9 Views of third parties

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Introduction

9.1. A wide range of network operators and service providers, telecommunications advisory committees, other representatives of consumer interests, users, two handset manufacturers, one retailer and various other bodies and individuals submitted written evidence to the MMC. This evidence related to the three references made by the DGT relating respectively to the termination rates levied by Vodafone and Cellnet and to BT's retention on fixed-to-mobile calls. As explained in Appendix 1.1, the investigation for all three references was conducted by the same Group of members in parallel, and evidence was not sought separately for each of them, but rather all evidence was considered in relation to each reference where relevant. This chapter reports the views of third parties of direct relevance to the references relating to Vodafone and Cellnet.

9.2. Oral hearings were held with Orange (two), One2One (two), BT (two), AT&T (UK) Ltd (AT&T), Telewest Communications plc (Telewest), Motorola Telco (Telco), the Telecommunications Users' Association (TUA), CWC, WorldCom International Limited (WorldCom), Energis, Blah Publishing Ltd (Blah), CA, BAA Plc (BAA), UniqueAir Ltd (UniqueAir), the John Lewis Partnership (John Lewis) and Ericsson (UK) Ltd (Ericsson). In addition Orange, One2One, BT and representatives of the Telecommunications Advisory Committees were invited to a joint hearing involving the DGT, Cellnet and Vodafone. Staff meetings were also held with BT, Orange and One2One on various issues.

Mobile network operators

One2One

9.3. One2One said that the company was jointly owned by C&W and Media One International. The ownership structure was complex and had been developed as a response to US tax law. The views and information put to the MMC by One2One were its own.

9.4. One2One said that it launched its mobile service in September 1993. Since then it had invested approximately £1.2 billion in its network and competed vigorously to win market share by providing highly innovative services at competitive rates, and by rolling out its network to achieve coverage of over 95 per cent of the population ahead of the timetable stipulated in its licence.

9.5. One2One said that although it was not named in the DGT's formal references to the MMC, and was therefore not technically a party to the inquiry, its interest in the inquiry proceedings and outcome was almost as deep as that of the referred parties. Any recommendations the MMC might make were likely to affect the whole mobile telecommunications market both in terms of regulation and structure. This was implicitly recognized in the DGT's Statement announcing the references.

9.6. In particular, One2One said that it had a strong interest in any findings the MMC might make in relation to the Cellnet and Vodafone termination rates for fixed-to-mobile calls from the networks of BT and other FNOs. One2One, too, charged BT and other FNOs inbound termination rates for terminating the calls their local loop customers made to One2One mobile phones. One2One's termination charges were substantially (up to 10 per cent) lower than those of Cellnet and Vodafone.

9.7. One2One said that there were significant differences between One2One on the one hand and Vodafone and Cellnet on the other in cost structure, financial position and customer base. These were that:

(a) One2One, like Orange, operated in the 1800 MHz band whereas Vodafone and Cellnet utilized the 900 MHz spectrum. 1800 MHz spectrum demanded greater capital expenditure to provide a service equivalent to 900 MHz. This was because 1800 MHz spectrum had poorer radio propagation (ie a shorter range) and so operators using it needed to build more base stations to cover rural areas than 900 MHz operators.

(b) Vodafone and Cellnet both had SMP in the UK mobile market—together controlling over 70 per cent of that market—and very positive cash flows. By contrast neither One2One nor Orange had market power (each had under 15 per cent market share) and both were cash flow negative. When Vodafone and Cellnet launched their analogue services in 1984 mobile telephony was a new service and customers had relatively low expectations about network quality and coverage. As a result the two MNOs were able to roll out their networks slowly—using revenues from call charges to fund the investment. By the time One2One and Orange were launched in 1993/94 customers' expectations had risen dramatically. To meet those expectations, and to compete with the two established operators whose networks already covered most of the population of Great Britain, the new entrants had to roll out their networks very quickly indeed. One2One and Orange could fund that level of up-front investment only by borrowing because their revenues—in what was by then a highly competitive market—were insufficient to meet the enormous costs involved.

(c) One2One's customer base was not only smaller than Vodafone's and Cellnet's but also consisted largely of private consumers rather than businesses. Since their launch Vodafone and Cellnet had targeted the high-value business market. This meant that when One2One was launched it had had to target a new market segment: the private consumer. One2One achieved that by offering customers free local calls. This revolutionized the UK mobile market, making mobile telephony affordable for millions more people. It also gave One2One's network a dramatically different traffic profile from the established operators, with peak usage in the evenings and weekends rather than during the weekday.

(d) One2One had been driven by a desire to meet the needs of the consumer. It had developed new services and innovative tariffs in order to meet those demands.

(e) The time of day gradient adopted by the mobile industry disadvantaged One2One. It was driven primarily by the existing traffic profiles of BT, Cellnet and Vodafone. Their networks were busiest during the weekday and quietest during the evenings and weekends—the direct opposite of One2One's. Their termination rates were set to be at their highest (during the weekday) when their traffic was at its peak. By adopting this gradient One2One's rates were at their lowest (in the evenings and weekends) when its traffic was at its height. One2One could theoretically have set a different time-of-day gradient—but in reality market pressures forced it to adopt the same one as the established operators.

9.8. One particular concern raised by One2One about the conduct of the inquiry related to the confidentiality of material put to the MMC and included in the MMC's report, since under section 14(5) of the 1984 Act it appeared that BT, Vodafone and Cellnet were entitled to unexpurgated copies of the MMC's report whereas Orange and One2One were not.

9.9. One2One said that the UK mobile market was highly competitive. The mobile inbound and outbound calling markets were not separate, but closely linked. Competition existed in both markets and would increase over time. Churn was an indication of the degree of competition in the mobile market. One2One said that its research indicated that 24 per cent of customers joining its network had owned a mobile phone before. One2One had a churn rate of about 25 per cent. The principal reason for churn was the general subsidization of handsets which meant that there was an incentive for customers at the end of their contract period to go and buy a new phone. One2One sought to retain

customers attracted to 'rotational' churn in contrast to those associated with involuntary churn who were unwilling or unable to pay their bills.

9.10. One2One suggested that focusing on individual call elements (such as inbound, outbound etc) would give a misleading impression of market competitiveness, which could result in damaging and intrusive regulation. It was particularly concerned about the DGT's proposal to harmonize mobile termination rates as it believed that such regulation would undermine, rather than stimulate, competition.

9.11. One2One made clear that it had never charged for uncompleted calls terminating on its own network or for unanswered diverted calls where a called party answer signal was not returned by the terminating network. This was because it did not believe that the calling party derived any significant benefit. However, costs were clearly incurred whether or not a call was successful. It believed that network or service providers should have the freedom to determine their own charging policies, and that customers benefited from their ability to set different prices.

9.12. One2One argued that regulation to impose uniform inbound termination rates would undermine competition. It also argued that if operators' costs differed they should have the flexibility to vary their charges. It pointed out that, if the MMC recommended a modification to Cellnet's and Vodafone's licences that fixed or regulated their termination rates, and the DGT implemented that recommendation, he would presumably seek to impose it on One2One and Orange as he had made clear that he favoured harmonized rates. One2One therefore believed that the inquiry should draw some conclusions about the desirability or otherwise of uniform termination rates.

9.13. One2One said that MNOs had three sources of revenue: retail subscription fees, retail charges for outbound calls, and wholesale termination charges to other operators for termination of inbound calls to the mobile network. A sudden significant drop in one of these sources of revenue, as proposed by the DGT, could destabilize the entire UK mobile market. Established operators with positive cash flows would have more flexibility in dealing with such a loss of revenue, while operators with negative cash flows might be forced to cancel or defer further investment in their infrastructure. This would undermine competition and damage the long-term interests of the consumer.

9.14. One2One said that in determining whether the matters specified in the reference operated against the public interest, the MMC were required to have regard to the duties imposed on the DGT under section 3 of the 1984 Act. That Act, among other things, required the DGT to maintain and promote effective competition in the provision of services; promote research and development or service innovation; and ensure that MNOs were able to finance the provision of their services. One2One agreed with the UK Government that competition was the most effective means of protecting the consumer interest. Competition was delivering lower prices, new services and improved quality.

9.15. One2One said that any conclusions reached and remedies proposed by the MMC in their report must be compatible with EC law. This had a number of implications:

(a) the Interconnection Directive did not support the imposition of cost-based interconnect pricing on mobile operators unless they had SMP in the national market for interconnection (see Appendix 2.1);

(b) the Licensing Directive did not permit the imposition of the proposed, or any form of, regulation of interconnection rates if the public interest issues could be addressed by less onerous means; and

(c) if the European Commission investigation were to conclude that the call termination rates charged by UK mobile operators were not incompatible with Articles 85 and 86 such a finding should be fully taken into account by the MMC and OFTEL and the authorities should not take any action on the basis of a view inconsistent with such findings. Any action by OFTEL or conclusions or recommendations of the MMC which were based on conclusions about the level of inbound termination rates contrary to those reached by the European Commission would risk leading to a situation in which the conditions of competition in the mobile market in the

EU would be distorted. This would not be consistent with the objectives of the Treaty. One2One therefore considered that if the European Commission concluded that there were no grounds for action against mobile termination rates in the UK on the basis that they are not excessive, discriminatory or otherwise incompatible with Article 86 it would be inappropriate for the MMC or OFTEL to take action on the basis of a contrary view.

9.16. One2One pointed out that, as the DGT had said he favoured harmonized mobile inbound termination rates, he would presumably seek to impose any licence modification recommended by the inquiry for Cellnet and Vodafone on One2One and Orange as well. Even if he did not seek to do this, regulation of Cellnet and Vodafone inbound termination rates would impact on One2One and Orange as they were competing in the same market.

9.17. One2One said that it was a price follower and not a price setter. It could theoretically charge a higher termination rate than Cellnet and Vodafone in the evening and at the weekends to mitigate the impact of a regulated (and reduced) average rate. However, in reality this would undermine the value-for-money proposition on which One2One was based and so was not an option. Nor would such an outcome (ie higher evening and weekend rates for customers who tended to be residential users and lower weekday rates for customers who tended to be business users) be in the interests of residential consumers—the very group that OFTEL claimed it wanted to protect.

9.18. One2One said that the speed and timing of the reductions was crucial. As One2One had pointed out (an argument supported by recent events), market forces were driving rates down anyway. Yet OFTEL's proposals would force operators to make quicker and deeper cuts than they had planned causing the difficulties that One2One had highlighted to the MMC in both its oral and written evidence.

9.19. One2One said that the EC regulatory framework for telecommunications consisted of the Liberalization Directives issued under Article 90 of the Treaty and the Harmonization Directives issued under Article 100A, which comprised in particular the Open Network Provision framework measures. Whereas the Liberalization Directives laid down minimum standards, the Open Network Provision framework provided harmonization rules for access and interconnection. The Licensing and Interconnection Directives were both harmonization measures which contributed to the creation of a harmonized framework of regulation and conditions of operation for telecommunications within the EU. This legal framework must be taken into account by OFTEL and in any recommendations and conclusions of the MMC in the current inquiry. In particular the MMC needed to ensure both that they took full account of the legal and regulatory framework in reaching conclusions on the public interest, and that any recommended licence modifications were compatible with EC law.

9.20. One2One said that the UK led Europe in enjoying a highly competitive mobile market. The four cellular operators were complemented by a range of other specialist mobile communications services, such as paging, PMR, calling card and 'one number' operators. The UK market was growing rapidly and there was innovation and competition both in the provision of services and in the design of retail pricing packages. In particular, since One2One and Orange entered the market, Vodafone's and Cellnet's retail prices had been driven down to the benefit of consumers.

9.21. One2One said that UMTS and the introduction of GSM technologies would deliver innovative mobile multimedia wideband services to end-users. However, if the auction process pushed up the cost of UMTS it would probably mean that voice services would provide the bulk of usage, and in any event the spectrum that came with UMTS would be useful in providing additional capacity for voice calls. At present data made up less than 1 per cent of the traffic on mobile networks. It would be possible to use UMTS on pure data applications, but for UMTS to be a mass market mobile multimedia proposition it had to be part of a package of services bringing together, for example, communication by voice and video and links with the Internet. The UMTS did offer scope for new entrants to the market which meant that further competitive pressure could be brought to bear on inbound termination rates.

9.22. One2One said that focusing on individual mobile call types, such as inbound calls, as OFTEL had done, could lead to an incomplete assessment of market competitiveness. All the MNOs were striving to increase both the overall size of the market by replacing the fixed-line phone as the phone of choice, and their share of this market. Competitive pressures would affect rates in both the mobile inbound and outbound markets, as those markets were not separate, but closely linked. Since the introduction of competition into the mobile market, the trend had been for prices to fall as competition developed. Inappropriate and overzealous regulation in the inbound market would hinder the development of competition rather than promote it.

9.23. One2One acknowledged that some people argued that there was a distinct market for calls-to-mobiles. However, it did not accept these arguments. The DGT's contention that a single market for fixed-to-mobile calls existed for each MNO in which that operator had a 'monopoly' over termination of calls on its network did not accord with the realities of the UK mobile market or the generally accepted principles of competition law. Regulation of mobile termination rates was neither necessary nor appropriate.

9.24. One2One argued that even regulation of Cellnet's and Vodafone's inbound termination rates would breach the principles of proportionality enshrined in EC law. This was because its stated principal aim of reduced retail rates for calls-to-mobiles could equally be achieved by simply regulating the margin BT levied on calls to mobiles. This currently accounted for 70 per cent of the cost of calls-to-mobiles. One2One did not support regulation of BT's retail rate arguing that this would mean de facto regulation of mobile termination rates.

9.25. One2One suggested that regulation of BT's retail margin could help increase the competitive pressures on mobile inbound termination rates. Such regulation would give BT an incentive to try and negotiate lower inbound termination rates with the MNOs in an effort to stimulate call volumes and so recoup any lost revenues resulting from a regulated reduction in its margin. This would be appropriate only if the inquiry concluded that BT had misused its dominant position. Any regulation of BT's margin should be accompanied by a requirement to publish its prices in a clear format. This would give customers a greater awareness of the cost of calling mobiles. At present BT's domination of the fixed network, the size of its margin and the fact that that margin appeared to be unresponsive to changes in termination rates all served to hold up the competitiveness of the inbound market.

9.26. The second arm of One2One's alternative regulatory approach turned on the introduction of MNP. One2One said that it was currently preparing for the introduction of MNP, on 1 January 1999. MNP undoubtedly represented an exciting service opportunity for customers and an equally exciting competitive opportunity for MNOs. In particular it would remove a significant barrier for a large and increasing number of customers who wished to have the option of changing networks. One2One noted that the MNOs had agreed an interim technical solution but recognized that this had defects which would need to be corrected. It accordingly required the introduction of an IN central database, which could be run by BT or by a third party, which could be operational in 12 to 18 months.

9.27. Under the interim technical solution for MNP FNOs were not required to route calls directly to the mobile network to which the customer had ported his number. FNOs would instead be permitted to route calls based upon the national number group. This meant that calls to a number previously associated with One2One would be routed by the fixed networks to One2One even if the customer in question had ported his number to a different network. The routing of calls to MNOs in the most efficient way would require FNOs to analyse the entire set of dialled digits and route each call to the correct mobile network. This facility would be provided by an IN central database. MNOs would be required to inform the database operator when a mobile customer ported and the network to which he had ported. BT for its part would be required to adopt least-cost routing for calls to mobile customers who had ported and to pass to fixed customers the price benefit of using the least-cost routing.

9.28. If after the introduction of MNP any imbalance between MNOs' termination rates were to disadvantage any particular operator, this would be resolved by market forces. Any such resolution could involve, for example, termination rates moving towards uniformity. It did not follow, however, that MNP necessarily required uniform termination rates.

9.29. One2One said that the DGT believed consumers would benefit from a uniform retail rate for calls to mobile phones. One disadvantage of this approach would be that it would inhibit MNOs from competing by offering different termination rates thus increasing competitive activity and service variety. The reasons for OFTEL's belief that a uniform retail rate was desirable were not clear. OFTEL's belief in uniform retail rates also implied that uniform termination rates would be appropriate and that these should apply to One2One and Orange as well as to Cellnet and Vodafone.

9.30. One2One said that regulation to impose uniform termination rates would hinder and distort the competitive process and cause resources to be misallocated. If operators' costs differed, they should have flexibility to vary their charges. Other things being equal, this allowed efficient operators to win market share at the expense of inefficient operators, which in turn exerted a downward pressure on costs. Network coverage levels and quality differed, and competing operators had differentiated their services in a variety of ways. In such circumstances uniform charges would not be expected in a competitive market. Moreover, uniform inbound termination rates which were imposed by applying a retail tariff gradient which did not take into account the traffic profile of individual mobile networks would result in an inequitable outcome. This was because any network with a significantly different traffic profile would necessarily either over- or under-recover its costs. Uniform termination rates based on the retail tariff gradient of Cellnet or Vodafone, for example, would adversely affect One2One as its time-of-day traffic profile was significantly different from theirs. This made a nonsense of the concept of 'cost-based charging'.

9.31. One2One made clear that it believed regulation of Cellnet and Vodafone would damage its business as well. Market pressures would force One2One and Orange to adopt similar inbound termination rates to those imposed on Cellnet and Vodafone. [

Details omitted. See note on page iv.

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9.32. A cost-based regulatory regime would be inconsistent with OFTEL's stated aims of a lighter touch and less interventionist regulation and would prevent the move towards more competitive markets.

9.33. One2One did not consider that any regulation of termination charges was necessary or appropriate. Nevertheless, if the MMC proposed to recommend a 'cost-reflective model' of the type suggested by OFTEL, One2One would have a number of important reservations and concerns. One2One said that the meaning of 'efficiency' was not clear and needed to be clarified and precisely defined. For example, where lower unit costs were due to the benefits of scale it would be inequitable to treat newer smaller operators on the same basis as more established operators. Where lower unit costs were due to better utilization of resources, the MMC would need to be certain about the level of service being provided since mobile networks did not offer homogeneous products. One2One argued that the imposition of cost-reflective inbound termination rates on any UK mobile operator would be contrary to EC law. Article 7(2) of the Interconnection Directive stated that it should apply to mobile operators 'which have been notified by national regulatory authorities as having significant market power on the national market for interconnection'. No UK mobile operator had SMP on the national market for interconnection (see Appendix 2.1).

9.34. OFTEL's market definition was overly narrow and so led to an inaccurate assessment of the competitive pressures at work. The concept of bottleneck market power was used by OFTEL in a loose, misleading way which overstated the extent of any market power enjoyed by One2One. The

bottleneck metaphor carried with it the overtone of lack of any competitive potential. The central issue was whether an MNO was free to price (or reduce quality of service) without being significantly constrained by the conduct of other existing or potential competitors.

9.35. The fact that LRIC was used in the UK fixed market did not mean its use was appropriate in an entirely different market. Regulatory imposition of cost-reflective pricing was neither warranted nor appropriate for the UK mobile market at its current stage of development.

9.36. The DGT's concept of a separable 'access service' was fundamentally flawed and inconsistent with the approach it had adopted for the fixed network. Its idea of a minimum geographical coverage as a basis for 'access' was arbitrary and took no account of quality, for example the in-building reception afforded by the network.

9.37. One2One said that the purpose of marketing was to grow total numbers and usage in both inbound and outbound traffic and costs should be allocated accordingly. One2One did not make incentive payments to service providers. However, it did give incentives to the channels which sold its services. It agreed that the cost of capital of the MNOs was declining through time. It said that it was appropriate to attach a lower risk adjustment to Vodafone than, for example, to Orange.

9.38. One2One said that any cost benchmark needed to take account of the position of the actual company concerned, ie it should not apply a model based on the costs of Vodafone and Cellnet to One2One. Any regulatory regime, if based on RPI–X, would have to address the time-of-day grading issue, otherwise One2One would be continuously disadvantaged against Vodafone and Cellnet.

9.39. One2One was also concerned about the notion of termination rates meeting their 'fair' share of fixed costs. 'Fairness' was a subjective term. For example, recovering common fixed costs through an equi-proportioned mark-up on LRIC might superficially appear 'fair' but in practice would be both arbitrary and inconsistent with economic efficiency. The market was the most efficient way of distributing costs.

9.40. Any LRAIC model would have a detrimental effect on One2One due to the impact of the free minutes of airtime it offered on many of its tariffs. If prices were to be based on LRAIC, all costs would be required to provide a contribution to fixed costs. This would mean that One2One's fixed costs would effectively be spread over a larger number of minutes than was the case at present. If distortion of competition were to be prevented, One2One should be allowed to continue not to spread fixed costs across free off-peak local call minutes.

9.41. If an RPI–X cap were applied, One2One said that this should only be imposed in conjunction with changes giving One2One greater flexibility in other areas of its business, for example regulation limiting the use of handset subsidies which would assist One2One and Orange by removing a substantial cost and a major cause of overall market distortion and inefficiency. A 'rate cap' control would discriminate against One2One because of its distinct network traffic profile which was different from that of Vodafone and Cellnet.

