraph 2	Published	Official Gazette 81/04	24.07.2004
6.	General act on content and form of the notification for provision of public communications networks and public communications services	Article 5 Paragraph 7	Published	Official Gazette 81/04	24.07.2004
7.	General act on elements of reference offer for unbundled access to local loop	Article 23 Paragraph 3	Published	Official Gazette 96/04	31.08.2004
8.	General act on transparency and publication of information	Article 84 Paragraph 2	Published	Official Gazette 96/04	31.08.2004
9.	General act on minimum set of leased lines	Article 29 Paragraph 2	Published	Official Gazette 96/04	31.08.2004
10.	General act on conditions for use of radiofrequencies for radio amateur and radio amateur satellite service	Article 117 Paragraph 4	Published	Official Gazette 117/04	13.11.2004
11.	General act on method for respecting criteria for imposing special packets for customers with low income and/or special needs	Article 14 Paragraph 4	Published	Official Gazette 139/04	29.12.2004
12.	General act on number portability	Article 71 Paragraph 6	Published	Official Gazette 75/05	24.08.2005
13.	General act on radio frequency utilisation table	Article 34 Paragraph 1	Public consultation	Web Agency	
14.	General act on tariff for notifications	Article 6 Paragraph 5	Published	Official Gazette 35/05	06.04.2005
15.	General act on tariff for use of radio frequencies	Article 56 Paragraph 3	Published	Official Gazette 35/05	06.04.2005
16.	General act on tariff for use of numbers	Article 70 Paragraph 3	Published	Official Gazette 35/05	06.04.2005
17.	Governmental decree on radio frequencies allocation table	Article 33 Paragraph 2	Published	Official Gazette 117/04	01.01.2005
18.	Proposal on Ministerial rules on the numbering plan	Article 59 Paragraph 1	Published	Official Gazette 57/05	30.06.2005

3 Notification

Prior to commencing, altering or stopping the provision of public communications networks or services, notification must be given to the Agency in writing pursuant to Article 5 of *ZEKom*. If public communications networks or services are provided without notification, the inspector responsible for electronic communications must take appropriate action in accordance with the supervision procedure. The notification must provide all the data required by the Agency for the official records of operators and for monitoring purposes, in particular:

1. Name, address and tax and registration numbers for natural persons
2. Title, principal office, tax and registration numbers, registration number, legal representative (for legal entities)
3. Short description of the networks or services, including a description of the basic physical and environmental characteristics of the networks, facilities and manner of delivery
4. Planned date for commencing, altering or stopping the provision of public communications networks or services

Substantiating information and a declaration on compliance with technical and safety standards and other applicable conditions must also be provided. Operators are obliged to report any changes in the information under point 1, 2 and 3 within thirty days. Changes to point 4 must be announced in advance.

Upon receiving an Article 5, para. 2/3 notification, the Agency has seven days to officially register the operator and provide confirmation that it has received notification and registered the operator. However, registration is not considered as a formal pre-condition for the exercise of the rights and obligations of operators under *ZEKom*. Confirmation does not have the status of an administrative act, and does not in itself create rights and obligations under *ZEKom*.

If the notification file is incomplete (particularly with respect to Article 5, para. 2/3), the Agency is required to notify the operator and grant at least eight days for the missing information to be supplied.

The Agency has promulgated detailed requirements regarding the content and form of notification; the nature of the information required pursuant to Article 5, para. 2/3; and the form and content of the receipt of notification required under Article 5, para. The General Act was published in Official Gazette 81/04.

4 Market analysis

4.1 Operators with significant market power

In ensuring effective competition in the electronic communications market with *ex ante* arrangements, *ZEKom* deems an operator to have significant market power (SMP) if, either individually or with other operators in the relevant market (defined here as a particular market of public communications networks or services), it has a position equivalent to dominance, that is to say one which brings with it a degree of economic influence that confers a significant degree of independence in respect of its competitors, users and consumers.

If two or more operators operate in a market the structure of which is considered to be conducive to coordinated effects, they may be treated as operators in a joint dominant position, even in the absence of structural or other links between them.

Where an operator has significant market power in a relevant market, it may also be deemed to possess SMP in a closely related market, where the links between the two markets are such as to allow the market power held in one market to be transferred into the other market, further strengthening the position of the operator.

In assessing whether an operator has SMP, the Agency in particular takes into account the following criteria (these are not cumulative):

1. the operator's market share on the relevant market, and long-term variations;
2. the existence of obstacles for entry into the relevant market and their effect on potential competition;
3. the effect of large users on the power of the operator (countervailing purchasing power);
4. elasticity of demand;
5. the stage of development of the relevant market;
6. technological advantages;
7. the development of sales and distribution networks;
8. economies of scale or economies of integration;
9. the level of vertical integration;
10. the level of product differentiation;
11. the possibility of access to financial resources;
12. connection mode OSI Network Service.