Orange plc

9.42. Orange said that it was licensed in 1991 and launched its service in April 1994. It said that it had invested £1 billion in its network to date.

9.43. Orange said that the current market was dynamic, fast growing and competitive. Competition was intense and no MNO could afford to ignore the service and price initiatives of its competitors if it was to remain competitive and continue to attract customers. Orange did not believe that any regulatory action was required. In a competitive market, the goal should be to minimize regulation and to focus what regulatory action was required only on those areas where there was market failure and clear customer concern. This pointed to the regulation of BT's retention and increased transparency of its charges but not to regulation of the termination rates of the MNOs.

9.44. Orange said that an important disadvantage of its late entry to the market was its lack of access to 900 MHz spectrum, which meant that compared with Vodafone its roaming revenues were very low, reflecting the fact that there were few 1800 MHz networks worldwide. The 900 MHz roaming facility also meant that it was more difficult for Orange to win over high-spending business users from the Vodafone and Cellnet networks. There was only a limited number of models of dual-band spectrum handsets available, but these had not yet become widely popular and were used only by a limited number of Orange's customers. More technological development of dual-spectrum handsets by the manufacturers was needed.

9.45. The available evidence showed a general lack of concern about the price of calls to mobile phones and there were very few customer complaints about it. When calls to Orange and One2One had been priced at a significantly lower rate than calls to other MNOs prior to February 1997, Orange and One2One did not attract a corresponding higher proportion of fixed-to-mobile calls. Nor did the price increase implemented by BT in February 1997 result in any appreciable change in incoming call volumes.

9.46. Orange said that both the price awareness and price sensitivity of fixed-line customers to the price of fixed-to-mobile calls was low. This was perhaps not surprising as calls-to-mobiles made up a very low proportion of fixed customers' bills. In general customers appreciated and were willing to pay for the added benefit and flexibility of being able to call a mobile. Orange said that it regularly undertook market research to determine customers' views and it was clear that their main concern was network effectiveness, including geographic coverage and the ability to make in-building calls and calls on the move. Prices were much less of a concern than quality of the service. As far as prices were concerned the monthly bill rather than any single element was customers' main consideration.

9.47. When Orange had been considering an increase in its termination charge to BT so as to be able to recover more of its costs, careful market research had been undertaken. The conclusions to be drawn from this exercise were that with very limited exceptions, the price of calling a mobile was not a key network choice criterion; that it was generally recognized and accepted that calls-to-mobiles were relatively expensive compared with calls between fixed-line phones; and that very few customers had a clear idea of what the cost of calling a mobile actually was, with most of those surveyed overestimating the cost.

9.48. Orange said that while there was a lack of general customer concern about the price of fixed-to-mobile calls, there was undoubtedly a significant group of customers who were very interested in the relative price of fixed-to-mobile calls. These customers, who tended to be small businesses or corporates, were those that made a relatively large number of calls to their own mobiles (for example, from the office fixed phone to the mobile phones of their sales force). For such customers private wire services were available. However, although these were provided in response to customer demand, and their prices were market driven, they were not necessarily a useful benchmark for measuring the price of calls-to-mobiles. Orange said that its 'Orange Link' was launched in 1997, but had not been aggressively promoted and there had been little take-up to date. It provided a direct hard-wired connection between a medium to large business customer and the Orange network. All traffic to and from mobiles used this leased line direct to an Orange Switch. The customer realized cost savings through bypassing the interconnect rate normally paid to the FNO for trunking each call. Orange said that its 'Triton Box' was an alternative service for the business customer. It provided a radio link between a customer (typically, a small business customer) and the Orange network. The box provided the radio interface between the customer's location and Orange so that all calls to and from mobiles could be routed through the box to Orange. The customer achieved cost savings through bypassing the FNO and avoiding interconnect charges. The customer paid for the cost of the box (£650+ VAT) with all calls charged at the standard Orange-to-Orange 'on-net' rate. The Triton Box had not been actively promoted to date so take-up was currently very low.

9.49. Orange said that churn in the industry was largely explained by the continued availability of attractive price packages. Its own underlying rate of churn at 16 per cent, which took no account of customers taking advantage of its initial 14-day money-back offer, was significantly below the average

churn rate for the industry as a whole (30 per cent). About 5 per cent of its customers annually actually changed to another MNO.

9.50. While customers generally were unconcerned over the absolute level of the price of fixed-to-mobile calls, they were very aware of relative prices, MNOs' outgoing call tariffs and the service packages on offer. Customers and operators tended to focus closely on outgoing call prices which led to intense price competition. This competition in outgoing call prices was a good proxy for what would represent a fair competitive rate for the price of calls-to-mobiles.

9.51. Orange produced an analysis of European comparisons of the cost of calling a mobile phone. This showed that the UK did not have expensive retail rates for calls-to-mobiles relative to the rest of Europe. Overall the cost of a 90-second call to an Orange mobile phone in the UK was significantly below the European average. Charges for UK calls to Orange were below the European average at peak times when Italian calls were the most expensive in Europe, at over twice the UK rate. For off-peak calls, charges for UK fixed-to-Orange calls were slightly above the European average. At the weekend the UK was one of the cheapest countries in Europe for fixed-to-mobile calls.

9.52. Orange said that since the launch of One2One in September 1993 and of Orange in April 1994, the UK mobile market had become intensely competitive. The result of this competition had been to deliver significant benefits, in terms of lower prices, greater choice and increased innovation, to customers in the UK. Prior to 1994, the duopoly of Vodafone and Cellnet had led to a market characterized by high prices and services focused largely on business users. The range of services on offer had been very limited and the quality of service available had also left much to be desired, particularly in terms of network coverage and capacity. The situation was very different today. Since 1994, average prices for mobile services had fallen significantly and the charges levied by Vodafone and Cellnet had come down by 28 per cent in the last two years. These price reductions had benefited all user groups.

9.53. In addition to headline price changes, customers had also benefited significantly from changes to the pricing structure offered on most mobile tariff packages, which now typically included per-second billing and bundled minutes as standard. Both of these pricing innovations were first offered by Orange and had now been matched by all other MNOs. There was now a large range of differentiated tariff packages available from each of the four MNOs. These included high-volume user packages aimed predominantly at business users, as well as residential low-user packages. Orange provided a range of Talk Plan tariffs which allowed customers to select the tariff most suited to their pattern of use. In addition, prepaid and pay-as-you-go packages were available and these were proving increasingly popular. Customers simply bought a handset and purchased vouchers on a pay-as-you-go basis.

9.54. The range of services on offer had also increased dramatically since Orange's entry into the market. At launch, Orange included as part of its basic customer package free insurance and caller line identification and an inclusive answerphone service. In addition, Orange was the first UK mobile network to offer fax and data services, the possibility of two lines on one phone (for separate business and personal use) and international calling charges below fixed-line rates. Many of these innovative services were also now available from the other MNOs. In its quest for improved value for money for the customer Orange had recently introduced provision for credit to be given for dropped calls.

9.55. The quality of services on offer had also improved significantly, with each network seeking to improve its quality of coverage in terms of geographical reach and network availability and capacity. Orange, which sought to be the market leader on quality, had already installed over 3,500 base station sites in the UK by the end of 1997 to achieve population coverage of over 96 per cent (equivalent to over 70 per cent geographic coverage) and planned to extend coverage still further by installing up to 10,000 sites by 2001. This network growth, which would cost a further £1 billion, was designed not only to improve call quality but would also provide for much increased residential coverage. Orange saw a future with not one phone per family but one per individual and it proposed to target the growth of calls within families that would flow from this. It foresaw the mobile as being the

normal means of voice contact with fixed lines providing more intensive data communications services.

9.56. Orange said that the DGT's analysis and proposals on the price of fixed-to-mobile calls started from the wrong point, ie an analysis of the costs of the most 'efficient' MNO and an assumption that all mobile termination rates (and the retail rates for calling mobiles) should be the same. Orange disagreed with this approach. There were also serious flaws in the DGT's analysis and conclusions which needed to be corrected. The DGT's approach had proceeded on the basis that the price of calls-to-mobiles was too high, that urgent regulatory action was therefore required and that the appropriate form of regulatory action was to assess the costs of the most 'efficient' MNO, ie the MNO with the lowest level of costs, to set a maximum termination rate for that operator based upon its costs and to require all other MNOs to match that termination rate. This approach took no account of the competitive state of the present mobile market in the UK. This was surprising because the DGT's reference to the ready availability of pagers, e-mail and fax as alternatives to the mobile phone was a clear admission that the calls-to-mobiles market was not a monopoly.

9.57. Orange said that the correct approach was very different. It should consist of an objective assessment of whether the price of calls-to-mobiles was too high which took account both of European price comparisons and the low level of public concern, an assessment of the current state of competition in the UK mobile market, the setting of criteria to enable the regulator to determine from time to time whether prices were at a competitive market rate, and lastly establishing the regulatory action that would be required in case of possible market failure. Such action would need to take account of the level of competition in the market and the need to encourage and sustain competition.

9.58. If this approach were followed, the conclusions to be drawn would be that:

(a) the price of fixed-to-mobile calls was reasonable and was not a matter for general public concern;

(b) the UK mobile market was intensely competitive, particularly with regard to the prices charged for outgoing calls from mobiles;

(c) given the high level of competition in the market for outgoing calls from mobiles, it was reasonable to conclude that if incoming call prices were comparable to outgoing call prices they were set at a reasonable level;

(d) if the price of fixed-to-mobile calls was not comparable with the general level of prices for outgoing mobile calls, this would indicate that regulatory action might be required;

(e) such regulatory action should include the investigation of each MNO's cost structure, taking account of the actual historic costs incurred, with a view to establishing the maximum termination rate that each operator could set having regard to the operator's need to recover its own costs; and

(f) no single termination rate for all MNOs would be set.

9.59. In considering the likely impact of UMTS, Orange said that it was probably better suited for data transmission than voice telephony, but would certainly provide scope for much improved multimedia services. Existing MNOs that were successful in getting licences in the forthcoming auction planned for summer 1999 would be at a distinct advantage over MNOs that were unsuccessful. The timing of the auction meant that Orange might have to bid for UMTS spectrum when it was not yet profitable. It would be possible to introduce third generation products and services early in 2002.

9.60. Instead of the approach proposed by the DGT, Orange suggested that if regulation of MNOs' charges for calls-to-mobiles was regarded as needed (which it did not accept) then the regulator should assess the costs of each individual operator using each operator's actual historic costs. Each operator should then be permitted to set its own termination rate as justified by reference to its own position. This would allow each operator to recover its actual costs. All network costs should be included in the

calculation since a mobile network was a single entity and could not be segmented for the purposes of cost assessment. The cost assessment should include a cost of capital relevant to that particular operator, taking into account that operator's individual market situation, rather than assuming that a single cost of capital applied for all MNOs. This would prevent artificial distortions, such as a new entrant being judged to have as little risk in its business as an established operator. The cost assessment should also take account of marketing costs since mobile call termination was clearly influenced by marketing campaigns to attract customers and increase customer usage.

9.61. Orange said that it had serious concerns over many of the assumptions and conclusions made by the DGT. It did not accept that it was appropriate to use cost-based modelling to compare Orange with either Vodafone or Cellnet. The length of time Vodafone had been in the market meant that it had significant advantages over Orange such as higher market share, access to corporate customers, roaming revenues, depreciated analogue network and lower risk. Orange said that given the hypothetical scenario the MMC were proposing, it was important to consider that Orange was committed to a high-quality network and would achieve this by rolling out its network to 10,000 sites by the year 2001. This would require intensive additional capital investment over the next three years and, as a result, given Vodafone's current volume of call minutes, it was unlikely that Orange's average cost per minute would be as low as Vodafone's. When this roll-out had been completed, Orange said that it would be able to carry large volumes of call minutes over its network. When the scale economies had been realized, this should bring Orange's average cost down to a level that was at least comparable with the other mobile networks. This analysis suggested that there was likely to be a time-lag of about three or four years in achieving comparable levels of efficiency. Orange did not consider this unreasonable given the respective entry dates of Vodafone (1985) and Orange (1994) into the mobile market.

9.62. Orange did not believe that there was an access service in the mobile sector. In reply to the OFTEL consultative document of March 1997 it had made it clear that in its view such a concept had no meaning in the mobile environment and that such a methodology was not suitable for analysing a mobile network. The concept of access was based on the physical nature of fixed networks and a utility model of cost recovery which was not appropriate in an emerging competitive market.

9.63. In contrast to FNOs, MNOs did not offer an access service but rather the opportunity to make and receive calls, which could be subdivided into the opportunity to make and receive calls, the conveyance of incoming calls, and the conveyance of outgoing calls. The opportunity to make and receive calls differed from access to a fixed network because it involved no network elements. Mobile customers did not make and receive calls from a fixed location and there were no fixed connections. The costs incurred by a mobile network in allowing a customer the opportunity to make and receive calls included provision of a personalized SIM card and updating of the customer's details on the network HLR. No network costs could be attributed to this because there were no network components that could be deemed to constitute an 'access' component.

9.64. Orange said that tariff innovations now emerging in the mobile market cast further doubt on the validity of the concept of access, for example prepaid packages with no subscription element. There was no place for the concept of access within the current mobile market and it followed therefore that all mobile network costs should be allocated between incoming and outgoing conveyance.

9.65. Orange said that OFTEL's assertion that prices in a competitive market were set on the basis of the costs of the most efficient operator was simply not true, even if one were to assume that there was no difference between the quality of the products or services being compared. In practice, in a competitive market it was highly unlikely that prices would be set below the costs of the second most efficient operator. The most efficient operator, being the market leader, had the opportunity to make additional profits by matching the pricing level of the second most efficient operator. The goal of the market leader's competitors was to match at least the efficiency of the second most efficient operator in order to make normal profits and, if possible, to improve beyond that level to become the market leader themselves. If charges were based upon the costs of the market leader, only that operator could make normal profits.

9.66. Orange said that one danger of compelling all MNOs to set prices based on the costs of the lowest-cost operator was that market differentiation, especially on quality, would be severely discouraged. In effect the regulator would be establishing an environment where in the long term only a high-volume low-cost network could survive.

9.67. Vodafone's ability to derive the lowest cost structure (if it had this ability) arose as a result not of its inherent efficiency but because it had enjoyed ten years of duopolistic market power in the UK mobile market, as well as enjoying the benefits of operating at 900 MHz which conferred significant initial network coverage roll-out benefits and roaming advantages over comparable 1800 MHz networks. In this sense, Vodafone was not 'efficient' but had merely had access to the appropriate technology (which had been denied to Orange because it had never been allocated any 900 MHz spectrum) and had had additional time in which to derive scale economies which were not available to the newer market entrants such as Orange.

9.68. There were also many detailed reasons why the DGT's assessment of Vodafone's costs could not fairly be applied to Orange. These included the following factors:

(a) Orange currently had a different cost of capital from Vodafone, reflecting its different market position;

(b) many elements of Vodafone's network had been fully depreciated and its costs therefore reduced as a result; and

(c) Vodafone's costs per call were significantly reduced by the much higher call levels that were currently generated on the Vodafone network as a result of the additional length of time that Vodafone had held its mobile licence.

9.69. Orange said that it was totally inappropriate to consider the use of cost of capital figures relating to major utility companies as a benchmark for MNOs in general and Orange in particular. It was also concerned at any attempt to use Vodafone's cost of capital figure as a benchmark for the rest of the industry. Orange was at a relatively early stage of development and as a new entrant was faced with high start-up costs; and it still had a negative cash flow and a much lower customer base than Vodafone (15 per cent of the market compared with Vodafone's 38 per cent). The cost of capital figure for Orange should relate to its specific circumstances. It was important that the figure that was applied permitted the full recovery of past costs. Orange acknowledged, however, that the cost of capital figure appropriate to its business would reduce as it became more established in the market.

9.70. Any regulation of Vodafone's and Cellnet's termination charges for calls-to-mobiles could have an effect on Orange and One2One. Whether by direct regulation or market pressure, Orange and One2One might be forced to reduce their termination rates to the level of Vodafone and Cellnet, or otherwise, if customers were sensitive to these prices, they could lose market share. On the figures that had been discussed, matching Vodafone's and Cellnet's termination rates could have an adverse financial impact on Orange and One2One. As Vodafone and Cellnet were already profitable and had high levels of roaming revenue, they would have greater capacity to accommodate reductions in termination rates than Orange and One2One. Paradoxically the position of Vodafone and Cellnet in the market could be strengthened because of the damage inflicted on the ability of Orange and One2One to compete. This reduction in effective competition was not in the public interest.

9.71. Orange said that MNP would deliver significant benefits to consumers and would encourage effective competition in the UK mobile industry. In particular, it would remove a very important barrier for a large and increasing number of customers who wished to have the option of changing networks. Orange was concerned to ensure that the benefits of MNP were available as soon as possible and that there was no further delay in its implementation, now planned for 1 January 1999. To this end the MNOs had agreed an interim technical solution, but it was important to consider alternative solutions which could avoid the inefficiencies of the agreed interim technical solution. However, investigation of these alternative solutions should not be allowed to delay the introduction of MNP. Under the agreed interim technical solution FNOs were not required to route calls directly to the mobile network to which the customer had ported his number. Instead FNOs were to be permitted to

route calls based upon the national number group. This meant that calls to a number previously associated with Orange would be routed by the fixed networks to Orange even if the customer in question had ported his number to a different network. Orange and the other MNOs were prepared to accept this in the interests of encouraging a rapid implementation of MNP. However, it was important to note that this interim solution did not route calls in the most efficient way. This would be achieved by FNOs being able to analyse the entire set of dialled digits and routing the call for each individual customer to the correct mobile network. The FNOs were likely to need to invest in network development to achieve this, and Orange said that the charging principles established for MNP would need to offer them an incentive to do so. This could be done by ensuring that any charges incurred by MNOs as donor networks in forwarding calls to ported customers were passed on directly to the originating FNO. Charging incentives of this kind meant that there would be no need to impose a requirement of least-cost routing on operators.

9.72. Orange said that it was very surprised to see that the DGT seemed to have decided in his March 1998 Statement on the price of fixed-to-mobile calls that he would seek to apply LRIC principles rather than historic FAC principles. While a move from FAC to LRIC had been extensively discussed in the context of BT's cost structure, there had been no such discussion in the context of MNOs' costs in regard to the price of fixed-to-mobile calls. Orange believed that there was clear justification for maintaining the historic FAC approach in examining costs for fixed-to-mobile calls and that the situation in mobile telephony was very different from the 'precedent' of BT in the fixed market. MNOs needed to be allowed by the regulator to set their prices at a level that allowed them to recover their real network costs. As a new entrant to the market, Orange had had a reasonable business expectation that it would be able to achieve this cost recovery, subject only to market forces. It would be quite wrong and contrary to the encouragement of future investment as well as to the development of competition for the regulator to prevent a new entrant from recovering its actual historic costs.

9.73. On the question of whether current retail prices and termination charges should be cost reflective, Orange said that cost-reflective pricing was only relevant in markets where there was ineffective competition and should only be used to curb excessive pricing by operators with market power. In markets where there was effective competition, prices reflected the value that customers placed on the goods or services provided; this value might or might not reflect the costs of production.

9.74. Orange said that in the DGT's March 1997 consultative document on the price of calls-to-mobiles, mention was made of a suggestion from Cellnet that alternative forms of charging for calls-to-mobiles should be considered, such as a called-party-pays approach. This form of pricing regime had been adopted in a few overseas countries. Orange's view was that a called-party-pays regime should not be imposed in the UK. Mobile customers in the UK were not accustomed to such a regime and would find it unattractive, particularly as they could not control the cost of their phone bills. For Orange, the crucial factor was that many mobile customers would change the use of their mobile phones to making only outgoing calls in order to remove the possibility of having to pay for incoming calls. This would reduce the utility of the mobile phone and could significantly affect future growth in the use of mobile phones.

9.75. Orange said that there was a contradiction between allowing cost recovery and the desire for common retail rates and common termination charges. The DGT apparently saw great value in establishing a common rate for fixed-to-mobile calls. However, it was not clear whether the DGT's desire was to see a common retail rate being charged by FNOs for fixed-to-mobile calls or whether it was to see a common termination charge by the four MNOs. The DGT's purported rationale was to remove possible confusion for customers calling mobile customers which would seem to indicate that the DGT was seeking a common retail rate. However, the only action that the DGT had proposed was to regulate the termination rate charged by MNOs which need not have any effect on the retail rate set by the FNOs. This was because all FNOs had absolute freedom to set their retail rate for fixed-to-mobile calls. This applied even to BT, despite its status as a monopoly FNO, because the DGT had consistently refused to accede to demands that fixed-to-mobile calls should be included within the services for which BT's retail prices were regulated by means of a price cap. Orange said that competition for fixed-to-mobile calls could be effectively introduced by regulating BT's retention and measures to ensure the transparency of its retail charges. Any regulation to be applied to the MNOs

should be the minimum necessary to address the public interest detriment that had been identified. It would be undesirable to apply a rigid RPI–X-type control to MNOs' termination charges or to make controls time-of-day specific as this would be overly prescriptive and would further stifle innovation.