In assessing whether two or more operators have SMP, the Agency takes into account in particular the following criteria (again, these are not cumulative):

1. the level of concentration of the relevant market, the distribution of market shares and their long-term variation;
2. obstacles for entry into the relevant market and the effect on potential competition;
3. the effect of large users on the power of the operator (countervailing purchasing power);
4. transparency of the relevant market;
5. the stage in the development of the relevant market;
6. homogeneity of products;
7. elasticity of demand;
8. the amount of technical innovations and the development of technology;
9. the existence of available (unused) facilities;
10. the existence of informal or other links between these operators;
11. retaliatory mechanisms;
12. the existence of price competition.

In assessing significant market share and using the criteria for single or joint dominance, the Agency is bound to comply with the legislation of the European Community and follow the guidelines of the European Commission concerning market analysis and the assessment of SMP in the area of electronic communications networks and services. It is also bound to act in concert with the competition authority.

4.2 Definition of relevant markets

The Agency defines relevant product, service and geographic markets in accordance with the recommendations and guidelines of the European Commission on relevant markets for products and services in the area of electronic communications, taking into account conditions in the country and respecting the principles of competition law. This may be done in concert with the competition authority. The Agency has promulgated a "General act on relevant markets" in Official Gazette 77/04 on 17 July 2004.

4.3 Analysis of relevant markets

The Agency, in cooperation with the competition authority, is obliged to analyse relevant markets at regular intervals (not exceeding one year). Article 21 of *ZEKom* specified that the first such analysis was to be completed within nine months of entry into force.

The Agency prepared questionnaires for all eighteen relevant markets and called up all operators recorded in the official records to complete the questionnaires and return them. The deadline was September 24, 2004. At the end of October 2004 less than half of the questionnaires had been returned. We started to analyse all markets and until the end of September 2005 all of them are finished except market 17 and market 18.

4.4 Determining the obligations of companies with significant market power

If, on the basis of a relevant market analysis, the Agency finds that the market lacks sufficient competition, it must identify the operator or operators holding SMP in that market. Before issuing its decision, it may obtain an opinion from the competition authority.

The Agency's ruling identifies the operator (or operators) who are SMP holders and imposes one or more of the following obligations:

- transparency
- ensure equal treatment
- accounting separation
- access to and use of specific network facilities
- price control and cost accounting
- regulation of retail services
- provide minimum set of leased lines
- provision of selection and pre-selection, by the public communications service provider

In so doing, the Agency takes into account the principle of proportionality and provides substantiation.

If on the basis of a relevant market analysis the Agency finds that there is sufficient competition in that market, there is no requirement to identify an SMP holder. If this market was previously a non-competitive one, the Agency withdraws its previous decisions about SMP holders.

The Agency decides on imposition, amendment, maintenance or withdrawal of the obligations to which operators holding SMP in transnational markets are subject in concertation with other competent bodies in the member states of the European Union covered by such transnational markets.

The Agency may implement any measure pursuant on the basis of prior consultation with interested parties, as defined in Article 95 of *ZEKom*, with the body responsible for the protection of competition (pursuant to Article 124 of *ZEKom*), and with other competent bodies in the member states of the European Union and the European Commission, under the procedure laid down in Article 122 of *ZEKom*.

The agency issued SMP decision with obligations on market 11 and decisions for market 1 and 2 are already prepared. Others are prepared for public consultation or already in public consultation and notification to the European Commission. They should be issued until end of year 2005.

5 Universal service

5.1 Scope of universal service according to Article 11 Paragraph 2 of *ZEKom*

1. Connection to the public telephone network and access to publicly available telephone services at a fixed location at a reasonable request of the user, enabling users to make and receive domestic (local and national) and international calls, facsimile communications and data communications, at data rates that are sufficient to permit functional Internet access.
2. Ensuring and providing access to a comprehensive directory and comprehensive directory enquiry services in accordance with Article 12 of *ZEKom*.
3. Ensuring public pay telephones from which it is possible to make emergency calls free of charge and without having to use any means of payment, so as to meet all the reasonable needs of end-users in terms of geographical coverage, the number of public pay telephones, accessibility for disabled users and the quality of services.
4. Ensuring measures for disabled end-users defined by the minister in agreement with the minister responsible for social affairs to grant them the same access to and use of publicly available telephone services, including access to emergency services, directories and directory enquiry services.

5.2 Assigning of operators with universal service obligation

The Agency must determine for a period of five years one or more providers of universal service to cover the whole territory of the country.

The Agency determines universal service providers by a decision on the basis of public tender.

A key selection criterion is the ability to provide universal service or a portion thereof in a defined area and the costs of such provision.

Public tenders are managed by an independent commission appointed by the director of the Agency, not limited to Agency officials. The present commission was appointed on 15 June 2004.

Public tenders are initiated by a decision of the Agency. For the present universal service provider, it was published in Official Gazette 81-84/2004 on 30 July 2004.

The deadline for submission of bids was 28 September 2004.

The opening of bids took place on 30 September 2004 and was open to the public. Only Telekom Slovenija offered bids for connection and access services, public directory services, public enquiry services and public pay phones. The Agency withdrew the part of the tender concerning measures for disabled end-users, because the measures needed to grant disabled end-users the same access to and use of publicly available telephone services, including access to emergency services, directories and directory enquiry services, had not been published prior to issuing the tender.

The Agency determined Telekom Slovenija d.d. as universal service provider for connection to the public telephone network and access to publicly available telephone services at a fixed location, ensuring and providing access to a comprehensive directory enquiry services and ensuring public pay telephones at the end of November 2005 for a period of 5 years.

5.3 Affordability of retail tariffs

Retail prices for connection, access and calls for public telephone services at a fixed location are still lower than the EU average.

The prices of individual services provided as universal services by an individual provider must be the same throughout the territory of the Republic of Slovenia.

The Agency monitors the development and level of retail prices of services provided as universal services. On the basis of collected data, the Agency requires an individual service provider to offer price options or packets for consumers with low incomes or special needs that differ from those otherwise provided under normal commercial terms.

The Agency determines the method for respecting the criteria determined in *ZEKom* by a General act, which is available for public consultation on the Agency's website.

The minister consults with the minister responsible for social affairs to determine the categories of consumers deemed to be persons with low incomes or special needs.

Universal service providers must set their prices and general terms in such a way that subscribers of specific services that are provided as universal services are not obliged to pay for facilities or services which are not necessary or not required for such services.

5.4 Universal service quality

The minister determines the quality of universal service so as in particular to determine the quality parameters, the limit values and the method of measurement of such parameters. Rules on the quality of universal service were in published in Official Gazette 110/04 on 11 October 2004.

The Agency specified the data transfer rates and the deadline by which they were to be achieved in Official Gazette 81/04 on 24 July 2004. The data transfer rate sufficient to permit functional Internet access was set at 14.400 kbit/s.

The Agency set out the content, form and method of publication of data on the quality of universal service in a general act published in Official Gazette 81/04 on 24 July 2004.

Universal service providers must publish up-to-date information on the quality of universal service at least once a year and submit data and all changes thereto to the Agency.

The Agency monitors the quality of universal service and takes action in accordance with the monitoring procedure.

If the measured values of quality parameters for a particular universal service provider fail to achieve the limit values at least three times in succession, the Agency may initiate the procedure for selection of a new universal service provider.

5.5 Compensating provision of universal services

Universal service providers are entitled to compensation if the provision of universal services causes net costs.

The net costs for the provision of universal service are calculated as the difference between the net costs incurred by the provider operating with obligations for universal service provision and without these obligations, taking into account the benefits arising from the provision of universal service, including intangible benefits.

The Agency also sets out the method for calculating the above-mentioned net costs and intangible benefits taking into account the starting points given in the legislation of the European Community governing universal service. The general act was published in Official Gazette 81/04 on 24 July 2004.

To claim net costs, universal service providers give the Agency an estimate of net costs within ninety days of the end of the business year with audited accounts and information used in estimating net costs. For year 2005 Telekom Slovenije d.d. did not send this estimation.

The Agency then issues a decision determining the level of compensation, wherein it may, on the basis of calculations, decide that the universal service provider is not entitled to compensation, or is entitled to less compensation for net costs than the provider requested.

5.6 Financing of universal service provision

Compensation for the net costs of universal service provision is financed from the contributions of operators operating on the territory of the Republic of Slovenia with revenues from public communications networks or services provision higher than SIT 500 million.

The shares of individual operators' contributions are determined by the Agency on the basis of their shares of the total revenues from the provision of public communications networks or services of all such operators in Slovenia.

Operators pay their contributions directly to the universal service provider according to a schedule established by the Agency.

The Agency publishes an annual report on compensation for net costs of universal service provision, giving the calculated net costs, the intangible benefits taken into account in the calculation of net costs and the contributions paid.