9.76. Orange said that it had always taken the view that callers from fixed lines to Orange mobiles should be treated and charged in the same way as if they were calling a fixed-line phone and should not have to pay for unanswered or diverted calls. However, Orange did not agree that this should be enforced through regulation. Each MNO should have the freedom to choose how it wished to charge for its calls so long as customers were made aware of the relevant charging principles. It would then be for customers to decide whether and how they valued the different charging principles applied by different operators. Regulation in this area was likely to reduce competition and to remove an important competitive distinction from Orange's service portfolio.

9.77. Orange had from launch established in its interconnection agreements that no one calling an Orange phone would be charged for a call that failed to reach the called Orange customer (or an answering service specific to that customer) and which terminated instead in a recorded network announcement. In addition, Orange's policy was not to start charging for calls diverted from an Orange phone until the time that the call was actually established. Both these charging policies mirrored the principles generally adopted for calls to fixed-line phones.

9.78. Orange noted that the MMC's documentation put to it for comment contained various price comparisons between the different MNOs' charges. Orange was concerned that if such comparisons were included in the MMC's published report, they should be accurate, representative and fair. Also, given the dynamism of the mobile market and the pace of change indicated by the numerous competitive initiatives that were being introduced, Orange considered that the publication of any detailed price comparisons would very rapidly be outdated and so were best avoided.

BT

9.79. BT had a 60 per cent interest in Telecom Securicor Cellular Radio Limited (Cellnet) which ran the Cellnet network. As a BT subsidiary the results of Cellnet were consolidated into the group accounts. BT said that it had some 127,000 employees, operated 27.6 million lines and was in competition with over 200 other operators in the UK market.

9.80. BT said that MNOs had to have regard to the level of fixed-to-mobile call charges when competing for new customers (and seeking to retain existing ones). There were alternatives to making a fixed-to-mobile call which constrained fixed-to-mobile charges. Uniform POLOs were only a consideration because of MNP. This would have a perverse effect because in extending competition in one part of the market it could lead to reduced competition in another.

9.81. As to its role in the determination of termination charges, BT said that it had no option but to interconnect with MNOs; similarly MNOs had no option but to interconnect with BT and other operators seeking direct interconnection. Termination charges paid by BT to the MNOs were commercially negotiated. BT was motivated to seek reductions in termination charges to maintain customers' perception of value for money in its retail prices and to stimulate calling and in particular increased call durations in the longer term. As a growing number of competitors exploited arbitrage opportunities to offer significantly cheaper fixed-to-mobile calls, BT would press for lower termination charges to remain competitive. However, BT did not believe that termination rates should be set so low as to risk stifling development of the mobile market. Its customers benefited from having an ever-wider group of mobile users they could call.

9.82. Significant competitive constraints applied to MNOs. In addition to the downward pressure exerted by BT on termination charges, it was not in MNOs' own interests to let interconnection charges become too high. The mobile market was highly competitive. Whilst the price of calls-to-mobiles was the least competitive aspect for subscribers selecting an MNO, there were nonetheless pressures on these prices. First, the charges for fixed-to-mobile calls were important in the selection of

an MNO for some customers. Customers who anticipated paying for fixed-to-mobile calls within a closed user group would take account of the level of fixed-to-mobile charges when deciding which MNO to use. MNOs needed to ensure that their respective termination charges did not lead to retail tariffs for fixed-to-mobile calls that made them uncompetitive in attracting new mobile customers and retaining existing ones. Second, there were alternative services that could be used as substitutes to a fixed-to-mobile call. These alternatives included:

(a) making a call to a fixed line (as most mobile users also had a fixed phone);

(b) call-back by the mobile user to the fixed phone, if there was an excessive price differential between fixed-to-mobile and mobile-to-fixed calls;

(c) the use of pagers; and

(d) for PABX users, the use of equipment to route calls direct to a mobile network via a private circuit, so bypassing the public fixed network.

9.83. Regarding the advantages and disadvantages of harmonizing charges for calls-to-mobiles, BT said that in the absence of MNP there would be no case for uniform termination rates. Uniform prices were viewed by many as the only practical solution to the complications associated with MNP. The problem arose because the proposed technical solution (until an IN solution became available) meant that BT would not be aware that the number being called had been ported. The DGT had said that the only alternative to uniform prices and POLOs was for customers to be charged and POLOs paid on the basis of the network the customer used to be on. This was because the originating FNO would see the call as destined for that network and would be unaware of its eventual, ported, destination. BT would pay the POLO to the 'donor' network, as usual, and the 'donor' would then have to pay the recipient operator. Charging on this basis created a number of problems:

(a) the calling customer could be charged a different price for calling a Cellnet customer depending on whether or not the number was ported; and

(b) depending on the POLO passed from the 'donor' network to the 'recipient' network, the two parties would be making arbitrary gains or losses.

While an IN solution would enable BT to be aware that the number had been ported, this did not address the tariffing problem. Developments would be needed to billing systems to enable calls to be charged on the basis of the network the called party had moved to (which would require significant work by BT and other FNOs to enable them to analyse all digits of all numbers called to identify any that were ported). Developments would also be needed to inform the calling customer that the price of the call was different when they called a ported number (to avoid the situation where the customer was charged differently from what they would expect based on the number range).

9.84. There were disadvantages associated with uniform termination charges:

(a) Uniformity cut across the principle of having cost-reflective termination rates. Either the lowest-cost operator was over-rewarded in relation to its costs or the higher-cost operators were under-rewarded.

(b) The ability of an MNO to negotiate a lower POLO to enable lower retail prices for calls to its network would be limited so reducing what competitive pressure there was on termination charges. This would deter MNOs from developing new services.

9.85. BT said that the complications that could accompany MNP needed to be offset against the market distortions caused by having uniform POLOs and prices. MNP was an example of a regulatory intervention that appeared pro-competitive, but which had knock-on impacts in foreclosing a part of

the market to competition. In BT's view, this had not been fully thought through at the time of deciding to introduce MNP.

9.86. BT said that the charges raised for call termination on mobile networks should broadly reflect the costs incurred in providing termination services. BT pointed out that the DGT had said that he would use a cost-based approach if asked to determine mobile termination charges. It also pointed out that the DGT had ruled that Cellnet and Vodafone did not have SMP in the interconnection market, and therefore were not obliged under the Interconnection Directive to offer cost-oriented interconnection prices based on published accounts.

9.87. BT said that in the past it had taken steps to ensure through commercial negotiation that the charges it faced were based on costs. In 1996 BT sought and received audit reports confirming Cellnet's and Vodafone's costs and agreed terms based upon them.

9.88. It said that phrases like 'cost reflective' and 'cost oriented' tended to lack precision. In the case of an MNO, BT believed a cost-reflective price for termination should cover the LRIC of efficiently providing the service, a contribution to fixed costs and a reasonable profit. Given the way MNOs had chosen to stimulate the market through service provider incentive payments, and given the benefits to all networks of an increase in the number of customers on mobile, BT considered that it might be legitimate also to include in the termination charge a modest contribution to these payments. However, BT believed that the termination charge should not be set formulaically from the constituent costs. The process of commercial negotiation, backed by occasional audit checks, was both straightforward and allowed a measure of flexibility.

9.89. BT saw problems in using LRIC as the basis for calculating the costs of calls-to-mobiles. Using the definition applied by the DGT there was no unique value for the LRIC of a service. It could vary according to the portfolio of other services to which it was added or subtracted, and it could also vary according to the volume of output of the service over which it was measured.

9.90. BT also pointed out that if all the prices of a portfolio of goods and services were priced at their individual LRIC values, then there would be no recovery of the joint and fixed common costs, and thereby losses would be incurred. In BT's view, in general, prices should be based on LRIC and not be at LRIC, ie any LRIC-based regime should allow for the recovery of joint and fixed common costs. BT said that the recovery of fixed common and joint costs should reflect market forces, ie price elasticities and cross-price elasticities. These were complex forces. If market forces were insufficiently strong then there was a case for regulation, but this should only take place if the regulator could do a better job than the imperfect market forces. Given the complex nature of these forces, regulation should be very much a last resort. Where regulation was deemed necessary, then it should, as far as possible, mimic the operation of a competitive market.

9.91. If defined and applied correctly, there was some merit in calculating LRIC values as a first test for predatory pricing and setting 'price floors'—that is, if the average unit revenue for a service was less than the LRIC value, it was being cross-subsidized by some other service or services.

9.92. However, if the definition of LRIC were inappropriately specified then it would be an inappropriate price floor. The definition the DGT had applied in the measurement of the LRIC values of BT network components was distributed LRIC values. These were based on the overall LRIC value of a conveyance network, and the individual network component values included allocations of joint and fixed common costs. This led to a very real danger that if applied as the price floor, it might stifle the introduction of new services for customers who would have been prepared to pay a price that made a contribution to joint and fixed common costs.

9.93. On the question of whether 'access' should be regarded as a separable service, BT said that it was very important to draw a distinction between 'cost causation' and 'cost recovery'. Whether or not one accepted that there was a separable 'access' service, it was undoubtedly true that some of the costs of an MNO would be determined by the number of subscribers joining (and leaving) the network, and the population of subscribers on the network, independent of the number of calls they made or received. These were the costs of 'access'. Examples of these costs were the costs associated with putting a new customer on the relevant database(s); service provider incentive payments; and the

ongoing costs of monitoring the location of a customer, irrespective of whether calls were made or received. In addition, there would be some joint or fixed common costs that straddled a number of these activities, and the activities of outgoing and incoming calls.

9.94. BT said that on a mobile network, the level of direct network 'access' costs would be much lower than on the fixed network where there was significant 'local loop' investment which was not a function of the amount of traffic carried to and from a subscriber. As to the way in which costs were recovered by prices for the various activities, there were two key factors applying to cellular operations:

(a) *The interrelationship of the demand functions*. A customer could not make or receive calls without being an 'access' customer. Hence the demand for call volumes—both in and out—was driven by the demand for access as well as the price of the calls themselves. Thus the optimal recovery of costs—taking into account all these linkages: 'own-price' elasticities and 'cross-price' elasticities—presented a very complex problem. It could well mean that the revenue for, say, connection should be less than even the incremental cost of connection, never mind making a contribution to any fixed costs that straddled this activity. Consequently, prices for calls (in both directions) would recover not only their incremental costs, but also, quite possibly, the bulk, if not all, of any fixed common costs, and even a contribution towards the incremental costs of connections and access.

(b) *Cellular operations were still in a start-up phase*. Hence, given the inter-temporal linkage of the demand for the different activities, there was a very strong case for an inter-temporal mix of cost causation and cost recovery. That is, in layman's terms, it might well be optimal taking the longer-term view, for cellular operators to make a loss in early periods to grow their customer base and gain profits on calls in future periods. Indeed, the DGT's formula on which service providers made financial returns to him recognized just this phenomenon.

9.95. BT said that clearly the overall optimal cost recovery, as reflected in prices, was likely to be vastly different from the price structure that would result from some cost allocation system, even if the latter were following the standard principles of cost causality and objectivity. Such a price structure could be in both the private interests of the operators involved and the public interest, in that it would stimulate the demand for access to the network, thereby growing the overall population of subscribers, and hence the overall levels of calls with resulting network externalities.

9.96. FNOs interconnecting with MNOs were naturally only interested in calls: in originating calls on their networks for termination on the cellular network, and in terminating calls that originated on the cellular network. It was in their interest to maximize these volumes. It was for this reason that BT had accepted in the past that the termination rates it paid to the MNOs included an element of the service provider incentive payment. Where marketing and customer care costs were aimed at growing the market, a similar approach was justified.

9.97. BT said it had already given a commitment that, if MNOs made the change allowing BT to distinguish between unanswered calls and others (which would mean that MNOs ceased to receive payment for the former), BT would cease to charge for unanswered calls-to-mobiles. However, BT would still be obliged to recover the costs of unanswered calls-to-mobiles through its charging for answered calls—as indeed would the MNOs.

9.98. On the question of whether fixed-to-mobile callers should pay for unanswered or diverted calls, BT said that for calls over fixed networks, the established convention was that unanswered calls were not charged to the caller. Calls which were diverted to another number, or were handled by an answering or messaging service, were charged as completed calls. Unanswered calls caused costs of switching and transmission. Those costs formed part of the network's overall cost structure and were recovered through charged calls.

9.99. BT said that calls over fixed networks answered by an answering machine or other service were, in network terms, indistinguishable from a call answered by the called party. For billing

purposes, all answered calls were chargeable: those answered by a machine (or by a person other than the one sought by the caller) could not be separated out and subjected to a separate charging regime. These arrangements seemed to command general customer acceptance.

9.100. BT said that for calls to Cellnet and Vodafone, the arrangements currently differed from those for fixed-to-fixed calls (or calls to Orange and One2One) in that:

(a) unsuccessful calls which were answered by a recorded announcement were charged for; and

(b) calls which were diverted to voicemail or to a fixed line were charged for from the time they were diverted rather than from the time they were answered.

9.101. These calls did incur costs and the question was not so much whether they should be charged for, but who should pay and how.

9.102. When the MNOs first offered their services, there was more limited coverage and phones had a shorter battery life. This led to the expectation that there would be a very high proportion of unsuccessful calls. The view was taken that it was more appropriate for the calling party to bear the costs of these calls rather than the costs being spread across the generality of customers. As the market and technology had evolved, BT believed it was no longer appropriate to charge the calling party for unsuccessful calls in this way. BT said that it would rather not bill its customers for unanswered calls. The customer got little value from them beyond the knowledge that the called party was unavailable. Perceptions of poor value dampened demand.

9.103. BT said that the DGT's approach to the determination of MNOs' termination charges went some way to recognizing the distinction between cost causation and cost recovery. However, the DGT adopted a formulaic approach under which he asserted that the accounting principle of 'prudence' dictated that, for example, no service provider incentive payments should be 'allocated', that is, recovered from incoming calls. BT contended that such a formula was unlikely to simulate the behaviour of a competitive market.

9.104. The question of the timing of the commencement of charging on diverted calls was a similar issue. This was anomalous, and BT could see no reason why customers should be charged for listening to a ringing or busy tone. As BT understood it, there was no question of customers not being charged the normal mobile rates for diverted calls once they were answered: this reflected the value the customer got from those calls, the analogy with the fixed network, and the need for customers to be clear, when calling a number, what they would be charged. However, BT said that at present it could not distinguish between a call to a mobile network which reached the called party, one which was answered by a recorded announcement, and one which was diverted to a messaging service. All these fixed-to-mobile calls were, therefore, billed. All led to termination charges being raised with BT.

9.105. BT said that as far as regulation of the termination rate on the Vodafone and Cellnet networks was concerned it supported the principle of allowing maximum flexibility to avoid ossification of existing tariff structures and to allow prices to be set taking into account market conditions, including the need for communicable price points.

9.106. BT said that in the case of mobile termination rates there were a number of practical problems with a flexible approach:

(a) if the requirement were for uniform rates based on an industry average time-of-day mix, then BT anticipated considerable difficulty in agreeing such rates with the MNOs given that their own traffic patterns varied from the average, creating differing incentives;

(b) if there were not the requirement for uniform rates by time of day, then the post-hoc average termination rates would exceed the pre-agreed average as operators would seek to agree rates which exploited their own actual traffic patterns; and

(c) if the traffic patterns of the individual operators were to be used as the basis for setting the individual termination rates, then (mathematically) these rates could not be uniform across operators.

9.107. BT concluded that:

(a) if uniform retail prices were required, the only practical option was for the MMC to dictate termination rates for each time period based on an average time-of-day mix;

(b) if uniform retail prices were not required, then BT could be left to negotiate time-of-day termination rates for each MNO based on its own time-of-day mix, subject to 24-hour average rates set by the MMC;

(c) in either case, having established uniform starting termination rates by time of day, it might then be feasible to leave BT to agree the time-of-day breakdown of any specified RPI–X changes with the operators (to be based on the average time-of-day mix) with the fallback that a uniform percentage cut should be applied in all time periods if agreement could not be reached. This would allow some flexibility to achieve communicable price points and avoid the otherwise inevitable ossification of the time-of-day tariff structure.

9.108. On a related point BT said that it was concerned at the idea that in the absence of a uniform termination rate it should do the 'levelling' to ensure a uniform retail price. This would leave it open to increased risk if traffic rates grew differentially, either as a result of market trends or as a result of a deliberate strategy by other operators.

9.109. BT said that the levels of return currently put by the MMC to BT did not adequately reward it for the level of 'price risk' which it might be required to bear under this and the other scenarios mentioned above.

9.110. On the possible separate regulation of BT's retention for calls to Vodafone and to Cellnet, BT said that it did not believe there was any need to introduce an additional complication of this sort. It would limit BT's flexibility to achieve communicable price points and was inconsistent with the principle of broad, rather than narrow, baskets.

9.111. BT said that it was committed to pass on any reduction in the termination rate into the retail price, so should Vodafone or Cellnet wish to compete on the basis of incoming prices, they would be able to do so.

Other network operators and service providers

ACC Telecom

9.112. ACC Telecom (ACC) said that it was the UK subsidiary of ACC Corp, a multinational switch-based provider of long-distance telecommunications services and, in some markets, a local exchange carrier and Internet service provider. It was granted a PTO licence in 1997 and had over 50,000 customers in the business, education, health and residential markets.

9.113. ACC said that the termination charges levied by Cellnet and Vodafone were too high in relation to the costs involved. The current regime prohibited operators from offering competitive rates to end-users for calls to mobile phones and so acted against the public interest. MNOs were in a

monopoly position over the termination of calls on their respective networks and were not subject to competitive pressure to lower their rates. It was, therefore, important that termination charges made by MNOs should be regulated by OFTEL for the foreseeable future. Cellnet and Vodafone had SMP in the UK. They had designated SMP status under the Interconnection Directive which meant that they were under an obligation to offer wholesale rates to other operators on cost-orientated and non-discriminatory terms.

9.114. ACC said that Vodafone's and Cellnet's termination charges should be based on LRIC, not FAC. These charges should relate to the three services provided, namely access to the network, incoming calls and outgoing calls. Incentive payments to service providers were made by MNOs to subsidize the cost of mobile handsets and to cover the promotional and marketing overheads of the service provider, thereby increasing the number of subscribers to the mobile network. ACC believed that these costs should be allocated primarily to access costs, with the balance attributed to outgoing calls in proportion to call minutes. It was not appropriate for wholesale customers of fixed networks to contribute to the subsidizing of handsets and service providers' promotional costs. ACC said that marketing costs should be allocated according to the specific purpose of each campaign. Customer care should not be allocated to incoming calls as there was no direct causative link between them. ACC said that frequency-related costs should be allocated to incoming and outgoing calls in proportion to call volumes, and also to access revenues since frequency fees were a basic component cost of providing the network.

AirTouch Communications

9.115. AirTouch Communications (AirTouch) said that it was arguably one of the world's largest global wireless communications companies with ownership interests in mobile service providers in the USA, six member states of the EU and six other countries.

9.116. AirTouch said that in the case of termination charges for fixed-to-mobile calls, the level of pricing in the UK reflected the relative maturity of the market, and the economic variables concerned were far removed from those which characterized termination charges on fixed-line networks. The architecture and economics of fixed-line networks were fundamentally different from mobile networks. MNOs did not exercise any relevant 'market power' relative to the completion of calls on their networks. The completion of calls on mobile networks was not tantamount to the provision of a bottleneck facility. The very high degree of churn in most European markets suggested that the transaction costs faced by consumers in changing operators were minimal. This was a strong counter-weight to any single MNO being considered to hold SMP. Unlike the fixed-line sector, which had been characterized by an incumbent operator with 100 per cent market share at the commencement of the liberalization process, competition among MNOs had developed in a competitive environment from the outset. Under such competitive conditions, potential for abuse was significantly diminished. Consequently any attempt to transpose a regulatory model developed in a fixed-line environment to the mobile sector would be fundamentally flawed. Competition was providing European consumers with falling prices and a greater range of options. These trends suggested that regulatory intervention was unnecessary.

9.117. AirTouch offered comparisons of US and European pricing and interconnection practice. It said that the most notable feature of the US market was that determination of the retail price was completely separate from determination of the termination charge. This meant that mobile operators set the retail charge for fixed-to-mobile calls in response to market demand. Customers could therefore benefit from a wide variety of discounts, price specials and innovative price plans. In the EU, on the other hand, MNOs were constrained from offering such discounts to the full degree possible in a competitive market. The source of this constraint was that the price of a fixed-to-mobile call was linked to the termination charge, which was the result of complex negotiations and was not susceptible to quick or unilateral change.