International Telecommunication Union

ICT Market Liberalization Reports for CEE Countries and Baltic States

Implementation of the New Regulatory Framework in Lithuania

by Tomas Lamanauskas

International Telecommunication Union

This report on the implementation of the new act on electronic communications in Slovenia has been prepared by Mr Tomas Lamanauskas (tlamanauskas@rrt.lt), from the Lithuanian Communications Regulatory Authority. It is part of a series of ITU telecommunication studies analyzing economic aspects of telecommunications and carried out by ITU/BDT's Market, Economics and Finance Unit (MEF). This report also reflects the results of the discussions on telecommunication market analysis during the seminar on Economic Dynamics of Newly Liberalized Telecommunication Markets in CEE Countries and Baltic States, held in Vilnius, Lithuania, in October 2004 (http://www.itu.int/ITU-D/finance/work-cost-tariffs/events/tariff-seminars/lithuania-04/index-results.html).

Note: The views expressed in this paper are those of the author and do not necessarily represent the opinions of ITU or its membership.

The terms and definitions used are the author's own and can on no account be regarded as replacing the official ITU definitions.

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Introduction

After gaining its independence, Lithuania, one of the formerly Soviet Baltic States, underwent an extremely rapid transformation, from the planned, Soviet economic model to a market economy, in all the fields of economy. In this context, the transformations that took place in the telecommunications sector could be seen as being not all that radically different from processes in Western European countries. These countries also had to transform markets hitherto dominated by state-owned monopolies to make more competitive ones. And yet, even in this process, Lithuania offers a prime example of very rapid (and successful, as we hope to demonstrate in this article) reforms. Therefore this article will be devoted to Lithuania's experience of reforms in the telecommunications market, driven by the implementation of the European Union (EU) regulatory framework, including the latest implementation of the 2003 EU electronic communications regulatory framework.

1 Communications Regulatory Authority (RRT)

One of the main preconditions for effective liberalization of the telecommunications sector is an appropriate institutional structure. It is widely recognized that an essential part of such a framework is an independent regulatory authority. In Lithuania these functions are performed by the Communications Regulatory Authority, RRT.

RRT was established on 1 May 2001. It is an independent state institution, accountable to the government and the parliament of the country. The authority is headed by a director and a council. The council consists of six representatives (increased from four on 1 May 2004 – the two new members have yet to be formally appointed) drawn from the public sector and academia and chaired by a director. The director and the council are appointed for five years by the president of the country, on the recommendation of the prime minister.

The objectives of RRT include: effective competition in the electronic communications markets, effective and efficient usage of the resources needed for electronic communications (including radio spectrum and telephone numbers) and protection of consumers who make use of electronic communications and postal services. It is also worth mentioning that the main tasks of RRT (the Communications Regulatory Authority) include these main areas:

1) Electronic communications sector regulation:
    a) Market analysis (regulation of organizations enjoying significant market power (SMP))
    b) General authorizations (establishing and supervising the legal framework for entry to the market and the conditions for pursuing these activities)
    c) Consumer protection
    d) Management of telephone numbers and other identifiers
    e) Dispute resolution
2) Management of radio spectrum
3) Market surveillance (R&TTE, EMC)
4) Postal sector regulation

An important part of RRT's activities is cooperation with other EU members. Such cooperation encompasses various forms of formal and informal consultations and information exchange with the European Commission and NRAs of the other EU Member states, including participation in the European Regulators' Group, the Radio Spectrum Policy Group, and commitology committees (CoCom, RSC, TCAM), as well as the exchange of information on radio and telecommunications terminal equipment and procedures pursuant to Art. 7 of the Framework Directive[1].

2 Implementation of the EU framework

The regulatory process of transforming of telecommunications markets in Lithuania is best understood by examining its distinct phases: from 1998 to 2002, from 1 January 2003 to 1 May 2004, and the current period.

Pre-1998

Prior to 1998, the Lithuanian telecommunications market was characterized by a *de facto* state monopoly without real separation of regulation and service provision. However, it is important to note that the monopoly was restricted to the public fixed telephony market; mobile telephony and data services had been opened to new entrants from the time the country regained its independence.

1998-2002

The state monopoly was largely privatized in 1998, and in the same year the Law on Telecommunications was adopted. This law legally protected the private monopoly of *AB Lietuvos telekomas*, the incumbent operator, in the provision of public fixed telephony networks and services. This Law also established rather rigid licensing rules. These rules (and those in the secondary legislation) laid down an exhaustive list of the telecommunications activities that were possible, divided into licensed and unlicensed ones. In the case of licensed activities, companies could enter the market upon obtaining an individual license from the Ministry by way of a tender. In the case of unlicensed activities, the authorization of the regulator sufficed. This licensing model was somewhat ambiguous about the status of certain new services such as VoIP and service provision via the networks of other operators, including the mobile virtual network operator (MVNO) model. It was recognized that this regulatory system did not give enough incentive to create new, innovative business models, and this was confirmed by experience.

As mentioned earlier, RRT, the Communications Regulatory Authority, was created during this period (1 May 2001).