9.118. AirTouch believed that interconnection arrangements should continue to be negotiated on a commercial basis. However, the retail price of a fixed-to-mobile call should be set by the MNO and be independent of termination charges to the FNO. In many countries the subsidization of handsets was

an important factor. Particularly at the early stages of market penetration, competition on handset prices could be the key business driver from the consumers' viewpoint. Termination charges were thus not the sole determining factor for the level of mobile retail tariffs, but simply one of a number of factors to be taken into account by an MNO in the development of its overall pricing strategy. This type of flexibility would allow MNOs to continue to use price as a marketing tool, which was customary practice in a competitive market.

9.119. AirTouch said that current US practices facilitated pricing flexibility in response to consumer demand, thereby encouraging fixed-to-mobile incoming traffic. On the other hand, solutions that imposed the same price for all fixed-to-mobile calls regardless of the MNO concerned eliminated consumer options and effectively destroyed price competition. In a competitive market, MNOs set prices primarily in response to customers, rather than costs. Competitive mobile pricing reflected a subtle weighting process which took account of such factors as:

(a) attracting and retaining customers by offering prices low enough to encourage subscriptions and usage;

(b) ensuring that prices recovered overall average costs, while also providing the opportunity to offer below-cost discounts as a marketing tool;

(c) growing the subscriber base by responding to different customer needs;

(d) encouraging both inbound and outbound callers to use the network rather than the network of a competitor; and

(e) managing traffic flows to prevent call-back and arbitrage incentives that distorted calling patterns.

9.120. Retail data demonstrated that the European market was competitive. In particular, the price of using mobiles had decreased sharply; the number of subscribers was increasing; and the number of optional consumer price plans had increased. None of the hallmarks of an anti-competitive industry, such as declining usage, decreased innovation, limits on production, deteriorating quality or lack of price competition, were present in the mobile market.

9.121. AirTouch said that all networks had externalities. However, it would be fundamentally wrong to assume that the network externalities which characterized fixed networks were the same as those of mobile networks. Termination at cost measured in terms of LRIC was appropriate for fixed-line networks, but not for mobile networks which were characterized by fierce competition in which any notional market power which might be attributed to such network externalities as control of a bottleneck would be quickly eroded. The high degree of churn was evidence that consumers were willing to change MNOs. In contrast, transaction costs were significantly greater for consumers wishing to change their fixed-line operator.

AT&T (UK) Ltd

9.122. AT&T said that it was part of the AT&T Group which was a provider of long-distance telecommunications services, with some 90 million customers worldwide. Its telecommunications network handled on average a quarter of a billion calls each working day. Some 20 per cent of its calls terminated on mobiles. It had serious concerns about termination charges on mobile networks and the setting of retail prices.

9.123. AT&T said that the MNOs' termination charges were too high and significantly higher than cost. MNOs were in a monopoly position over the termination of calls on their networks and the charge for call termination to mobile was about 15 times higher than for termination to a fixed network. Customers dialling a mobile phone had no choice over the network on which the call would terminate. Also, all FNOs had to connect directly or indirectly with all MNOs. Call termination constituted a bottleneck service. There was no competitive pressure on MNOs to price call termination

competitively. AT&T regarded the universe of mobile call termination as the relevant market. Cellnet and Vodafone were dominant with approaching 80 per cent of the market between them and regulation was needed to ensure that this domination was not abused. In particular there was a need for transparency in Vodafone's and Cellnet's costs. AT&T did not regard charges for calls from mobiles as offering any real constraint on charges for fixed-to-mobile calls. There was a cross-subsidy from the bottleneck service to the competitive service. It was significant that early in 1997 Orange and One2One had increased their termination charges significantly to bring them into line with those of Vodafone and Cellnet. This did not suggest a competitive market.

9.124. AT&T said that it was also extremely concerned that MNOs offered directly connected retail customers significantly lower rates than other operators. AT&T concluded that the current termination charges levied by Vodafone and Cellnet were not based on cost. It was anti-competitive that MNOs should offer retail prices up to 40 per cent below the equivalent termination charges. AT&T said that termination charges should be cost reflective, regulated on the basis of LRIC, and reviewed annually. Also MNOs' termination charges should always be below all retail prices. In determining costs, MNOs should be obliged to impute to themselves the same mobile termination rates as they charged to other operators.

9.125. AT&T did not consider that the level of retail charges for mobile calls should be regulated. In contrast to the bottleneck monopoly supply of mobile call termination, there was competitive supply in the retail market for mobile call origination and retail prices should therefore be left to originating operators. The consumer's interests were best served by sustainable competition. Competition for mobile call origination would naturally force down retail prices in the market. AT&T saw no need for a single uniform retail price for calls from all fixed to mobile networks. Harmonization would stifle price competition. MNP was essentially no different from fixed number portability which worked satisfactorily without the need for standardized prices. MNOs competed on price. OFTEL's proposal for a uniform retail price for fixed-to-mobile calls would therefore restrict price and marketing innovation.

9.126. AT&T said that international calls terminating on UK mobile networks gave rise to particular problems. Inbound international calls terminating on mobile networks (MT calls) currently attracted the same level of termination fees as applied to calls terminating on fixed networks. Problems arose because the international settlement rate payable by a foreign carrier to a UK international carrier was below the MNOs' termination rate. In these circumstances, UK international carriers carried calls-to-mobiles at a loss, and incremental minutes merely increased the level of loss incurred. In consequence, the UK's larger international carriers were now proposing a surcharge for MT calls, sufficient to cover the interconnection and other costs associated with handling this traffic. Systems adjustments that would be needed to screen for such calls would be costly to develop. However, this would simply shift the burden of paying the high cost of calls to UK mobiles on to the overseas party making the call. The root cause of the problem was that the MNOs' charges for call termination were higher than those of the FNOs, and this led to market distortions and the practice of tromboning or arbitrage. These arbitrage risks were immense. The UK had over 5 billion minutes a year of traffic terminating on mobile networks, and in theory all of these could be routed via an overseas point to enjoy the lower prices available to foreign carriers to terminate calls to the UK. If UK international operators were allowed to impose an asymmetrical termination charge on foreign carriers for calls-to-mobile, then this would shift the burden of MNOs' above-cost termination charges on to those foreign carriers and, therefore, foreign customers. As a consequence overseas customers would be obliged to fund unduly high UK termination charges, so increasing retail tariffs in the overseas countries concerned.

9.127. AT&T said that an international surcharge for calls-to-mobile would have an impact on UK customers too. UK calls to overseas MT points would also suffer because many overseas mobile systems were opaque and costs were generally high. An imposition by the UK of high international termination charges for UK inbound MT calls would be likely to provoke a similar response from overseas operators, ie higher rates for UK originated calls terminating on overseas mobile networks. An additional problem would occur when overseas countries such as the USA employed a 'called-party-pays' regime to cover the costs of mobile termination. Under the scenario proposed by UK international carriers (ie surcharging the UK's MT calls) US customers would be charged an inflated

tariff for calls to UK MT sites and in addition would also bear the cost of MT call termination in the USA for all calls originated in the UK for termination on US mobile networks. AT&T urged that inbound international calls to the UK be exempted from the high interconnection fees associated with MT call traffic pending simplification of mobile numbering ranges and the rationalization of international settlements between the UK and its overseas partners.

Cable & Wireless Communications plc

9.128. CWC was a subsidiary of C&W which was formed in April 1997 from the merger of Mercury Communications and three UK cable companies. Although One2One was 50 per cent owned by C&W, the two companies operated at arm's length. CWC provided integrated telecommunications and television entertainment services in the UK. Six million homes fell within its cable franchise areas, of which over 1 million took its services. It also had 1,200 large and 130,000 small and medium-sized corporate customers. CWC said that its key wholesale suppliers, BT for telecommunications and BSkyB for programming, were also primary competitors and dominant in their respective markets. Although the telecommunications market was a growing one, there were still significant risks for participants. To become an effective competitor, CWC had had to make substantial investment. Apart from BT, CWC was the only FNO in the UK making a profit, but even so its return on investment had been negligible to date because of a combination of aggressive competition in the fixed market and the continuing requirement for investment to develop its network.

9.129. CWC said that the UK telecommunications industry was in the process of changing from being dominated by one FNO towards being a fully competitive market. Competition was growing rapidly and prices were falling year on year. At present CWC and BT together originated some 90 per cent of the calls-to-mobiles, but this number was under pressure. BT's fall in overall market share of around 5 per cent a year was an indication that competition was taking hold in the fixed telephony market. In the market for final connections several operators were vying for market share. Benefits had increasingly flowed to consumers as a result of competitive pressures rather than from regulatory intervention. As a result, the DGT had systematically 'rolled back' retail price controls on BT on all but the bottom 80 per cent of residential customers. This was recognition of the fact that for the business sector and for the top 20 per cent of residential customers the market was already competitive. The DGT had also begun to change his role from being a prescriptive regulator, prohibiting certain activities in all circumstances, to that of a competition authority intervening only where there was a competition problem. Against this background CWC said that it found the DGT's proposals for the regulation of calls-to-mobiles to be inconsistent and heavy handed.

9.130. In the retail market users had a variety of options for the origination of calls-to-mobiles. CWC offered competitive price packages at rates substantially below those offered by BT, and had reduced its tariffs over time in response to competitive pressures. Between 1991 and 1997 the termination charge to CWC from Cellnet and Vodafone had fallen by 14 per cent across all time bands, and the corresponding retail rates had shown a larger decrease, particularly for residential customers. In CWC's view, any initiative to reduce costs should be made in MNOs' termination charges, not through regulation of FNOs' margins which were subject to significant competition. The focus of any regulation should therefore be on Cellnet's and Vodafone's call termination services, the two operators with SMP which between them had some 80 per cent of the market. But CWC did not agree with the DGT that such regulation would be needed in perpetuity. In its view competition would feed increasingly into the wholesale side of the market from the retail side and this would in time have the effect of eroding the market power enjoyed by Cellnet and Vodafone. Evidence of this trend was customers' increasing awareness of the cost of calls to mobile phones.

9.131. Commenting on competition in the mobile phone market, CWC said that cellular phones were first launched in the UK in 1985 and since then the market had grown rapidly; by January 1997, nearly 7 million mobile phones were connected to the four MNOs. In contrast to the fixed sector, the two established operators, Cellnet and Vodafone, were originally prohibited by their licences from retailing their services directly to the public and were instead required to sell airtime wholesale to

service providers. This licence obligation had now been revoked but the two established operators still continued to use service providers which found customers, signed them up to the networks and serviced their accounts. MNOs used airtime discounts and various types of bonus as incentives to retailers. Most bonuses were based on the number of subscribers attracted to the network, and handset prices were heavily subsidized as a response to these inducements. Both Vodafone and Cellnet followed the approach of low prices for equipment to encourage subscribers to join their networks and high prices for airtime to extract consumer surplus. Historically, Cellnet's and Vodafone's prices seemed to have moved in parallel and were designed to extract what the market could bear with minimum active competition. They had a favoured position because they were historically first in the market and because without MNP many business customers found it difficult to switch. They also offered large business customers direct connection for calls-to-mobiles at preferential rates. So for many business customers, Cellnet and Vodafone only faced competition from each other, not from Orange and One2One.

9.132. In contrast, CWC said, Orange and One2One had entered the market with a different marketing strategy. They had directly influenced the rate of substitution between mobile and fixed services by positioning the whole product offering out of the 'exclusive' price bracket. In contrast to Vodafone and Cellnet whose call termination rates remained high despite massive growth which had brought economies of scale, Orange and One2One, which could have justified higher call termination rates than Vodafone and Cellnet, had taken account of their customers' sensitivities and had positioned their product as a mass market offering. Against this background it was reasonable for them to follow the practice of Vodafone and Cellnet of subsidizing handsets to encourage the growth of their customer base.

9.133. CWC said that it had recently entered into commercial arrangements with both Vodafone and Cellnet which had resulted in the termination charges it paid to these operators being set at a level higher than the level determined by the DGT. Overall, both deals had been commercially advantageous for CWC's business in terms of traffic volumes and routings. These revised rates were in line with the rates Vodafone and Cellnet were offering to the rest of the industry. CWC had not passed on the impact of these higher termination rates to its retail customers.

9.134. CWC did not favour the harmonization of MNOs' termination rates. These should reflect the costs of the respective operators. Uniform termination rates equated to yardstick competition, but this would only be effective if networks were directly comparable in terms of cost and demand structures. A further reason for not imposing uniform termination charges was that they could limit the ability of MNOs to compete effectively. Effective competition required operators to be able to differentiate themselves in the market place. Market forces should be the primary factor in establishing retail prices.

9.135. In CWC's view, if regulatory oversight was deemed appropriate, charges for call termination should be based only on the costs of call termination. If there were regulation, it was important that there should be transparency of MNOs' costs to ensure that only relevant costs were included. Consistency between the regulatory regime applied to fixed-to-mobile calls and that applying in fixed telephony would be desirable, so it agreed with the DGT that the cost base for the regulation of termination rates should be LRIC, although there was still a lot of uncertainty about the way many LRIC were calculated. CWC said that the cost of capital figure of 17.75 per cent proposed for Vodafone by the DGT was not unreasonable, but that in general the cost of capital and its part in the indexation process needed particular attention.

9.136. Service provider incentive payments, which were the means by which the subsidized sale of mobile handsets was financed, were linked with winning subscribers and had nothing to do with providing incoming calls or any other network service. These costs should therefore not be taken into account in determining mobile termination charges. Similar arguments applied to marketing costs, and Vodafone and Cellnet had been unable to provide any evidence of marketing campaigns aimed at encouraging more incoming calls. The only situation in which some marketing costs should be allocated to incoming calls was when those costs directly influenced the level of incoming calls.

9.137. CWC saw a growing convergence of fixed and mobile telephony, not only through technological developments but also through developments in billing and numbering. Against this background CWC favoured diversity and choice. It was therefore surprised by the DGT's advocacy of uniform retail rates as a means of alleviating customer confusion. In CWC's view, simplicity of pricing could benefit customers, but it should not be achieved at the expense of diversity and choice. Customer confusion on tariffs was best tackled by effective communication of available tariffs rather than by enforced uniformity.

Cellcom Ltd

9.138. Cellcom Ltd (Cellcom) said that it was an established mobile communications service provider with some 400,000 subscribers in the UK, France and South Africa. Cellcom said that the cost of calls via the BT network to its own subscribers on the Cellnet and Vodafone networks was too high and contrary to the public interest. These interconnections constituted a bottleneck service. Cellnet and Vodafone had resisted the provision of interconnection, at reasonable rates, with other operators to permit both call origination from mobiles and the termination of calls-to-mobiles via the point of interconnection. Had they not done so prices would have been forced down through competition. Without this competitive pressure, the BT interconnection bottleneck would continue. The arrangements existing between BT and Vodafone and BT and Cellnet were anti-competitive. Cellnet and Vodafone did not share incoming call revenue with service providers. As a result revenue from incoming calls contributed disproportionately to their profits.

9.139. Cellcom did not consider that for the future a single retail price to call mobile networks should be imposed by OFTEL on BT and the MNOs. Any determination of the price to a BT subscriber for mobile terminating calls should be based on cost (including a reasonable rate of return). The determination should set the maximum amount which could be charged based on the costs of the least efficient operator. MNOs would then be free to set their termination charges to BT at any level below the determined maximum. Cellcom said that such an approach would allow MNOs to influence BT's retail charges to its customers for mobile terminating calls, to differentiate themselves and so compete in the area of inbound call charges.

9.140. On the points raised in the DGT's consultation, Cellcom said that even if service provider incentives already exhausted the majority of the networks' revenues from access charges, this did not provide grounds for apportioning costs differently. In Cellcom's opinion this suggested that the costs of acquiring customers for the mobile networks was excessive, due particularly to large handset subsidies. It was open to MNOs to reduce the level of their service provider incentives. There was an imbalance between the level of incentives paid to ISPs and those paid to tied service providers which skewed the market. It was entirely unreasonable that MNOs had consolidated the cost of cross-subsidies to their controlled distribution channels and used these costs to justify the retention of high mobile termination call charges.

9.141. Cellcom did not believe that a single retail price should be set for calling mobile phones. Such an approach would be anti-competitive and would prevent efficient mobile networks from differentiating themselves on their charges for terminating incoming calls. The subsidies applied to the sale of handsets for new customer acquisition supported the growth in subscribers. However, these subsidies neither supported the generality of existing users of mobile services nor did they encourage customer loyalty. Handset subsidies stimulated churn. In any DGT-determined charge, service provider incentives and marketing and sales costs should be spread across connection and access charges. Customers of other networks should not be required to contribute to handset subsidies and other incentives given to customers to join mobile networks. Customer care costs should be excluded from incoming calls since customer care related almost exclusively to outgoing calls.

9.142. Cellcom said that it was unreasonable to charge the caller for an uncompleted call when this was because the mobile was engaged, switched off or out of coverage. Where the caller heard a recorded announcement giving definitive information a charge might be justified. But there should be no charge for a recorded announcement telling the caller that the call was being diverted, or being

terminated on another network or on a messaging service. In these circumstances the caller should have the choice of not being passed on and should be able to terminate the call at no charge.

9.143. Cellcom said that it had serious concerns about the benefits of MNP. The costs of the porting activity would be high and would be an unfair burden on customers who remained loyal to their networks. MNP would fuel an increase in churn. There was no valid reason why there should be a uniform rate for mobile terminating calls applied simply to facilitate MNP.

Colt Telecommunications

9.144. Colt Telecommunications (Colt) said that it had not had direct experience of negotiating with either Cellnet or Vodafone. For any company competing in the UK telecommunications market, the ability to terminate calls on the Cellnet and Vodafone networks was vital. Transit via an overseas operator was possible but indirect routes were of inferior quality to those direct within the UK.

9.145. All UK operators were faced with similar (if not identical) charges when terminating calls with Cellnet and Vodafone. This meant that these companies effectively set a price which other operators and their customers were forced to bear. In Colt's view these termination charges seemed surprisingly high when compared with the charges levied for fixed-line termination.

9.146. Colt had no comments on the cost of unanswered and diverted calls except to note that the practice of charging for unanswered calls seemed to have raised consumer awareness. It was not in accord with common practice in the industry.

Energis Communications Limited

9.147. Energis said that it was a national telecommunications carrier that had been operative since 1994. It was a UK-based company which provided international services through direct relationships with a number of carriers in North America and Europe. There were five major aspects to its business: providing indirect access through the BT network, providing direct access services for public switching traffic, managing a portfolio of large private services, providing innovative data services and carrying Internet traffic in the UK. Its customers were predominantly large businesses such as Boots, Virgin, Mirror Group Newspapers and British Gas, and it also managed the BBC's transmission network. Mobile traffic accounted for about 6 per cent of its total business.

9.148. Energis said that the level of charges for termination to mobile networks was too high and should fall. The charges levied by Cellnet and Vodafone were significantly higher than one would reasonably expect. The recently published international settlement rate gave Vodafone and Cellnet 5 ppm for terminating incoming international calls. This compared with the 23.32 ppm that they charged BT. A standard termination rate should apply to all networks as they were fairly similar in structure and operation. The termination rate to the Orange and One2One networks should be the same as those for termination to Vodafone and Cellnet. In contrast to the oligopoly found in the mobile market, the fixed network market was highly competitive and provided an appropriate model. The principle of reciprocity for termination of calls had been accepted by the fixed industry and the same approach should be followed in the mobile market.

9.149. Energis saw an increasing tendency for fixed and mobile telephony to converge, and drew attention to BT's recent introduction of OnePhone. It saw mobile services being used increasingly to provide fixed telephony with, for example, houses being fitted with GSM mobile technology instead of a fixed connection. The convergence would give a significant boost to Cellnet because of its links with BT.

9.150. Energis noted that BT's transit charge for calls to Cellnet numbers during the evening and weekends was higher than for calls to Vodafone numbers. The doubling of BT's retail prices for access to Orange and One2One when other call prices had been falling was a further indication that something was wrong. When Orange and One2One had launched their services they had initially

charged lower termination rates than Vodafone and Cellnet, but soon raised them significantly when they realized this was giving them no marketing advantage. Energis concluded that BT's interconnection rates to all MNOs should be standardized. Although in principle the market should be left to decide end-user tariffs, the impact of MNP would make it very difficult for most originating operators to charge anything other than a single base rate to which standard discounting arrangements could be applied. Although in favour of regulating termination rates and BT's retention, Energis did not believe that retail prices should be regulated.

9.151. For the future, Energis believed that the indexation approach currently followed in the fixed market should be extended to calls to mobile networks. Energis noted, however, that the indexation formula currently in use had never been published. Past movements in termination charges could suggest that costs had actually risen, whereas as with all technologically-based industries they had fallen significantly. There were now 6.8 million mobile phones in use and as mobile traffic increased in volume, the cost base per unit of the MNOs was likely to fall still further. Termination charges should reflect this. LRIC provided a forward-looking approach and should be the basis for charges rather than FAC. Vodafone was on record as saying that LRICs were similar across Europe because all carriers used similar equipment and had similar networks. Charges should be based on Vodafone's costs.

9.152. Energis said it agreed that access to 'end-customers' was a 'bottleneck monopoly' and that the relevant termination charges should be regulated by the DGT for the foreseeable future. It supported the idea of a single termination rate (subdivided by a day, evening and weekend tariff gradient) for all MNOs.

9.153. There was a wide and growing choice of network suppliers to provide outgoing traffic, and MNOs' service provider incentive payments should be allocated against 'access' and 'outgoing calls'. These payments should be structured to encourage new customers to join and use the mobile network rather than allowing the MNOs to make high profits from the incoming monopoly bottleneck. At present Vodafone and Cellnet had SMP and no incentive to increase capacity, so current arrangements constituted an abuse of dominant market position. In practice in negotiating with Vodafone and Cellnet small FNOs had little alternative but to accept the rates proposed.

9.154. Marketing costs should not be allowed for within any regulated charge for calls-to-mobiles because there was insufficient information about the purpose and impact of marketing campaigns. On the other hand, switch capacity costs were largely traffic driven and should be set against revenues in proportion to call minutes. Energis believed that the level and scope of customer care was one of the key differentiators between operators and would become increasingly significant as competition grew. It therefore suggested that customer care costs should be excluded from regulation.

9.155. Energis said that in customers' perception there was a link between calls from mobiles and calls-to-mobiles but that the link was not a strong one. Customers had no clear idea of the cost of calling a mobile, especially before the advent of itemized billing. Energis said that the current practice of charging for unanswered calls was confusing to customers and should be reviewed.

Golden River Traffic Ltd

9.156. Golden River Traffic Ltd (Golden River) said that mobile phones could receive not only voice calls but also data calls and SMS messages. Golden River was particularly concerned about the high cost of the SMS facility to a mobile phone. The price of an SMS message to a mobile phone in the UK was 10p compared with 3p in Germany and similar prices elsewhere in Europe.

9.157. Golden River said that the high cost of SMS calls meant that it could not develop competitive systems for the UK market and then promote these products in Europe. Its European competitors were, however, able to develop competitive systems and market them Europe-wide

because their costs were 66 per cent lower. Golden River said that the exceptionally high cost of SMS calls-to-mobiles in the UK was, therefore, an impediment to competitive trade in Europe and the UK.

Ionica PLC

9.158. Ionica PLC said that the market for mobile call termination was a bottleneck service which required regulatory attention. The lack of transparency of MNOs' costs, and the contemporaneity of price movements in call termination services in the recent past, led to this conclusion.

9.159. While Vodafone's planned reductions in call termination rates over the next two years were welcome, these new rates did not increase the visibility of its cost base. They were simply an attempt to mollify the regulatory authority. The market for call termination was not competitive.

Martin Dawes Telecommunications Ltd

9.160. Martin Dawes Telecommunications Ltd (Martin Dawes) said that it was the UK's leading ISP, managing the needs of nearly 1 million subscribers across mobile telephony, fixed-line and Internet services. It was the only UK operator with the capability to offer fixed, mobile and Internet services on one customer management platform, one contact number and one bill. These services were marketed under Martin Dawes' own brand name, with supplementary services provided by Cellnet, Vodafone, BT and CWC on a contract basis. Uniquely Martin Dawes operated at three levels: as an operator through its ISR licence with core communications, as an Internet and mobile service provider, and as a retailer.

9.161. Martin Dawes said that MNOs had avoided much of the regulation imposed on FNOs because competition had been present from the outset. But as the first wave of GSM operators achieved dominant market positions due to their access to the scarce resource of spectrum, and as fixed and mobile networks converged, large wireless operators needed to be subjected to many of the same obligations as their dominant wire-line counterparts. The issues of wholesale interconnect and roaming needed to be addressed now because UMTS licences were to be issued in 1999 and the same issues would arise if value-added service suppliers wanted to be allowed to roam across existing GSM networks as well as the new UMTS networks. This principle was already under investigation by the EC, and would increase pressure across Europe for reform of interconnection and national roaming rules. It should form part of the review being undertaken by the MMC as it directly impacted on the pricing of calls within the fixed mobile integrated environment and the wider market structure in general.

9.162. Martin Dawes said it was concerned that mobile network competition was insufficient to ensure a fair deal for customers. The best solution was to encourage networks to allow direct interconnect with access to the network HLR, with pricing based on wholesale rates that reflected the underlying costs of a mobile network rather than the stripped down retail price that was available today. In addition, roaming between UK networks should be made mandatory to enable resellers to aggregate services across the networks and add value through single fixed mobile integrated value-added services. Such a solution would ensure that any deficiencies in network competition could be compensated for at the service provider level.

9.163. Martin Dawes said that to understand the broad issue of fixed-to-mobile calls it was necessary to consider the competitive structure of the industry, specifically the level of network competition. The cost of terminating a call on a mobile network was just a part of the larger concern about the cost of using mobile networks to provide services to customers. Service providers were entirely dependent on MNOs for the 'mobile' component of the service provided to customers. The larger issue was the extent to which MNOs were able to set excessive charges for the use of their networks to service providers as well as to interconnecting operators.

9.164. Martin Dawes said that there were two layers of competition in the mobile market: service providers and MNOs. The former were entirely dependent on the latter. Although the entry of the two PCN operators, Orange and One2One, had increased the intensity of competition among MNOs, it was not clear whether the various 'bundled free minutes' pricing packages really guaranteed a fair deal to customers. The real concern was that the limited number of operators and lack of available spectrum would inevitably result in limited competition.

9.165. Martin Dawes said that prices for fixed-to-mobile calls had fallen recently, but were still high and the range of packages available did not offer real choice. The packages had a significant degree of uniformity and there was little real innovation, which pointed to tacit collusion between the MNOs. The service providers were unable to remedy the situation under the present structure, in which they were severely constrained. The margins offered to them ensured that they were limited in the extent to which they could introduce innovative price packages. The service provider regime remained artificial because competition had not forced MNOs to offer competitive service provider pricing packages. Regulation might be needed to facilitate this development.

9.166. Martin Dawes said that the practical impact of constrained service provider competition was that service providers encountered serious problems in launching new and innovative services. Its own 'Breathe Assistant' was an example. It was an intelligent call routing and integrated messaging service with just one number for all voice and facsimile calls, of the type that ISPs were well placed to develop. However, Vodafone and Cellnet appeared to act in tandem in maintaining prohibitively high charges for access to their networks by the new service, recognizing that it encroached on their business territory.

9.167. There were theoretical and practical reasons for regulating the charges levied by the MNOs for use of their networks. Call termination, as a 'bottleneck' service, was arguably of even greater concern than the packages available to service providers. In principle the MNOs should open up their infrastructure to allow service providers both a call origination and termination capability, and through the HLR the ability to ascertain the status and location of the mobile subscriber. To date all that was available to service providers was the ability to buy airtime at a predetermined rate, which precluded any branding or value-added services. The aim should be to facilitate the development of service provider competition without impeding developments in network competition. In practical terms the service provider needed a network product rather than a cut-down retail product, and this needed to be given effect through a new licence condition.

9.168. Martin Dawes said that a further difficult problem was the level at which charges should be set. There were a number of general principles that could be applied, which included:

(a) cost orientation, ie charges should reflect the underlying cost structure of the network, with LRIC providing the benchmark against which charges should be judged;

(b) costs consistent with the competitive development of the market; a subjective approach but one which provided a logical way of discriminating between call termination and other network charges; and

(c) a requirement to supply on non-discriminatory terms.

9.169. Martin Dawes said that applying these principles and the principle of access to the HLR would mean that:

(a) service providers could break free of existing retail price structures;

(b) the market would take over the role of regulation as competitive pressures permitted; and

(c) all service providers would be free to offer innovative services on an equal basis.

9.170. In the first instance the MNOs should be given the opportunity to introduce service provider packages through the opening up of their networks, rather than the regulator setting the

charges. However, if such packages were not introduced within a certain period, the regulator should be empowered to intervene and set the charges. This would require modification to the existing mobile licences to give the regulator the necessary powers.

9.171. The MMC needed to undertake a fundamental review of the market. Tinkering at the edges of the regulatory regime would not suffice.

Motorola Telco

9.172. Motorola Telco (Telco) said that it was a cellular service provider in the UK and other European countries. It was owned by Motorola Inc, which was a major equipment manufacturer worldwide. Telco set up as an ISP linked to Cellnet in 1985, and became an ISP linked to Vodafone as well in 1986. It did very little business with Orange, which had given notice to terminate its agreement, and none with One2One. In the UK Telco's turnover was about £100 million compared with Motorola Ltd's turnover of about £3,100 million. Telco sold only Motorola Inc products. In all Telco had a customer base of 460,000 of whom more than 200,000 were in the UK. Telco was sold on 14 August 1998 to RSL COM Europe Ltd, a company specializing in international PSTN communications.

9.173. Telco said that it saw an increasing convergence of the fixed and mobile telephony markets. The pattern of traffic was changing and the volume of mobile-to-mobile calls was increasing. It had been suggested that by the year 2005 as much as 90 per cent of all calls would be made from mobiles. Telco's approach was to buy unbundled services so that it could create its own bundled services incorporating value-added components required by the customer concerned and provide the best deal possible both technically and commercially. It sold its services through dealers and did not work through retailers. Its investment in customers invariably involved subsidizing the customer at the outset and recouping that outlay over a three-year period. The rate of growth of the business was critically important for its margins, and bonuses which were related to connections accounted for 10 to 15 per cent of total revenue. Small changes in margins had a big impact on profitability. Telco said that its customer base had grown little over the preceding 18 months. Half of the growth in the market was going to the two MNOs that did not use ISPs. The ISPs' share of the market had dropped from 33 per cent in 1994 to around 20 per cent in 1998.

9.174. Telco said that the issues relating to fixed-to-mobile calls should be set in the context of competition within the UK mobile telephony market generally. That market was regulated, and in Telco's view regulation included all radio spectrum licence-holders. In terms of market definition, it could be argued that the PCN and GSM operators formed distinct markets. Initially MNOs were required to sell their services through ISPs. However, at the launch of the PCN networks (Orange and One2One) this requirement had been removed. Telco said that one of the objectives of requiring the MNOs to work through ISPs had been to limit the scope of regulation, since all service providers who met the required quality threshold were able to compete against each other. The relaxation of the requirement to use service providers had made the market less competitive. MNOs had acquired many of the former ISPs and the bulk of mobile subscribers were now connected directly with MNOs through in-house or tied service providers. This meant less choice for subscribers than was intended by the initial regulators.

9.175. Telco said that ISPs had facilitated the growth of the market and encouraged the reduction in prices. The existing structure of the market was, however, leading to stagnation in both the development of tariffs and of new services at competitive prices. Growth and competition would flourish only if ISPs were allowed to compete on a non-discriminatory basis with the MNOs' 'in-house' service providers. The ISPs were also important in providing added value to customers. The UK was now behind Continental Europe in a number of ways which could put the country at a competitive disadvantage.

9.176. It was important that:

(*a*) service providers, both in-house and independent, were supported on a non-discriminatory basis by all MNOs. MNOs were under an obligation to provide interconnect to ISPs on terms equivalent to those given to tied service providers and agreements between MNOs and service providers were regulated by OFTEL. However, this regulation did not appear to be effective and in particular volume discounts and bonus arrangements worked against the ISPs. A number of tied service providers appeared to make substantial losses and to be subsidized by their MNOs;

(*b*) all MNOs should permit interconnections for value-added services, and should also provide service providers with access to their HLRs so that calls were not forced to be routed through MNOs' own monopolistic connections to a mobile subscriber. This would give ISPs the ability to choose which network to terminate through, and as call volumes increased they would get more negotiating leverage with the MNOs; and

(*c*) MNOs should be forced to unbundle services, particularly wholesale tariffs, to allow competition to develop. At present airtime discounts from the MNOs were no more than wholesale discounts.

9.177. Telco said that customer choice should extend to a mix of different networks and different value-added services. This could be achieved only if the commercial activities of the core network and service provision were separated. The key interface was that between the supply of scarce spectrum and the provision of services to the customer. This interface had to be regulated. Existing operators would be advantageously placed to win UMTS licences when these were auctioned because they already had base stations set up and would be in a position to take advantage of this new technology. It would be extremely difficult for new operators to enter the market. Telco said that with access to the UMTS spectrum should come corresponding obligations to protect the end-consumer. A key issue would be whether the UMTS model for the industry would provide for multiple choice through ISPs or would be based on four vertically integrated MNOs.

9.178. Telco said that ISPs did not receive any remuneration for fixed-to-mobile calls yet they incurred the customer service and marketing costs for this facility. The MNOs did not intend to remunerate them for these. This meant that service providers' margins were further eroded, while the costs incurred by MNOs were reduced. Telco said that it had been unsuccessful in its attempts to negotiate reasonable interconnection rates using its existing private wires with Vodafone and Cellnet.

9.179. Telco said that customers were sensitive to prices generally and tended to vote with their feet taking advantage of the various subsidized handset offers that were available. This accounted for the high level of churn in the industry, but there was no proof that subsidies did in fact improve market penetration. The cost of calls-to-mobiles was probably only a significant factor for big users, who in any event could take advantage of a private wire connection. The cheapest way of making a call to a mobile was from another mobile on the same network. Telco favoured MNP as it gave more control and freedom to the customer. Harmonization of termination charges was not compatible with effective competition, and the imposition of an RPI–X-type control did not provide any incentive for a dynamic company. The regulation of individual parts of the mobile telephony service brought with it the problems of unbundling costs and cost allocation. It would be simpler and more effective just to regulate the MNO/ISP interface. If individual parts of the mobile service were to be regulated, there was a case for allocating some marketing and customer care costs to calls-to-mobiles.

Telewest Communications plc

9.180. Telewest said that it was the second largest cable communications company in the UK with franchises covering large parts of Scotland, the North of England, the West Midlands and the South-West. In all there were some 3.8 million homes in its franchise areas. It had approximately 1 million telephone customers and 800,000 cable television customers. It had built its own national network to link its franchise areas together, and this network carried some 19 per cent of its originating non-local traffic, the rest being carried by BT. Telewest had invested some £2.5 billion in its network and was

still making heavy losses because of the size of this investment and the associated financing costs. It spent about £9 million on delivering calls to mobile networks in 1997.

9.181. Telewest said that the level of retail prices for fixed-to-mobile calls and call termination rates on mobile networks were important to its business. It did not interconnect directly with the MNOs so its call termination charges included a small transit charge for the use of the BT network. It considered that mobile call termination charges were too high. The call termination element of fixed-to-mobile calls constituted a bottleneck which needed to be regulated on a permanent basis because the bottleneck could not be removed. Although retail prices for mobile calls had come down, termination rates had not come down at anything like the rate of either fixed-line termination charges or other mobile services, and Orange and One2One had actually made significant increases in termination charges in March 1977. Telewest believed this increase in call termination rates on the Orange and One2One networks was an exploitation by both MNOs of the confusion on the part of fixed-line customers as to which mobile network they were calling. Also as callers seemed to display a relatively inelastic demand for fixed-to-mobile calls, Orange and One2One saw an opportunity to increase their revenue.

9.182. Telewest also drew attention to the interconnect agreements signed between CWC and Vodafone and Cellnet, as a consequence of which aggregate call termination rates were increased. CWC appeared to have accepted a price increase as part of a trade-off involving other services. Telewest suggested that Vodafone and Cellnet might well have offered CWC preferential terms on fixed-to-mobile calls. If so, this clearly discriminated against Telewest and the other cable companies.

9.183. Telewest said that its basic pricing strategy was to undercut BT on both line rentals and calls by 10 to 20 per cent, and within this strategy its charges for fixed-to-mobile calls for residential users were 6 per cent below BT's standard rate. In addition calls-to-mobiles were included within its residential discount scheme which meant that these calls were subject to a further 10 to 20 per cent discount if the customer's monthly call bill exceeded £15 (or £20 including VAT). On the business side, although rates varied, with the different discount schemes that were available, the effective charge to most customers was about 10 per cent below BT's discounted rate. Telewest said that the high termination charges levied by the MNOs on fixed-to-mobile calls, which were the same for Telewest as for BT, affected its overall margin on these calls. Where customers made a large number of calls-to-mobiles they were in effect subsidized by the company with heavily discounted bills, and Telewest's margin was squeezed still further.

9.184. Telewest said that, like other cable companies, it had had no success in negotiating direct interconnect agreements with Cellnet and Vodafone. There was simply no incentive for the MNOs to reach such agreements. By so doing they incurred additional administrative and capital costs, but since termination was a bottleneck monopoly, they got the traffic anyway.

9.185. In Telewest's view LRIC-based charging should be applied to the MNOs' call termination rates in order to deal with the bottleneck that existed and to send the right economic signals to the market. If LRIC were applied to mobile termination charges they would come down significantly and would be close to fixed-line termination charges, instead of being significantly above them as at present. Telewest noted that the UK MNOs had built their networks without having to cater for any network legacy. The number of switches in the Vodafone network was probably comparable with that in the network of a medium-to-large cable operator and the volume of calls over the Vodafone and Cellnet networks was also probably comparable. These factors suggested that the charge per minute for call termination on the mobile networks should be comparable with that levied by a medium-to-large cable company.

9.186. In comparing LRIC- and FAC-based charging, Telewest said that for some elements LRIC could produce a higher figure, but for network switching costs it could be expected to produce a lower figure. It noted that with the introduction of LRIC, BT's costs came down by about 10 per cent which was reflected in its termination rate. LRIC had been particularly important in identifying excess capacity on the BT trunk network for which other operators had been paying under the FAC regime, and similar considerations would apply with its application to mobile networks. Call termination rates for Orange and One2One should be comparable with those of Cellnet and Vodafone. Their network

topographies and architecture were similar so their cost bases should be comparable, and the higher capital costs of Orange and One2One on account of their later entry to the market should be offset by their greater capacity resulting from more spectrum availability.

9.187. Telewest considered that the concept of an access service applied equally to fixed and mobile networks, and that a case could be made for charging some measure of marketing costs, incentives to service providers and customer care costs to access. Infrastructure costs, on the other hand, should be recovered through handset and line rental charges. Call termination rates should be based only on the costs of installing and operating the switched network. Any additional technology, for example in support of roaming, would be relatively inexpensive.

9.188. Telewest did not see fixed and mobile telephony as converging and substitutable to any extent in the immediate term but believed that market segmentation by the MNOs might bring mobile telephony to the point where MNOs were competing against FNOs. Currently it did not regard the MNOs as being in competition with FNOs, but saw them as essentially being in competition with each other for a particular segment of the telephony market, and the high level of churn was evidence of this competition.

9.189. To a degree the cost of calls-from-mobiles could serve as a competitive constraint on calls-to-mobiles, but demand for fixed-to-mobile calls appeared to be relatively inelastic. Telewest expressed concern that the MNOs were prepared to offer large directly-linked business customers connection charges that were lower than the termination charges faced by other operators.

9.190. Telewest favoured the harmonization of charges for fixed-to-mobile calls to reduce customer confusion, and thought this might be best done through the regulation of average termination charges. This would allow individual operators some flexibility to differentiate their services and target particular customers. Harmonization would also aid MNP, but Telewest observed that quite apart from MNP there was a great need for telephone numbering to be sorted out. Customers should be given a voice warning that they were calling a mobile.

9.191. Telewest said that it agreed with the DGT that customers were being charged an effective rate of around 30 ppm for calls-to-mobiles answered by recorded announcements, and that callers should not be billed for such calls. Nor should callers be billed for calls that remained unanswered where a call had been diverted from a mobile to a fixed phone.

UniqueAir Ltd

9.192. UniqueAir said that it was one of a diminishing number of ISPs still operating in the UK mobile telephony market. It began operations in 1985 installing mobile phones into Jaguar cars but had expanded rapidly into the mobile phones market and now had 360,000 customers which made it the largest ISP in the UK market. Business and corporate customers made up only 10 per cent of its customer base. Its share of Cellnet and Vodafone customers was 5.5 per cent and it also had 3,000 Orange subscribers. It was a wholly-owned subsidiary of the Unipart Group of Companies and accounted for just under 20 per cent of the Group's annual turnover. However, the structure of the UK mobile phone market and the practices of the MNOs, particularly Cellnet and Vodafone, had changed significantly since UniqueAir first entered the market, making it difficult for the company to sustain its market position.