1 January 2003 to 1 May 2004

The initial period described above, which was meant to give *Lietuvos telekomas* time to modernize its network (including digitalization) and prepare for a competitive environment, ended on 1 January 2003. On that date the Lithuanian telecommunications market was fully liberalized, and the exclusive rights held by *Lietuvos telekomas* in the public fixed telephony market expired. On the same day, the revised telecommunications law adopted in 2002 came into force. This law fully enacted the 1998 EU regulatory package for telecommunications.

The new telecommunications regulatory framework was forward-looking in that it incorporated parts of the 2002 EU regulatory framework for telecommunications (EU accession states had until 1 May 2004 to implement this framework). This included the system of authorization of telecommunications networks and services, and the principle of technological neutrality. The regulation was also based on such modern principles as functional equivalency and minimum necessary regulation (proportionality).

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[1] 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 (Framework Directive). *OJ* 2002 L 108.

The 2002 law also included EU-inspired, pro-competitive asymmetric regulation. Thus, it defined organizations holding significant market power ("SMP undertakings") in line with the definition in the 1998 EU telecommunications directives. The significant market power doctrine was tied to a 25 per cent market share and certain other subsidiary criteria. The law also established a set of obligations for SMP holders similar to those included in the 2002 EU regulatory framework (compare the definitions of access obligation, for example, which are similar to those in the EU's new laws).

Regarding implementation, the *Lietuvos telekomas* group (*AB Lietuvos telekomas* and its subsidiaries) was recognized by RRT as an SMP holder in the markets for public fixed telephony, interconnection and leased lines. Accordingly, a comprehensive set of obligations was imposed, including non-discrimination, accounting separation, transparency, cost orientation of retail and wholesale tariffs, the obligation to inter-connect and provide access, etc. It is noteworthy that these obligations were not terminated upon adoption of the 2004 law on electronic communications (see below), but remained until such time as RRT presented a new market analysis.

As already mentioned, the 2003 law on telecommunications established an authorization framework based on general authorizations, that is, it abolished requirements to get individual licenses in order to enter a market. The law and the secondary legislation clearly listed the activities that required RRT notification (public fixed telephony, public mobile telephony and leased lines). These activities, along with certain others (provision of Internet access services), were also subjected to periodic reporting requirements. It is important to note that any activity not listed could be pursued without any permission, notification or reporting requirements. Charges payable to RRT in connection with the general authorizations were set at a low level, in line with the requirement set out in the new law to make them cost-oriented. Another point worthy of noting is that the legal system did not foresee any restrictions for foreign companies; indeed, national legislation did not even stipulate a need for any particular form of establishment, such as a representative office, branch or subsidiary (at any rate not from 1 January 2004, when the Law on Enterprises was abolished.

The above-described regulatory framework created stable legal conditions for prospective market players, establishing the conditions for becoming active in the market. The result was a rise in innovative business models: combining cable television services with Internet access, expanding the provision of VoIP networks (voice over Internet), and increasing the provision of services based on other operators' networks (e.g. services via mobile networks, including mobile virtual network operators or MVNOs). Another innovation that has appeared is "triple-play services": telephony combined with Internet and television.

The 2003 law also established a flexible and transparent system for the assignment of radio frequencies and telephone numbers. Provision was made for tenders and auctions (in particular where demand exceeds the resources available). The law also included the possibility to authorize the use of certain radio bands on the basis of general authorization. This has led to the *de facto* deregulation of certain bands (e.g. those used for radio local-area networks, RLAN or WiFi equipment).

The legislation also provided the basis for unbundling the local loop, thereby opening the incumbent's "last-mile" infrastructure. As from 1 January 2003, carrier selection was also introduced on the incumbent's network, providing the possibility for competitive operators to offer their services to *Lietuvos telekomas* customers using special four-digit dialling codes.

The implementation of certain provisions of the 2003 law was postponed to 1 January 2004 because of the need for technical implementation measures. This included carrier pre-selection (offering services via the incumbent's network without the need for special dialling codes) and number portability (retaining a telephone number when changing to a different operator), including mobile-to-mobile number portability. It is interesting to note that in the eight months following the introduction of mobile number portability, 15 000 numbers were ported.

After 2004

The present period of liberalization started on 1 May 2004, the day on which Lithuania became a full member state of the European Union. This date is also of significance to the telecommunications field, as the date on which the 2002 EU regulatory framework on electronic communications was transposed into national legislation, as the new law on electronic communications came into force.

The new law replaced the definition of "telecommunications" with "electronic communications". Together with more unified regulation of various electronic communication networks and services, it is intended to adapt the regulatory system to an environment of technological convergence (in particular convergence of broadcasting and telecommunications with, for example, digital TV services), in which services can be provided over a variety of different networks, and one networks is capable of carrying a range of different services.