9.193. UniqueAir said that ISPs should continue to play a pivotal role in enhancing competition for the benefit of the consumer. Their role was analogous to that of a broker, advising mainly SMEs on network characteristics and tariffs and the best way of meeting their particular telephony needs. However, it was increasingly difficult for ISPs to compete with the MNOs and their vertically integrated tied service providers. When UniqueAir had entered the market, competition had been provided by the ISPs, but Orange and One2One had been allowed to operate without using ISPs and Vodafone and Cellnet were increasingly buying up ISPs and becoming more vertically integrated. Orange made very little use of service providers, and One2One none at all as no ISP had been able to conclude a realistic agreement with that company. In the new environment ISPs could not compete and

were being squeezed out. The in-house service providers ran at a loss but were subsidized by the MNOs.

9.194. UniqueAir saw a growing convergence of mobile and fixed telecommunications networks and of television and broadcasting as well. It was, therefore, in BT's interest to see demand for telephony services grow. UniqueAir considered that ISPs should get some remuneration from fixed-to-mobile calls, which they did not at present, to reflect their efforts in stimulating general demand.

9.195. Mobile phone users wanted both to make and receive calls. Any reduction in fixed-to-mobile termination charges could lead to increased prices in both the wholesale and retail markets since MNOs would have no difficulty in recovering the revenue in other ways. For this reason the MMC inquiry needed to cover wider industry issues, in particular the impact of any regulation of call termination charges on the price of calls from mobile phones.

9.196. UniqueAir said that the UK market for mobile communications services could be regarded as being segregated into four distinct levels: fixed network operation, mobile network operation, service provision, and handset distribution and retailing. The number of FNOs was limited by network economics and regulation. The number of MNOs was determined by spectrum availability. This meant that effective competition could really exist only at the service provision and handset retailing levels. This was the basis on which UniqueAir had entered the market, but it was apparent that instead of relying on ISPs to provide competition, the DGT was now inclined to the view that four strong vertically integrated suppliers provided a more straightforward basis for regulation. However, a market structure of four vertically integrated MNOs with control over airtime retail and handset distribution would have the effect of restricting consumer choice, preventing consumers from receiving independent advice, discouraging new entrants to the market through the UMTS licence auction and discouraging the growth of service provision in the fixed telecommunications market.

9.197. UniqueAir said that if the mobile market were fully competitive, service providers would compete with each other to attract customers on the basis of price, quality, choice and innovation. Each service provider would negotiate with MNOs to secure the best terms to pass on to its customers. Competition between service providers to attract and retain customers would ensure that each service provider would be able to undertake effective negotiations with the MNOs. Such negotiations would lead to equality of bargaining power between service providers on the one hand and the MNOs on the other. If ISPs had direct access to MNOs' HLRs this would provide increased scope for competition, and in the long term the need for regulation would be rolled back.

9.198. UniqueAir said that ISPs had a better record on churn than MNOs. The main cause of churn was the structure of customer contracts and the fact that customers could switch at virtually no cost. If handsets were charged at their true cost there would be much less churn.

9.199. When Orange and One2One were granted licences they were allowed to operate vertically integrated businesses. In April 1998 the obligation placed on them to use ISPs was removed, and this had assisted their growth and accelerated competition at the network level. However, there was the danger that the increasing vertical integration by MNOs with SMP, ie Cellnet and Vodafone, into the service provision and retail handset layers would remove effective competition at all levels of the market. ISPs had in the past been successful in devising competitive tariff structures but now their retail tariffs differed little from the MNOs' own tariffs. This was because the MNOs were seeking to standardize the tariff packages linked to their networks and were doing so through brand loyalty payments.

9.200. Cellnet and Vodafone had been allowed to integrate vertically with service providers to form partly-owned tied service providers and wholly-owned service providers. MNOs were also beginning to acquire handset retail channels. Tied service providers and wholly-owned service providers had little incentive to apply downward pressures on charges. Vertical integration by MNOs now extended right through the mobile market and impacted directly on the consumer's ability to seek choice, independent advice and quality at competitive prices.

9.201. UniqueAir said that monitoring arrangements to prevent cross-subsidy between Cellnet and Vodafone and their respective wholly-owned service providers had been in place since 1994, but there was evidence that these had not been effective. Cellnet and Vodafone were currently earning abnormal profits from their network operations. UniqueAir suggested that the returns from their wholly-owned service providers might have been suppressed in order to support these abnormal profits. This had been done by offering terms to ISPs that limited their opportunity to generate reasonable returns.

9.202. UniqueAir said that there was a danger that any reduction in fixed-to-mobile termination charges would be offset by Cellnet and Vodafone by reductions in the terms offered to ISPs. The UK mobile industry was developing an increasingly oligopolistic structure, with four vertically integrated MNOs. This would inevitably result in reductions in quality, innovation and choice and in less competitive prices for the consumer. However, with appropriate intervention, a strong ISP level could be maintained to support competition.

9.203. UniqueAir said that there was a case for recovering some marketing and handset subsidy costs from charges for fixed-to-mobile calls. It did not, however, accept the DGT's argument that there was a separate access facility provided by MNOs in addition to the ability to receive and make calls. The DGT was applying an inappropriate fixed industry model to mobile telephony. The dynamics of mobile telephony were quite different and in particular there was no physical link between the handset and the mobile network. UniqueAir did not believe that customers were particularly sensitive to the cost of fixed-to-mobile calls. Their main concern was the monthly rental charge. There was much greater sensitivity to the cost of fixed-to-mobile calls in the USA where the called-party-pays system was used, although it was significant that there were now moves away from this system. AT&T, one of the major US operators, was now offering the ability to mobile operators not to be charged for incoming calls.

Virtual Network Systems Ltd

9.204. Virtual Network Systems Ltd (VNS) said that it held an International Simple Voice Resale licence and had made an application for a PTO licence. It was proposing to operate both fixed and mobile public telephony services in the UK and Ireland from 1999 and throughout Europe from 2000. The aim of the company, which was registered last year, was to exploit the market for interactive information services which was slowly being addressed by the MNOs at present, and to offer the customer a high-quality, two-way service covering voice telephony, both fixed and mobile, Internet access and data transmission. The MNOs were constrained as to the services they could provide and VNS planned to get closer to individual customers. It saw itself as a test bed for the development of third generation services, a view shared by a major telecommunications manufacturer with which it was working closely on the infrastructure that would be required. Initially the company would target the financial sector and smaller firms in particular as the most likely source of customers for its integrated package of services, and it was expected that its customer base would build at the rate of some 15 per cent a year. It might migrate to a wider market in due course, but the mass market was currently covered by the four MNOs.

9.205. VNS said that it was aiming to reach commercial agreements with Vodafone and Cellnet as well as technical agreements on access to their networks including their HLRs, so that the VNS HLR could be constantly updated. The VNS switching system would seek out the best network on which to operate for any particular call. The integrity of the MNOs' systems would be ensured by the technologically advanced equipment that a major telecommunications manufacturer was developing. Inevitably VNS would provide a measure of competition to the MNOs. Competition for outgoing calls would be based on resilience and service and on price competition for marketing, billing etc. The scope for price competition on incoming calls was admittedly more limited but there was currently a margin within which VNS could compete. However, the charges made by the MNOs for access to their networks would have to be reasonable and this would need regulatory oversight. The technology required for access to the MNOs' HLRs was analogous to that which allowed international roaming. VNS would run its own call centres and have dedicated billing arrangements.

9.206. VNS believed that consumers of mobile telephony services in the UK had benefited from competition, but that consumers would derive further substantial benefits from changes in the structure of the industry and through new entry.

9.207. At present the prices of calls-to-mobiles were in excess of costs. VNS believed that the high cost of fixed-to-mobile calls stemmed from five factors:

(a) spectrum scarcity, which limited the number of MNOs. At present service providers were essentially resellers of airtime and were insignificant in terms of effective competition. Also, vertical integration had meant that many formerly independent service providers had been bought by the MNOs;

(b) customer contracts which tied customers for long periods (around 15 months). VNS proposed to offer a standard 30-day contract;

(c) numbering at present which meant that a change of network required a change of number, involving for some customers a large switching cost. MNP would alleviate this problem;

(d) the caller-pays principle which was established in the UK; and

(e) call patterns as between mobile and fixed networks which in the UK were asymmetric.

9.208. VNS said that although the conditions that normally led to monopoly pricing were not well established in the telephony industry, there was a danger that monopoly pricing could result in final markets because of the application of monopoly power in access markets. Although services were differentiated to some extent, most customers regarded Cellnet and Vodafone as very similar, and coverage differences between them were not significant.

9.209. VNS advocated qualified indirect access (QIA) as a means of addressing many of the anti-competitive problems that existed in mobile telephony and in fixed-to-mobile. It understood that this was being seriously considered by the DGT. QIA was in the public interest and was based on the need for more competition while recognizing that newcomers entering the market should not simply piggy-back on existing operators but should provide significant additional services. Such indirect access should be permitted only where new interconnecting operators were innovative and provided a wide range of services. QIA to all mobile networks should be granted to OLOs with Annex II status who satisfied these criteria. The terms offered by the MNOs to companies seeking QIA would need to be reasonable. The additional costs imposed on them would not be heavy and would in any event be recouped through their commercial agreements with the new QIA companies, of which there would be only a few.

9.210. VNS believed that while the receiver-pays principle (RPP) could solve the problems of MNO termination charges significantly exceeding costs, in practice this was not feasible. RPP was a way of putting competitive pressure on charges for calls-to-mobiles. It was not necessary to move to complete RPP. It was possible for the caller to pay a charge equivalent to that levied for a call to a fixed network, with the mobile user, the called party, paying the difference in termination costs. Orange already offered a tariff based on this approach and VNS also intended to do so. Most consumer concerns about RPP could be overcome by allowing the first minute of a call to be free and by providing caller line identification. However, VNS stressed that its QIA proposals and its business strategy were not dependent on RPP-type developments.

9.211. VNS felt that heavy-handed regulation as proposed by the DGT was unnecessary and would be unduly costly. The most effective way to establish prices that reflected costs was through competition, and only where competition was ineffective and likely to remain so should regulation be considered. The adverse effects of Cellnet's and Vodafone's termination charges could be remedied by licence modification. These amendments should shift the industry towards a regime where the RPP could be applied. Such a move could eliminate the incentives the MNOs had to set relatively high termination charges. What mattered was the overall price structure covering both inbound and outbound calls.

WorldCom International Limited

9.212. WorldCom said that the company was created by the merger of WorldCom Inc and MFS Communications Inc (MFS) in 1996. WorldCom Inc's pre-merger experience with Cellnet and Vodafone was similar to that of MFS. MFS first offered voice services in the UK in 1994 and at that time its only interconnection arrangement was with BT, on which it was therefore dependent to deliver calls from its customers, including fixed-to-mobile calls. MFS faced a significant barrier to entry in respect of its customers' fixed-to-mobile calls because BT's mobile interconnection charge at that time was several ppm higher than the retail rates charged by Mercury. In May 1995, MFS had been able to establish an economically viable direct interconnection arrangement with a number of other UK operators, in particular Vodafone. Initially the Vodafone termination charge to MFS had been lower than the Mercury charge, but for a period in 1997 Vodafone's direct termination rate to WorldCom was actually higher than the indirect rate via Mercury, by that time CWC. Although this was corrected on 1 August 1997, the Vodafone direct rates were still, and had since remained, the same as the indirect rates offered by CWC. Attempts to negotiate a similar direct interconnection agreement with Cellnet had been unsuccessful, primarily because of questions over the financial viability of the necessary interconnection routes, although WorldCom had a feeling that Cellnet was reluctant to enter into any such agreement. Nor did WorldCom have direct interconnection agreements with Orange and One2One, so its calls terminating on these networks had to be routed through either BT or CWC.

9.213. WorldCom's strategy was to develop a high-reliability global integrated network based on synchronized digital technology which would be of particular interest to big business customers and financial institutions. WorldCom's UK turnover was modest but rising. Revenue generated by calls-to-mobiles accounted for only a very small proportion of this. WorldCom did not have a major involvement in mobile telephony and did not see itself as being in direct competition with the MNOs.

9.214. WorldCom drew attention to the structure of the mobile telephony market and the undesirable effects of the current level of termination charges. These gave rise to disbenefits, including the inhibition of competition and less choice. Vodafone and Cellnet enjoyed strong market positions with SMP and there was little evidence of competition between them. Jointly they had bottleneck control of access to some 80 per cent of mobile customers. With the advent of Orange and One2One new connections to mobile were now roughly equally divided between the four MNOs, but Vodafone and Cellnet had the vast majority of business customers, for whom the cost of switching would be significant although this cost would reduce with the introduction of MNP.

9.215. Any discrimination against other operators was a competitive abuse and WorldCom drew attention to such discrimination by Vodafone and Cellnet that had occurred and could still be continuing. First, at one point in 1997 Vodafone was charging WorldCom higher rates for direct termination (23.3 ppm) than it charged BT and CWC (19 ppm), although the figures might be explained by different traffic patterns. There was also hearsay evidence that Vodafone and Cellnet offered retail rates to some major customers whose volume of calls-to-mobiles justified direct connection to their networks, and to some other smaller resale operators, which were lower than the termination rates available to WorldCom. This was tantamount to predatory pricing.

9.216. WorldCom also noted that CWC was reported as agreeing to new higher termination charges from August 1998 with Vodafone and Cellnet in return for more favourable terms for other parts of its business. This was clearly not on offer to WorldCom. It also assumed that BT's earlier agreement to the same rates was part of a wider package deal not available to others. This constituted discrimination against WorldCom and presumably other operators. WorldCom said that such behaviour was anti-competitive and against the interests of the consumer.

9.217. In October 1994 MFS and other new operators were able to send voice calls to the USA over international private leased circuits supplied by BT or Mercury. Since the introduction of international voice resale, MFS and subsequently WorldCom, in common with others, had been able to use connections through the USA to many other international destinations. In the case of mobile traffic, it was far cheaper to send calls to UK MNOs via the USA than to connect direct via BT. A number of operators including WorldCom tromboned mobile traffic via the US fixed network to the UK and some other parts of Europe. There were price benefits to the consumer, but some disbenefits in the

form of delay, a degree of echo and some loss of functionality. This form of tromboning was significantly different from normal rerouting when particular routes were overloaded. As far as UK national calls-to-mobiles were concerned, all the disadvantages of tromboning were avoidable, because the sole reason for the tromboning was the economic distortions resulting from a combination of high UK interconnection rates levied by the MNOs coupled with the current International Telecommunications Union international settlement system.

9.218. WorldCom said that the determination by the DGT of the rate to be charged by Vodafone to Mercury was a milestone. However, it was based on fully allocated historic costs, and this approach had a distorting effect because of the rapidly reducing costs of replacement telecommunications equipment and because of the large potential economies of scale. WorldCom said that there was no simple relationship between the unit costs of a mobile network and those of a fixed network, as the cost build-up was structurally different. The mobile network was likely to have lower unit costs faced with a widely spread geographical area and modest traffic densities, while the fixed network was likely to be more cost effective in high traffic density urban situations. Structural differences were also significant between fixed networks of different architecture. The multiple SDH loop technology used by WorldCom was suited only to large customers and multi-occupancy business premises. On the other hand, star-type networks remained far more economic in a general service environment. It was possible that the unit costs of the MNOs would be higher than those of FNOs even in the longer term. But even so, it was clear that their current termination charges were substantially too high in relation to cost, even on a fully allocated basis. LRIC pricing, which WorldCom favoured, would lead to significant reductions. A similar model to that applied by the DGT to fixed networks needed to be applied to mobile networks. It agreed with the DGT that MNOs did provide a distinct 'access' service and also agreed that handset subsidies and other discounts and incentive payments should not be taken into account in determining termination charges. It supported the idea of uniformity of termination charges to the four MNOs. This would reduce customer confusion, particularly when MNP was introduced.

Retailers

John Lewis Partnership

9.219. John Lewis gave evidence as an independent retailer of mobile phones. It said that it had 23 department stores, of which 21 sold mobile phones, and two of its supermarkets also sold mobile phones. John Lewis stocked any brand it felt would appeal to its customers. It was not tied to any particular network and dealt with Vodafone, Orange and One2One. It had offered Cellnet in the past but was currently concentrating on the Vodafone network in addition to One2One and Orange. John Lewis had been selling mobile phones for some six years, that is since they had been available to the public through non-specialist retailers.

9.220. John Lewis said that mobile phones made a small contribution to its total turnover. Mobile phones were less profitable than both electrical goods generally and all product groups taken together. John Lewis did not include its business in pagers as part of its mobile phones business. It bought pagers from various manufacturers for resale and had no further involvement; their usage was a matter of arrangement between the owner of the pager and the service provider. From John Lewis's point of view this was similar to its sale of handsets to be used on the Orange and One2One networks. The handsets were sold to the customer who signed up with the network concerned and John Lewis had no further interest in the arrangement.

9.221. Most of John Lewis's mobile phone revenue came from Vodafone, where it had an ongoing interest in the transaction as the phones were usually sold inclusive of 12 months' rental. At the time of handset purchase the customer signed up to a 12-month contract with Vodafone, and the necessary credit checks were undertaken by Vodafone at the time of purchase. The 12-month contract for which the customer paid in advance included a certain number of free minutes, usually about 20 a month, but different packages with greater call time included were available. The customer's contract was with Vodafone and questions of non-payment of bills etc were a matter for Vodafone. John Lewis said that

it had no further role but received an ongoing commission, including a commission on calls beyond the initial 12-month period. Similar but not identical arrangements were available to customers at competitors' stores at comparable prices.

9.222. John Lewis said that it was difficult to break down its revenue into its various components. The commission paid by Vodafone varied from phone to phone and according to the contract. Commission varied from £30 up to about £100.

9.223. It was competing with other retailers in selling mobile phones. It had a strong customer base and a lot of people would trust it when it came to tricky merchandise. In competing with other retailers, John Lewis had developed a package with Vodafone including handset and 12 months' line rental which it believed appealed to its customers. If the customer was genuinely disenchanted with the agreement, John Lewis said that it would take the mobile phone back. The way it sought to attract customers was through a combination of a high level of informed service coupled with objectivity and independence.

9.224. John Lewis said that it concentrated on Vodafone because by and large it seemed to be the most helpful and supportive in signing up customers and tended also to be the most innovative of the MNOs. It could take up to an hour to do the credit checks when a new customer was being signed up and John Lewis's experience was that Vodafone tended to be better than Cellnet in dealing with these matters. It was not the John Lewis approach to chop and change between operators on a short-term basis, particularly as the market was so competitive and fast moving. In terms of overall turnover, three-quarters came from Vodafone customers, with the balance more or less evenly split between One2One and Orange.

9.225. John Lewis said that it purchased handsets direct from all the main manufacturers; it stocked Ericsson, Nokia, Sony, Panasonic, Motorola and Philips handsets. It was not tied to any manufacturer and its range was determined by price and quality.

9.226. John Lewis said that its staff were able to offer a lot of advice about mobile phone purchase, particularly about the relationship of tariffs to patterns of use, so that customers got the deal best suited to their requirements. It could take quite a long time to work a customer through a purchase. John Lewis did not offer prepaid and pay-as-you-go packages, as these were small sellers and did not seem likely to appeal to its customers. Customers invariably asked about the cost of calls and the range of handset use, but rarely about the cost of calls-to-mobiles, which John Lewis described as a 'dark area'. People were unaware that they paid for failed calls to mobiles. John Lewis's standard display material was necessarily concise and covered basic tariffs, monthly line rental, and free call minutes, but made no reference to the cost of fixed-to-mobile calls.

9.227. John Lewis said that it was concerned above all with customer satisfaction. Customers did not seem aware of or concerned about the cost of calls-to-mobiles. It did not think that the future would see a convergence of pager and mobile phone technology and usage. The key difference was that customers planned to hold conversations on phones. On mobile phones, customers were sensitive to the cost of the basic package, ie basic line rental plus the call charge, and also to the amount to be paid up front. Customers were probably aware that commissions were paid to retailers, which subsidized handset costs, and would expect to see a compensating reduction in line rental or call charges. Cellnet and Vodafone would probably like to get away from the present arrangements towards a sensible pricing structure, but they were fighting head-to-head for market share and at the present formative stage of the market neither dared to move before the other.

9.228. John Lewis had a different view of promotional activity from most retailers. It believed in straightforward, simple pricing as the best way of retaining customer loyalty. At present complaints were few. The phones were very reliable, the failure rate was negligible and network dissatisfaction was low. The most frequent ground for complaint was probably coverage.

9.229. Dissatisfaction, where it existed, would lead to churn. But the main cause of churn was the lack of subsidies in the second year which meant that it was cheaper to change after 12 months, and in

doing so the customer had the benefit of the latest handset. Handsets had got smaller and more reliable with longer battery life over recent years, but now technological developments were becoming less significant and fashion changes were becoming more in evidence.

9.230. Vodafone was happy to see customers upgrade their tariff. There had, however, been problems when Vodafone users wished to move from their present contract after 12 months to a new one with a new handset and a further subsidy. Vodafone sought to discourage this continual upgrading even though it did not contravene the basic contract being offered by John Lewis. John Lewis had on occasion had to press Vodafone on this to get the customer signed on a new contract.

9.231. John Lewis said that the Vodafone network provided widespread roaming facilities overseas, whilst those on Orange and One2One were more limited. People using these networks tended to be modest users. If usage was mainly limited to within the M25, One2One provided a very good deal. What was best for the individual customer depended on his pattern of usage, ie amount of calls, when these were made and where these were made to. The tariff structures of the MNOs were complex and direct comparisons were difficult. John Lewis helped customers in this. The tariffs had improved slightly with, for example, the off-peak time much more standardized between operators, but further simplification would be a great step forward. For the future, John Lewis saw the mobile phone becoming cheaper or as cheap to use as the fixed phone. This would transform the market. A single phone for both home and mobile use was a real possibility. A hybrid version was due to appear later this year, and BT had already introduced its 'OnePhone'. All this pointed to a growing convergence of the fixed and mobile markets. It was quite likely that the mobile packages would 'unbundle' and retailers would simply sell mobile phones leaving the subscriber to determine his own line and rental arrangements.

9.232. John Lewis thought the MNOs would like to get out of the present subsidy arrangements and compete head-to-head on tariffs. It would be highly desirable if the cost of fixed-to-mobile calls were not just regulated but harmonized as well, to remove anomalies in, for example, what was regarded as peak or off-peak. This would make tariffs more transparent. The most likely scenario, with such a framework in place, was that tariffs would come down year on year as a consequence of competition. The price of calls was coming down all the time. Even where line rentals had not come down, the cost of use had done so because of the increase in allocated free minutes. It was easy for MNOs to give free airtime as the marginal cost to them was low.

Handset manufacturers

Ericsson (UK) Ltd

9.233. Ericsson gave evidence as a manufacturer of handsets. The company said that it was the second largest handset manufacturer in the UK, behind Nokia, with a market share of about 30 per cent on GSM and 17 per cent on PCN. Together the three main manufacturers of handsets, Nokia, Ericsson and Motorola, had about 70 per cent of the UK market. Ericsson said that it also manufactured and supplied mobile network infrastructure equipment, and was involved in supplying Vodafone, Cellnet and One2One with equipment. On mobile infrastructure supply it had over 40 per cent of the global market and around 40 per cent of the UK market.

9.234. For handsets Ericsson said that the UK was the second largest market in Europe. The UK mobile market was changing rapidly and the arrival of One2One and Orange had provided increased competition. The market was growing rapidly and tariffs had changed, with many options available. There were now about 9.6 million subscribers in the UK, about 16 per cent of the population. Handsets were developing also with an increasing range of features. Products were becoming cleverer, more competitively priced and more readily available. When Vodafone and Cellnet began in 1985 with Analogue ETACS systems they were not allowed to sell direct to the end-user. Since Orange and One2One were launched, this DTI restriction on selling direct had been removed. Vodafone and Cellnet bought out a lot of the service providers that were originally independent. Ericsson said that it still had strong links with Vodafone and Cellnet through these various service providers and also supplied direct to dealer and retailer outlets such as The Carphone Warehouse and Dixons. Ericsson

said that Orange and One2One did not use service providers. Their route to market was directly through dealers and retailers.

9.235. Ericsson said that its handset business was structured as a separate unit. It had 50 people and had grown from five people five years ago. Ericsson was a Swedish company and began in the UK in 1992 when GSM was just about to launch. Its first handset sold in the UK was an ETACS phone and then as GSM developed it sold GSM products. Its growth as a handset manufacturer had been dynamic.

9.236. Ericsson was a 100 per cent UK-focused company, but the Group operated a global pricing policy and prices, which were based on the Deutschmark, were the same in all markets apart from the effect of fluctuating exchange rates. Ericsson said that there was a big move in the UK market towards prepay, and this had happened far quicker than anyone had predicted. Prepay meant that you did not have to have a 12-month contract. The user paid more for the handset but was free to buy airtime as and when he needed it. Ericsson thought that in 1999 some 50 per cent of the UK market would be prepaid.

9.237. Ericsson said that at the outset its traditional route to market had been service providers. In 1993 there were about 30 service providers in the UK, of which it regarded seven or eight as key operators. Ericsson still dealt with these companies. But it had also developed sales to retail and wholesale outlets. There were now about 2,000 dealers in the UK and these were an important source of business. Some 50 per cent of the mobile market was accounted for by independent dealer channels. Overall Ericsson said that about 30 per cent of its business came from the three major wholesalers with which it dealt, 30 to 40 per cent from retailers and the balance from service providers. Its pricing policy was the same to each, with purchasers getting a better price according to the number of handsets purchased. Ericsson did not provide handset subsidies, which were a matter for the retailers, wholesalers and service providers and were passed on to the customers. The number of service providers was reducing because of the vertical integration that was occurring with Vodafone and Cellnet. Ericsson said that margins were very tight in the very competitive service provision environment. ISPs had to be big and well capitalized to survive.

9.238. The handset subsidies given to the customer were in some cases very large. Interestingly there were no subsidies in Italy, the largest-growing European market, where prepaid dominated. Subsidies had in the early days been used to stimulate demand and they were found in Germany and France as well as the UK.

9.239. Ericsson estimated that the UK market in 1998 would be just over 7 million new handsets, these new handsets representing both new customers and existing customers both switching and updating their mobile phones. Users tended to replace handsets every 12 to 18 months as technology moved on and consumers became increasingly fashion conscious. Subsidies appeared to be declining but this did not seem to be having a significant effect on the market, where prepay was developing rapidly. Any subsidies associated with prepay were minimal. Ericsson said that prepay was opening up a new market in mobile telecommunications. Ericsson was a major global producer of handsets with a wide portfolio of products aimed at the fast-changing markets, for example customers were now looking for coloured phones. When customers changed mobiles, Ericsson's hope was that they stayed with Ericsson but upgraded. If somebody moved from one network to another, Ericsson liked to think they would still keep an Ericsson phone. If they did so, in upgrading they were still able to use their various Ericsson accessories such as car kits. Ericsson phones could be used on all networks, so the company did not see MNP having a major impact on its business. The company was now bringing out dual-band phones which could work on GSM 900 and GSM 1800 networks. They were identical in appearance. The technology was also available to allow a handset to work on both GSM bands. It was effectively the same technology as allowed a handset to roam on a foreign network. Ericsson thought that other manufacturers besides itself would soon be launching new dual-band handsets. At present Vodafone and Cellnet had far more roaming agreements around the world but dual-band handsets would put One2One and Orange on an equal footing with the GSM operators in allowing their customers to roam on networks outside the UK. Orange and One2One now had around 95 per cent coverage of the population of Great Britain.

9.240. Ericsson explained that in the UK a SIM card linked the handset to one of the four networks. It would be technically possible for the SIM card to be changed by the user of a dual-band phone, though such features would mean a significantly more expensive instrument. SIM cards were a matter for the operators and were not something in which Ericsson became involved. Each MNO programmed into the SIM card the network to be used. Ericsson saw its role as providing the means by which the customer could have access to a mobile network, and then to provide a wide choice of phones in response to customer wishes. It was not involved in tariffs, billing and so on.

9.241. Ericsson said that initially dual-band handsets would be quite expensive to produce but that costs would reduce with economies of scale. The dual-band handset's appeal was its overall performance and the fact that it was feature rich. The demand was market driven. There were anything up to 15 or 20 manufacturers in the UK all trying to get market share. The dual-band handset did not have disadvantages in terms of weight or size. Battery technology was improving all the time. The aim was to provide better value for money year on year.

9.242. Ericsson saw the future convergence of fixed and mobile telephony as inevitable. BT had brought out its OnePhone. The convergence required mobile speech quality to be on a par with fixed phone speech quality. Enhanced digital technology was bringing this about.

9.243. Ericsson said that pagers were an interesting separate market from mobile handsets. It was doubtful if they had a long-term future, especially if the prepay market really took off and production costs came down. It was significant that the majority of people who had pagers in the UK also had a mobile phone, at present using the pager and the mobile phone to complement one another. For the future, the pager perhaps represented a niche market.

9.244. The rate of growth of the UK mobile market was about 30 per cent a year and this rate of growth was likely to be maintained for the next few years. There was 16 per cent penetration of the population now, and by the year 2000 this could be up to 20 per cent with 12 to 13 million subscribers. Even when in time the market was saturated, people would still be purchasing handsets perhaps still changing them every 12 to 18 months. Handsets would become cheaper for the consumer. Ericsson said that its prices would be as competitive as they had to be. Consumers were becoming smarter and looking for value in a phone. Prepay was an important feature in Ericsson's strategy for the future. At the moment with prepay it was not possible simply to switch networks, but there was no reason why, say, one operator's SIM card could not be exchanged for another, using the same handset, at the end of a 12-month contract.

Sony United Kingdom Limited

9.245. Sony United Kingdom Limited (Sony) said that the company was a distributor of Sony-branded cellular mobile phones, a provider of cellular services and a user of those services.

9.246. Sony believed that a substantial proportion of the revenues of Cellnet and Vodafone were attributable to charges made on incoming calls to mobile phones. It was unfair that a call from a fixed phone to a mobile phone was more expensive than a similar call in the opposite direction.

9.247. The MMC should consider the charges levied by Cellnet and Vodafone to 'personal telephone numbers' and other 'virtual' platforms. These charges had recently been increased by around 30 per cent. Such increases could not be justified. Sony said that Cellnet's and Vodafone's charges should be competitive, directly related to cost and should not discriminate between fixed or mobile phones in terms of either the origination or termination of calls. It was also important to ensure that any restrictions on charges for fixed-to-mobile calls did not lead to increases in charges for outgoing calls.

Telecommunications Advisory Committees

Advisory Committee on Telecommunications

9.248. The Advisory Committee on Telecommunications (ACT) said that the mobile network was not understood by consumers and calls-to-mobiles were expensive, and, due to the growth in the market, formed an increasingly high proportion of callers' phone bills. The caller had no control over the cost and had no choice over which network to use. There was no competitive pressure on MNOs to reduce call termination charges and this increased retail charges for fixed-to-mobile calls.

9.249. MNOs had done nothing to increase customer awareness of the cost of calls-to-mobiles and most people phoning mobiles had no idea of the cost. Callers might not even know, given that many different dialling codes were used by the mobile networks, that they were in fact calling into a mobile network. With this lack both of publicity and competition, there was no incentive for mobile users (the called party) to consider the costs faced by people calling them. The cost of changing MNO and the lack of MNP presented barriers to mobile users who might want to change operator in order to reduce costs for their callers.

9.250. The ACT said it was possible that competitive pressures on retail charges for fixed-to-mobile calls could be introduced by moving to a called-party-pays system. The caller could pay charges equivalent to those levied for calls to fixed networks, with the mobile user (the called party) paying the difference in termination costs. However, the ACT said that it could not support such a change as it gave the called party absolutely no control over his or her costs.

9.251. The ACT had doubts about the likelihood of competition emerging quickly or at all in retail charges for fixed-to-mobile calls, so believed firmly that the preferred solution was for retail charges for fixed-to-mobile calls to be controlled to ensure that they were cost reflective. The ACT supported the DGT's view that there should be a single retail price for calls to all mobile networks.

9.252. Greater publicity for fixed-to-mobile charges was of benefit to consumers, and was an important consumer protection measure given the significant extra cost over and above the better-known costs of calls to fixed networks. As harmonization would considerably simplify publicity and enhance consumer awareness, and given the lack of competition in this area, the ACT also strongly supported harmonization of these charges.

9.253. The ACT said that there was considerable lack of awareness about Vodafone and Cellnet charging for unsuccessful calls. Consumers found the practice unacceptable. Vodafone and Cellnet should realize that they were part of the wider telecommunications market and that in that market customers had an established perception and firm expectation that such calls should not be charged for. Such charges should be disallowed and the costs spread over all subscribers, as was done on the fixed network. The ACT said that it found it difficult to believe that as many as 25 to 35 per cent of calls-to-mobiles were unsuccessful as was suggested by Vodafone. This may have been the position when mobile telephony first started, which might explain the original decision to charge for unsuccessful calls, but the percentage of failed calls had dropped significantly since that time. An alternative approach would be for all mobile networks to provide a service of value, such as a voicemail service, so that all calls could be successful.

Northern Ireland Advisory Committee on Telecommunications

9.254. The Northern Ireland Advisory Committee on Telecommunications (NIACT) said that it had concerns about BT's charging mechanism and the fact that BT's charges for calls to Orange and One2One were different from those to Cellnet and Vodafone. In the NIACT's view the same charges should be levied to all mobile providers.

9.255. The NIACT was also concerned about the lack of public awareness of the cost of calls-to-mobiles. Providers made little attempt to make the public aware of the cost of such calls and there was a lack of public awareness of the costs incurred and of the fact that a charge was levied to listen to a recorded message or when there was an engaged tone. The NIACT said that there was absolute confusion on the actual cost of a handset and on the multitude of rates offered. Consumers did not recognize that they were in fact making a call to a mobile, did not recognize the costs of doing so and were unaware that they were charged at premium rates even if the call was unsuccessful. As part of its market research in Northern Ireland it had asked consumers to estimate the price of a 5-minute call to a mobile. The results suggested that 43 per cent of the public had no idea what the cost of a call to a mobile was. In particular the increasing number of old and disabled people who wished to use mobiles could not be expected to understand the tariffs with which they were faced. Also mobile users did not expect to be charged for calls to 'freephone' numbers. Consumers should only pay for successful calls with the cost of unsuccessful calls being spread over the cost of successful calls.

9.256. The NIACT said that the cost of calls-to-mobiles was too expensive. This was a growing area, but the mobile phone companies were operating against the public interest in restricting both economic growth and social inclusion. Termination charges were excessive, and should be in the region of 11 to 12 ppm, not the 25 ppm currently charged. There was a lack of competition in the market for calls-to-mobiles and the prices of these calls should be regulated. There had been strong pressure on the DGT to include them within the BT basket of price controls but he had not done so. The NIACT received an avalanche of complaints and queries about bills including charges for calls-to-mobiles.

9.257. The NIACT said that there remained the need for a coverage survey in Northern Ireland where poor coverage remained a problem. Both Vodafone and Cellnet had refused to finance such a survey.

Scottish Advisory Committee on Telecommunications

9.258. The Scottish Advisory Committee on Telecommunications (SACOT) said that although it was in no position to give an informed response on the detail of the cost structures of Vodafone and Cellnet, as a representative of consumers it felt that the charges for calls to mobile phones and from mobile phones were higher than they should be and higher than they were in most other countries. The SACOT was worried at the lack of information available to consumers, and said that there was evidence that persons calling Vodafone numbers were unaware of some of the circumstances that could result in a charge being levied such as being answered by a recorded message or being diverted to a fixed phone. With some numbers, callers had no way of knowing whether they were calling a mobile or a fixed phone.

9.259. The SACOT said that it was also concerned about arrangements between operators that could limit competition. In this connection it mentioned its belief that CWC traded favourable terms for leased lines against higher interconnect charges for termination of calls on the Vodafone and Cellnet networks. The SACOT said that there should be transparency in relation to charges levied to and from mobile phones. MNP should not cause charges to be higher than they would otherwise have been. The SACOT supported the DGT's views on the level of charges for calls-to-mobiles, and the referral to the MMC.

Welsh Advisory Committee on Telecommunications

9.260. The Welsh Advisory Committee on Telecommunications (WACT) said that retail prices for calls-to-mobiles were much higher than was reasonable based on the costs and rate of return that the DGT had estimated. The conclusions to be drawn were that these retail prices were excessive and as

there was no evidence of competition in this area, they should be regulated. This regulation should be based on the costs of the most efficient operator and also have regard to efficiency gains year on year.

9.261. Telephone users did not appreciate that calls-to-mobiles were more expensive than calls to fixed lines. Few people could recognize that they were in fact calling a mobile number. Also few telephone users realized that they were charged for unanswered calls to mobiles. The WACT did not believe that this should be allowed, although it was reasonable to raise a charge when the call was answered by a message-taking machine. Nor did telephone users realize that they were charged when calls-to-mobiles were diverted to the fixed network. This charging practice should be stopped.

9.262. The WACT said that it was increasingly common for small businesses to use mobiles and to advertise their numbers to potential customers who had no choice but to call the mobile. There was no competitive pressure to reduce these charges since the caller's choice of supplier had little effect on them. The total cost of calls of this type was large and growing.

Business Advisory Committee on Telecommunications

9.263. The Business Advisory Committee on Telecommunications (BACT) said that it had a statutory duty to advise the DGT on the interests of SMEs. It said that the four MNOs comprised an oligopoly. Further market distortions could arise because of cross-holdings between fixed and mobile networks (BT had a stake in Cellnet; C&W had a stake in One2One), and because the FNOs were both suppliers to and customers of the MNOs. These factors were likely to operate against the public interest.

9.264. Consumers were being exploited by the high prices charged for calls-to-mobiles. In the UK there was no charging incentive for the mobile phone user to take into account the cost of incoming calls when choosing a network, and so there was little motivation for the networks to compete on incoming call charges. A caller to a mobile phone could not choose the terminating network.

9.265. The BACT said that it agreed with the DGT that the charge to the caller should not vary according to the network of the called party. This need not rule out competition in respect of incoming call charges. The calling party should be charged at a rate no less than the cost of national calls to fixed phones and no more than the cost of calls to a 'personal' number. Additional charges levied by MNOs should be paid by the called mobile phone subscriber. This would provide an incentive for mobile phone users to take all charges into account when choosing a network, and would put pressure on the MNOs to keep their surcharges as low as possible. The BACT said that there should be no charge for unanswered calls to mobile phones except where the caller had an opportunity to leave a message. Calls which were diverted, whether to a fixed phone or to another mobile, should not incur charges until the call was answered.

9.266. The BACT said that its own cost of capital calculations suggested that the figure for Vodafone was significantly lower than the range quoted by the DGT.

9.267. The BACT also drew attention to the anomaly of network roaming whereby subscribers were able to use their mobile phones on another network abroad but were unable to use them in the UK except on the subscriber's own network.

Advisory Committee on Telecommunications for Disabled and Elderly People

9.268. The Advisory Committee on Telecommunications for Disabled and Elderly People (DIEL) said that it was one of the six Advisory Committees to OFTEL. It represented a significant and

growing segment of the telecommunications market. This segment would benefit more than other customers from cheaper and easier access to mobile phones.

9.269. The DIEL said that the experiences of its members suggested that access to mobile phones was inhibited by cost and by the complexity of the prices charged by the operators. Lower prices and clear pricing policies would increase demand. Mobile phones provided added security, particularly for the vulnerable, when out of doors. A major barrier to increased ownership was the fear of hidden and unexpected costs into which category the DIEL placed charges for calls between different types of operator, charges for unanswered calls-to-mobiles and charges made for diverting unanswered calls. It hoped that the MMC inquiry would cause mobile phone charges both to fall and to be made clear to consumers.

Purbeck & East Dorset Telecom Advisory Committee

9.270. The Purbeck & East Dorset Telecom Advisory Committee said that it was in the public interest that charges by MNOs should be strictly controlled. The regulatory body should be empowered to impose punitive fines for flagrant breaches of its regulations. Public users should be encouraged to report such breaches. Charges should be kept under constant review by the regulatory body. There was a case for making the control of charges mandatory throughout the EU.

Other consumer interests

Consumers' Association

9.271. CA said that it was an independent consumer organization with over 700,000 members. It had had a long-standing interest in competition and regulatory issues affecting telecommunications. It stressed the need for measures to ensure effective competition, supplemented with regulation where competitive forces were either weak or absent, as the best way of ensuring quality, value and choice for telecommunications customers. This was crucial in considering the cost of calls to mobile phones, as competitive forces were likely to be severely attenuated in the provision of such services. Recognition of the special character of call termination meant that charges for such services on BT's fixed network were regulated as a separate basket of services, outside the general network charge control. With the exception of the 1991 'Mercury' determinations, call termination on mobile networks had remained unregulated.

9.272. CA said that most fixed-link subscribers needed at some time to call a mobile number. It was concerned at the high cost of calling mobile phones, particularly those connected to the Vodafone and Cellnet networks. The two principal issues to consider were those of customer awareness of the high charges, and, most importantly, the different elements of costs involved in calling a mobile number from a fixed network. CA said that the lack of customer awareness of the cost of calling mobile numbers operated at a number of levels. First there were the generally high costs involved, secondly the difference in the charges levied by Vodafone and Cellnet compared with Orange and One2One, and thirdly was the fact that, contrary to established practice on the fixed networks, Cellnet and Vodafone both charged for incoming calls met by recorded announcements and for unanswered diverted calls.