The regulatory system was amended in certain other respects as well. First, it included more comprehensive regulation of the rights of way, giving operators enhanced legal certainty on conditions of building infrastructure. The new law also created the possibility of secondary trading of radio frequencies. It is noteworthy that the new legal framework established detailed formal requirements for RRT to execute extensive public consultations on its draft decisions (although RRT has already been using similar procedures practically from its inception, even in the absence of official requirements). The law requires that the RRT ensure compliance with international obligations, including the World Trade Organization's General Agreement on Trade in Services, including the Basic Agreement on Telecommunications.

The 2004 law also significantly reformed the system of asymmetric regulation, in particular the market analysis and related framework. It set forth a new doctrine on significant market power (SMP) as well as a new framework for market definition and market analysis, based on competition law principles. The framework allows greater flexibility in imposing *ex ante* obligations on SMP holders to promote competition and prevent abuse of market power.

3 Process of liberalization

It is also important to analytically review the process of transformation, described above, that telecommunications regulation has undergone. Such an analysis can be used to highlight the similarities between Lithuanian processes and those in Western European countries.

Until 1998, Lithuania's fixed telephony market was characterized by an established state monopoly, in which regulation and service provision were integral state functions. In 1998 it was transformed to a private monopoly, which lasted until 1 January 2003. In order to generalize the process, it is important to note that this transformation could have been a mere separation of regulatory and economic activities. From a regulatory point of view, this was a period when the emphasis was on retail regulation, in particular the regulation of retail tariffs and the conditions of contracts for service provision.

Between 1 January 2003 and 1 May 2005, the focus of regulation gradually shifted from retail to wholesale. This was evidenced by the introduction of regulatory measures to diminish the barriers to changing service providers (e.g. carrier selection and preselection, number portability), wholesale access regulation, and more lenient retail regulation. This approach was based on the idea that wholesale regulation in a prospectively competitive market can help establish competitive conditions that have a self-regulatory effect on the market, making it possible gradually to reduce regulation. In order to consolidate competition, wholesale regulation needed to be accompanied by the dismantlement of barriers to market entry. This led to the abolition of licensing and restrictive lists of possible activities, thereby making it easier to pursue telecommunications activities.

The current liberalization period, which started on 1 May 2005, is the next logical step, following the initial liberalization of 2003 and early 2004. Accordingly, it places an even stronger emphasis on wholesale regulation, providing for retail regulation only as a last remedy (like the 2002 EU regulatory framework).

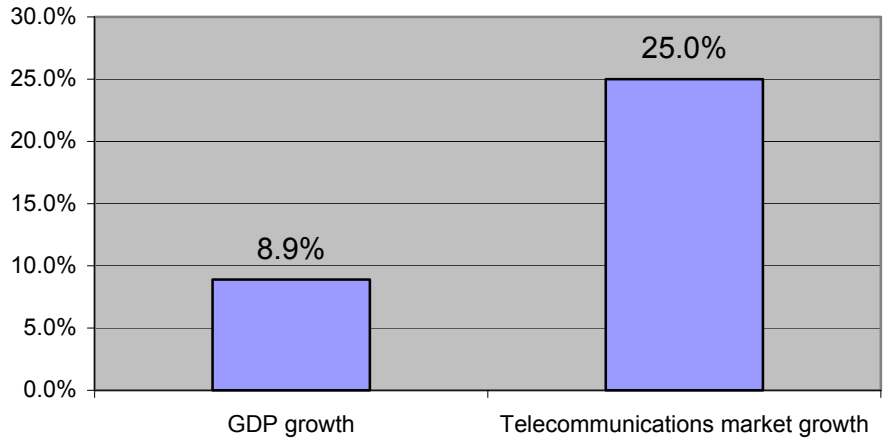
It is interesting to observe that the older EU member states gave themselves five and one-half years (from 1 January 1998 to 25 July 2003) to implement the 1998 EU regulatory framework, including initial liberalization and the transition from monopoly to flexible regulation as embodied in the new 2002 EU regulatory framework. By contrast, Lithuania had only one and one-half years to achieve the same goal (1 January 2003-1 May 2005). The time pressure under which the entire liberalization process has taken place should therefore be borne in mind in evaluating the results achieved.

4 Results of liberalization

The practical results of liberalization are best illustrated by market data. An in-depth overview of the market development would be the subject of a separate article. For present purposes, a selection of the data will be presented.

Chart 1 below illustrates the rapidity of telecommunications market growth in the first year of final liberalization of the Lithuanian telecommunications market. It is clear that, although GDP growth was already very high (nearly 9 per cent), telecommunications grew nearly three times as fast.

Chart 1 – Telecommunications market growth in 2003



Charts 2 and 3 show the reduction in retail prices achieved in 2003.

Chart 2 – Decrease in *Lietuvos telekomas* telephony retail prices (per minute call prices, EUR)

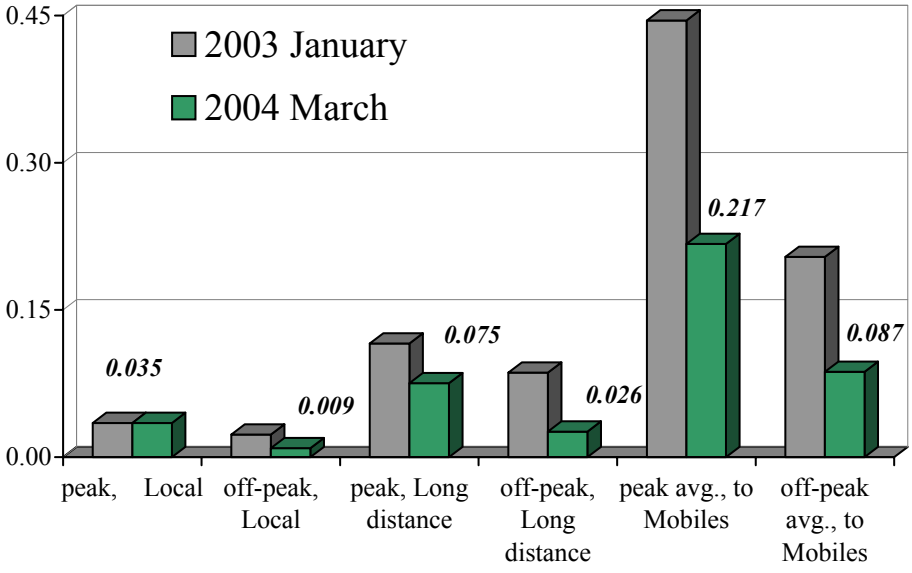
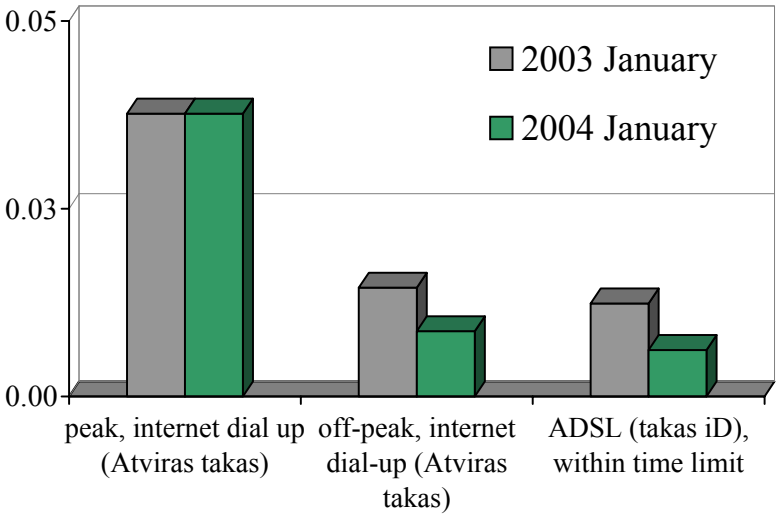


Chart 3 – *Lietuvos telekomas* Internet retail prices (per minute dial-up Internet prices, EUR)



As the charts above show, the method and process of liberalization in Lithuania gave appreciable results even in the short term.

5 Future priorities and challenges

Having looked at the process of liberalization and the formation of the telecommunications regulatory framework in Lithuania, it is important to look towards the future of telecommunications regulation in this country.

In describing the goals for the future of liberalization of telecommunications markets, it is important to understand that the final goal is to create viable competition in the market wherever possible. Such competition is possible only when there is a number of different competitors able to provide services independently of each other, i.e. when several independent infrastructures are available. Therefore the final strategic goal of telecommunications liberalization is infrastructure competition (and not merely service competition). However, in the short term it is much more feasible to promote service competition, and thereby certain interests of the users, and to create viable competitors that will be in a position to engage in infrastructure competition in the long term. Therefore RRT seeks to promote service competition with a view to gradually shifting to infrastructure competition where it is possible (in the knowledge that it may not always be possible or economically viable to create several independent infrastructures). RRT will seek to promote alternative infrastructures. When infrastructure competition is established, there will be no need for sector-specific *ex ante* regulation of competition in relevant areas.

Tactically, it is very important to ensure the appropriate process of conducting market analysis in determining the SMP holders and imposing appropriate obligations. It is important to pursue this process in consistency with harmonized policies and practices of the EU and its member states, conducting market analysis following the trend established by the Commission's guidelines on market analysis[2] and its recommendation on relevant markets[3], and the common position on remedies[4] adopted by the European regulators' group (ERG). It is also important to fully use the mechanism of extensive consultation with the Commission and other member states, including procedures under article 7 of the framework directive.

RRT also has certain priorities as regards markets that need to be analysed. These priorities include wholesale fixed markets (notably, to implement the FL-LRIC cost accounting system for interconnection with the incumbent's fixed network). It is also important to analyse call termination in individual mobile networks in order to seek balancing retail tariffs and call termination rates (bearing in mind that call-termination tariffs are still three to five times higher than on-net retail ones) following the proportional approach advocated by the ERG position on remedies. The international roaming market is also on the priority list, in view of the high tariffs charged for these services; however, it is important to have a common approach by all member states to the analysis and remedies in this market.

There are certain other challenges that Lithuania's regulatory system will need to face in the future. First, it is important to understand the necessary regulatory response to the changing market environment, such as the growing importance of the mobile market (amounting to nearly half of the total telecommunications market in Lithuania).

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2 "Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services." *OJ* 2002 C 165.

3 Commission Recommendation of 11/02/2003: "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." C (2003) 497. Brussels, 11/02/2003.

4 ERG Common Position on the approach to appropriate remedies in the new regulatory framework.

It is also vital to sustain the current level of competition while introducing new technologies in the market. Therefore it is important to apply a technologically neutral approach wherever possible, and neither favour nor discriminate against alternative technologies offering comparative services. In order to promote competition when granting new resources, priority should be given to those market players that do not have comparable resources. It is also important to create enough incentives to develop a number of independent networks even in investment-sensitive cases, and take a cautious approach to the sharing of resources and networks by competitors, especially such means of sharing as national roaming, sharing of infrastructure in commercially attractive areas and sharing of the radio spectrum.

The regulator will also face challenges in certain areas that are now entering the global regulatory domain. In this context it is important to understand the place of government regulation in Internet-related fields (in particular domain names), a largely self-regulated sector. With the growing universality of data services (including the Internet) and always-on services comes increased vulnerability. Appropriate regulatory responses are needed to such phenomena as spamming, viruses, incidents on networks, protection of critical infrastructure, security of transactions etc. It is important to support and fully participate in wider European cooperation in the framework created with the recent establishment of the European Network and Information Security Agency (ENISA).

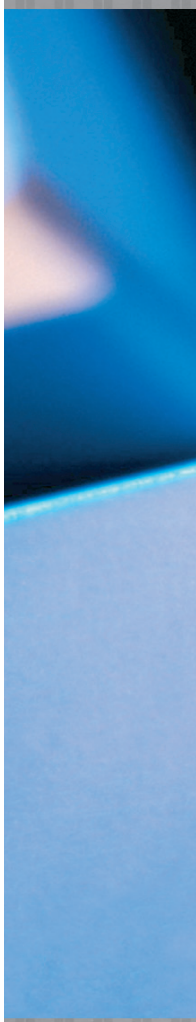
It is also important to understand future issues raised at the European level. One major issue is the evolving (de-) regulation of radio spectrum at the European Union level. It seems that such a framework is going to include more extensive harmonization of conditions for radio spectrum use. This harmonization could be built on earlier successful examples, such as GSM, RLAN (WiFi) and UMTS (if the latter could be considered as a successful example). Conditions for the secondary trading of radio spectrum are widely discussed at the EU level as well. From a national point of view, it is also important to remove obstacles for promising future technologies (such as CDMA450, WiMAX etc.).

There are also some other important EU-level issues, such as the harmonization of approaches to alternative infrastructures (e.g. power line communications, PLC). Something else that could have an impact on regulation is issue of retaining traffic data for law enforcement purposes, a subject that is hotly debated in the EU. Economic, privacy and public security interests (including counter-terrorism) need to be carefully weighed up. In Lithuania it is a particularly sensitive issue, as the country's constitutional court has already ruled on a related matter at the national level.

Taking a broader view, one may also observe that telecommunications, while it may be the first, will not be the last sector undergoing the transformation from a traditional monopoly to a progressively liberalized activity. The experience gained in the telecommunications sector is likely to prove useful in devising future regulatory regimes in other sectors such as the postal service, energy, railways etc.

6 Conclusions

Having analysed the historical background and future perspectives of telecommunications regulation in Lithuania, it is important to observe that Lithuania experienced very rapid liberalization of telecommunications market. Yet, even in these circumstances, it was evident that deregulating market entry and at the same time setting up an appropriate sector-specific regulation regime has provided a solid basis for market growth and consumer satisfaction, without the need for stringent retail regulation. We have also seen how implementation of the EU regulatory framework is beneficial to national developments.



Printed in Switzerland
Geneva, 2005