9.273. CA said that the provision of better information for callers to mobiles, while desirable, did not remedy the consumer detriment resulting from the current charging structure. There were circumstances in which a call to a mobile phone was unavoidable. The high charges for incoming calls to the Vodafone and Cellnet networks were a function of two factors: the high charges for terminating calls on those networks plus BT's retail uplift. The level of termination charge in turn depended on the way the different parts of the mobile business were defined and how different types of cost were allocated.

9.274. CA said that because of lack of competition at both the wholesale (call termination) and retail levels, charges were substantially out of line with costs for each of the different components of calls made to mobile networks. This resulted in an allocatively inefficient provision of such services, and moreover the current charging structure was likely to entrench these inefficiencies. Both the current call termination charges levied by Cellnet and Vodafone, and BT's retail retention in relation to calls delivered to these operators, acted against the consumer interest, and possibly indirectly against the public interest of greater competition in the wider mobile phone market.

9.275. CA said that for the purpose of determining call termination charges there were three clearly identifiable parts to the mobile network business: access, call origination and call termination.

9.276. CA was not convinced that service provider incentive payments were anything other than a form of deferred revenue to MNOs, recovered through rental and call charges. If there were any costs to the MNOs in providing incentive payments they should be viewed as part of the access service, and should not be recovered through the charges for incoming calls to the mobile networks. CA could see no relationship between marketing expenditure and the volume of incoming calls, so this should be allocated primarily to access, and to a lesser extent to outgoing calls. Marketing expenditure should not be allocated to the cost of incoming calls.

9.277. CA suggested that LRIC rather than FAC should be used in determining charges for call termination on mobile networks. This methodology was accepted for fixed networks, and would ensure that callers to mobiles benefited from technical progress in network provision and also did not pay for past inefficiencies.

9.278. CA said that there should be the same charges for terminating fixed-to-mobile calls on the Vodafone and Cellnet networks, and by extension the same retail tariffs for such calls. This would help avoid customer confusion after the transition to MNP and would also introduce an element of comparative efficiency between operators.

9.279. In its analysis of the market, CA pointed out that for calls-to-mobiles and call termination generally, the caller had no choice but to call the number of the mobile network to which the call recipient had chosen to subscribe. The option of calling a person's fixed line was likely to be an ineffective substitute for calling a mobile as the primary purpose of owning a mobile was to allow the subscriber to receive calls in circumstances where he was not otherwise contactable.

9.280. In terms of supply-side substitution, or the ability of other suppliers to provide call termination services, this could operate only if the cost of calling a mobile were a significant factor in the subscriber's decision on which network to join in the first place. CA said that this factor was unlikely to constrain in any significant way the call termination charges set by the MNOs. Subscribers' choice of network was likely to be primarily influenced by the direct costs to themselves rather than by the costs borne by people calling them.

9.281. CA concluded that it was appropriate to define a separate wholesale market for call termination services on each of the mobile networks. The implication of this was that Vodafone and Cellnet were able to set charges for call termination without reference to any significant competitive forces.

9.282. In the market for the delivery of calls to the mobile networks, BT was by far the dominant operator with 78 per cent of the market in terms of call minutes and 78.5 per cent in terms of call revenue in 1996/97. BT's share of residential calls-to-mobiles was 89.1 per cent in terms of call revenue, compared with 72.8 per cent for business calls. This difference was explained by Mercury's (C&W's) significant foothold in the business market. As calls-to-mobiles figured more prominently in the calling patterns of business users and business customers probably had a better awareness of the charges involved, CA suggested that calls-to-mobiles by residential and business users might be viewed as separate markets.

9.283. CA also drew attention to the web of vertical relationships which characterized the wholesale and retail markets for calls-to-mobiles. BT, the dominant retail operator, was part-owner of

Cellnet, while One2One was part-owned by C&W. BT as part-owner of Cellnet had little incentive to wield its monopsony power to negotiate lower termination charges.

9.284. CA said that a reason for particular concern about the high cost of calls to the Vodafone and Cellnet networks was because these operators were the market leaders in terms of subscribers. This meant that the majority of calls-to-mobiles could be expected to terminate on these high-cost networks.

9.285. In establishing an appropriate level of charges for call termination, CA said that there were three issues to consider:

(a) the way in which the different parts of the mobile business should be defined for charge determination purposes;

(b) the way in which the various costs should be allocated between these different parts of the business; and

(c) the appropriate cost methodology, ie historic cost-based measures or forward-looking LRIC.

9.286. Vodafone and Cellnet argued that the mobile business consisted of only two parts or services—outgoing calls and incoming calls—to which all costs should be allocated. Like OFTEL, CA believed it was logical to define three parts to the mobile business: outgoing calls, incoming calls and access. Access represented the ability to make or receive calls and was valuable in itself to subscribers. Some costs involved in maintaining the network were clearly related to the provision of access.

9.287. On the allocation of costs, CA said that service provider incentive payments were simply a form of deferred revenue to the MNO. There was no logical relationship between the provision of a handset and the volume of incoming calls to that handset. Any costs involved in incentive payments should be allocated to the access business. Marketing expenditure should not be included in call termination charges. The costs of SIM cards, without which it was not possible to operate a GSM handset, should be included in the access business. Customer care costs were related to subscribers and should not be included in incoming call costs. The basis for call termination charging should be LRIC rather than FAC. Unlike FAC charging, LRIC was a forward-looking approach which ensured that past inefficiencies were not included in interconnection charges. Since it was based on the replacement cost of assets rather than their historic costs, it also ensured that users benefited from cost-reducing developments in network technology.

9.288. The charges for terminating fixed-to-mobile calls on the Vodafone and Cellnet networks should be the same, and by extension the retail tariffs for such calls should also be the same.

Telecommunications Managers' Association

9.289. The Telecommunications Managers' Association (TMA) said that it was a professional association with over 1,670 individual members concerned in a senior capacity with the management and operation of telecommunications services in commerce and industry. Employees of equipment manufacturers and service providers were not admitted to membership. The TMA was concerned with the interests of the business consumer, particularly quality of service, pricing and the availability of choice.

9.290. The TMA said that there were distortions in the mobile phone market caused by high prices. A growing number of business consumers were finding ways of reducing their bills for calls-to-mobiles, by, for example, obtaining service from one of the new entrant fixed-line operators and 'tromboning' calls out of the UK and back again into the UK mobile network. The amount of tromboned traffic was not large, but the practice suggested that revenues that would otherwise have gone to the domestic telecommunications industry were being diverted to foreign operators and that the true cost base on which interconnect agreements were based was probably very much lower than

claimed. Consumers had little or no protection from the high pricing and lock-in features of the tariff systems adopted by the mobile sector. These acted to restrict consumer choice and freedom. The cost of calls-to-mobiles from within a company's network could often not be readily identified, which limited its ability to control such costs. High prices for calls-to-mobiles were acting as a barrier to the development of electronic trading and they also served to distort network design and hence the development of mixed mobile/fixed networks within business and commerce.

9.291. The practice of charging for calls-to-mobiles that were not completed was iniquitous. The cost incurred in an unsuccessful call attempt should be regarded as an operating overhead and spread over the entire customer base. The practice of charging for uncompleted calls effectively enabled the mobile industry to make a greater return on investment by not completing calls than it could by connecting them. Charging for uncompleted calls should be stopped, apart from the situation where the called party had chosen to use a diversion facility. In this case the caller should have the assurance that no charge would be made unless the call was answered by the divertee.

Users

Bass PLC

9.292. Bass PLC (Bass) said that it was a UK-based company with some 70,000 staff worldwide. It operated some 3,300 mobile phones across the Cellnet and Vodafone networks, of which some 80 per cent were connected to Cellnet. The mobile market, in terms of GSM or analogue technology, was restricted to these two operators and interconnection between the fixed and mobile networks was almost exclusively channelled through BT regardless of the fixed network from which the call originated. These three operators enjoyed an effective monopoly where they, not the market, could determine price.

9.293. Bass said that as a major user of mobile phone services it had installed a direct connection between its own internal telephone network and those of the MNOs in order to reduce its costs. Despite the reductions achieved, call costs to mobile phones still seemed to be unacceptably high.

9.294. Bass said that business needs required MNOs to be more responsive to customer needs. In many cases the mobile phone had effectively replaced the fixed phone with the consequence that higher call costs were being imposed on UK business.

9.295. Bass said that it had found that the marginal cost of making calls via the existing BT fixed-line network far exceeded the average cost of installing and using its own fixed-line connection to the mobile network. This did, however, necessitate substantial installation costs. Bass said that such economies of scale were open only to large users of mobile phone communication. This suggested that the lack of competition in the area of fixed-to-mobile network connection had left a legacy of excessively high termination charges.

9.296. Bass said that there could be no justification for either Cellnet or Vodafone imposing a charge on the caller for unsuccessful calls, ie where the mobile phone was unavailable or engaged. Where a call to a mobile was diverted to an automatic message service the charge for the call should be met by the message box owner rather than the caller. The cost to the MNO of handling unsuccessful calls should be built into the overall costs of operating the network.

9.297. Bass said that although the MMC references specifically focused on the cost of calls to mobiles charged by Vodafone and Cellnet and BT's charges for calls to these networks, from the end-user's perspective it was unreasonable to differentiate between a fixed-to-mobile call terminating on an ETACS or GSM network and one that terminated on a PCN network. MNP would make it impossible for a caller to recognize on which network his call would terminate, even if he could do so today. It was therefore essential that call tariffs for calls to all four mobile networks were consistent with the current PCN tariff.

9.298. Bass said that it had no view on the actual costs incurred by Cellnet and Vodafone and how these compared with other MNOs. There was a need to strike a balance between actual costs and call charges which ensured a reasonable rate of return for the operator. It was not in the customer's interest that limits on call charges should impact unduly on operator profitability, particularly in view of future investment, but in Bass's view the proposals put forward by the DGT would have no such impact.

BAA Plc

9.299. BAA Plc (BAA) said that it was a major user of mobile phones with around 1,000 handsets in use by some 10 per cent of employees. For the nature of its business, security and reliability of service were its paramount concerns. It was a member of the DGT's Large Business Telecommunications User Panel. It had private wire arrangements with Vodafone and Cellnet and also made some use of One2One.

9.300. BAA said that it had a basic understanding of signalling and switching requirements which left it with a general doubt about the structure and level of mobile telephony charges. It should be cheaper for an MNO to terminate a call from a fixed network than one from another mobile since less infrastructure needed to be used, ie one radio channel compared with two. The national peak time call rate on BT was 6.73 ppm but MNOs' termination charges were double that, whereas they should be broadly the same or on engineering grounds slightly less.

9.301. BAA said that it regarded GSM and PCN technology as effectively identical and could see no reason for the major differences in call charges on the GSM networks as compared with the PCN networks of Orange and One2One. The technology employed was effectively identical. In fact with the smaller cell sites on 1800 MHz, costs were a bit higher on the PCN networks as there was more infrastructure to install. PCN networks suffered from the disadvantage of reduced coverage with fewer international roaming agreements compared with the GSM networks, which explained BAA's use of the latter.

9.302. BAA said that both Vodafone and Cellnet offered the facility for owners of PABXs such as BAA to have private wire access to their networks at rates below those charged by BT and other operators. Even so, these prices were too high since in carrying calls in this way the MNOs' costs were less than those incurred with an on-network call since only one radio channel was used.

9.303. These high charges were evidence of economic distortion and provided a window of opportunity for operators such as SmartCall which had negotiated advantageous arrangements with the MNOs and through a PABX installation to all four MNOs was able to undercut even the private wire rates available to companies like BAA. Arrangements of this sort allowed the user to make calls at approximately 9 ppm compared with 18 ppm over a private wire link even though significantly greater infrastructure, ie two radio channels, had to be used.

9.304. BAA did not see pagers as an alternative to mobile phones. As regards unanswered and diverted calls, it said that to be charged for them was an annoyance but it was not a major issue. It thought that unsuccessful calls-to-mobiles should be covered by the general costs of successful calls.

Sainsbury's Supermarkets Ltd

9.305. Sainsbury's Supermarkets Ltd told us that it fully supported moves to reduce the cost of calls-to-mobiles. It considered that the termination charges levied by the MNOs were excessive and that BT's retention on its network costs was too high.

Telecommunications Users' Association

9.306. The Telecommunications Users' Association (TUA) said that it represented UK users' interests at home and overseas and had about 1,000 business members of all sizes and from all sectors of the economy as well as a small number of private user members. It came into existence in 1964 and was a company limited by guarantee. It lobbied on behalf of its members to the DGT, the DTI and the EC, and also provided information, training and consultancy services. The prices of fixed-to-mobile calls were much too high and were a matter of concern. The national rate for calls-to-mobiles of 30 ppm compared with a cost of 6.8 ppm for calls terminating on fixed networks. It had taken the DGT an inordinate amount of time to address the issue, partly because of its complexity and partly because of the lack of co-operation of the MNOs and the main FNOs carrying the bulk of these calls.

9.307. Limiting the reference to just two of the four MNOs seemed illogical. Prices for calls-to-mobiles were not sensitive to competitive pressures. Both Vodafone and Cellnet had shown a total disregard for the consumer and had taken advantage of the general perception that these charges were due to the fixed carriers raising their prices for calls-to-mobiles.

9.308. The TUA made available the results of a random survey of some 50 of its members to which some 30 to 40 had replied. This showed that on average, while call minutes to mobiles made up less than 3 per cent of total call minutes in users' telephone bills, they accounted for 12 per cent of total call costs. The results of the survey also suggested that a call to a mobile network cost on average nearly five times the cost of a national daytime call via an FNO. 35 per cent of those responding to the survey said that the cost of calls-to-mobiles did deter them from making such calls, and 54 per cent said that restrictions on the use of mobiles were in operation in their companies. 19 per cent said that they had put in place alternative means of communication to limit the number of calls-to-mobiles. 12 per cent of those responding, mainly large businesses, had negotiated direct private wire access to mobile networks at preferential rates. In general, while users accepted that a premium had to be paid to meet the costs of roaming, they did not believe that the additional costs involved justified the rates now being charged.

9.309. The TUA said that it would have expected to have seen a much faster reduction in termination charges, given the growth of calls. Where private wire access to a mobile network was used by large corporate customers the charge per minute was as low as 6 to 9 ppm. The TUA said that its members were becoming increasingly aware of the cost of fixed-to-mobile calls, and felt that the MNOs had not reacted to market pressure in the way that FNOs had done. Vodafone and Cellnet had agreed with BT to bring down their termination charges consistent with the RPI–7.5 formula that applied to BT, but this had been done simply to pre-empt regulatory action. The TUA noted that Orange and One2One had raised their charges by 80 to 100 per cent in early 1997, something no company would have dared to do in a competitive market. The TUA also noted that this price rise coincided with Orange's flotation on the market and its consequent need to drive up revenue. The TUA suggested that the original prices charged by Orange and One2One would have been sufficient to cover their costs. The four MNOs were only really competitive at the point of handset purchase, as without MNP it was not easy to switch from one operator to another. Their pricing packages were all very similar, and price changes by one operator were quickly followed by similar changes by the others. The only clear differentiation on prices came from One2One's off-peak rates. The increase in call volume was producing increased profits and the TUA concluded that MNOs were taking excess profits from an area of business that was not sensitive to competition.

9.310. In practice there was little pricing competition across the market and no competition in the price of fixed-to-mobile calls. Even where there were ISPs, they did not compete on price. The price of fixed-to-mobile calls was determined by the MNO and the interconnecting FNO. The caller had no choice in the mobile network he called. The mobile network was a bottleneck.

9.311. The TUA said that it favoured the regulation of termination charges as the best way of dealing with the bottleneck monopoly. This would provide an incentive to operators to cut costs. It would also be necessary to regulate charges for calls from mobiles since without this the MNOs would simply seek to recoup revenue elsewhere rather than improve efficiency. Charges should be cost reflective and for this purpose costs should be LRIC-based. The form of regulation should be an

RPI–X-type trajectory for the period two to three years ahead. The TUA considered that if Vodafone and Cellnet were regulated, it would expect Orange and One2One to adopt similar charges. Neither Orange nor One2One was yet profitable so they had every incentive to maximize revenue.

9.312. The TUA thought that the current rate of growth of the mobile market, at 30 per cent a year, was probably the maximum it could handle, though it pointed out that this rate of growth in consumer connections did not mean an equivalent rate of increase in traffic. It deplored the practice of selling handsets at a heavily subsidized rate to stimulate market growth. If handsets were sold at their full price then the price of fixed-to-mobile calls would come down. One aspect of the subsidization of handsets in the main market was that business users who tended to have a longer-term commitment to mobile telephony were meeting some of the costs that should properly be met by consumers.

9.313. In considering the allocation of costs, the TUA said that it was reasonable to identify an access service provided by the MNOs in addition to the facility to make and receive calls, to which a large proportion of infrastructure costs should be assigned. Some marketing costs could be allocated to fixed-to-mobile calls but not any dealer incentives or handset subsidies. The TUA thought that there might be inefficiencies in the Cellnet network arising from the way that network was originally designed with marked overcapacity. Vodafone, in contrast, had started with a leaner network tailored to its call pattern. The TUA also commented that the cost of capital figure of 17.75 per cent proposed by the DGT for the MNOs seemed unnecessarily high bearing in mind that the BT network business operated on a 12.5 per cent figure.

9.314. The TUA said that it had mixed views on the harmonization of termination charges. On the one hand such a move could benefit customers but there was also a possibility that it could inhibit competition between MNOs.

9.315. The TUA said that users were unanimous in the view that failed calls and calls answered by service messages should not be charged for. Some users were unaware that such charges were made. All had long experience of the fixed network where only successful calls were charged for. Often a call to a mobile failed because of mobile network congestion or lack of signal strength. The costs of handling failed calls did need to be recovered, but they should be treated as a network operating cost and recovered either through total successful call charges or through the network rental.

Individual users

9.316. Mr K Hamilton said that, in his opinion, no connection charge for access to a mobile network should be passed to a fixed network customer, especially for recorded messages from the MNO. For fixed-to-mobile calls, the fixed-line customer should be required to pay no more than the national call rate applicable to his or her FNO for the time of day concerned, not the premium rates charged at present.

9.317. Dr Marek MP said that callers to mobile phones should know exactly what they were being charged for. In particular no charges should be levied unless a connection was made. Tariffs should be widely publicized and should not be subject to frequent change.

9.318. Mr K Goldsworthy drew attention to the fact that One2One had placed a block on free access to freephone numbers on both the BT and CWC networks and now charged the full rate for connecting to such numbers. He said that both Cellnet and Vodafone had an outrageous charging policy whereby unconnected calls were charged for. Also if a call to a mobile was dropped and the number had to be redialled it was charged as a new call, and there was no recognition of the network failure that had made this necessary. He also pointed out that One2One's recent tariff increase was well above the rate of inflation while the service remained of a low standard.

9.319. Mr A Lait complained about the price of fixed-to-mobile calls. He said that calls from fixed lines should be charged at the same rate, whether to a fixed line or to a mobile, based on distance and time of day. Any additional charges for calls-to-mobiles should be borne by mobile phone users and incorporated into their standing rental charges.

9.320. Mr R Shacklock said that as a Cellnet subscriber since 1994 he had had no idea that calls to his phone were charged for even if the call was not connected. This was unfair. He said that the standard of reception in the Nottinghamshire area was patchy at best and there was no incentive on Cellnet to improve the system while it received revenue for doing absolutely nothing.

Other bodies

Blah Publishing Ltd

9.321. Blah Publishing Ltd (Blah) said that it was the publisher of *What Mobile and Cellphone Magazine* which tested and reported on handsets and aimed to tell people which mobile phone to buy. The bulk of the handsets that it tested were readily available and came from The Carphone Warehouse's sales stock. The magazine had a readership of some 15,000 and about 80 per cent of its revenue came from advertising by the 20 handset manufacturers. It was not uncommon for advertising to be withdrawn following a critical review of a particular handset.

9.322. Blah said it was very clear that the price of fixed-to-mobile calls was excessive. Telecommunications was a computer-based industry in which costs, particularly infrastructure costs, were plummeting. Mobile costs were now spread across 9 million users compared with 50,000 in 1985 and 500,000 in 1988.

9.323. The cost of calling a mobile was 50 per cent higher than the cost of calling the USA. The MNOs, however, argued that the level of charges was necessary to amortize their infrastructure costs and that prices were lower than in most European countries. This was because they classed handset subsidies as part of their infrastructure costs, selling handsets cheap and distorting the market. But prices in the UK should be significantly lower than in Europe generally because the UK had a high density of population and was a more mature market. It was clear that Vodafone, Cellnet and BT were enjoying a feeding frenzy of high prices. The DGT had never really represented the interests of the consumer and had been slow to come to grips with mobile phone prices and service provider contracts.

9.324. Blah thought that the UK mobile market would continue to grow rapidly but it did not see a growing convergence between fixed and mobile telephony, nor did it consider that mobile phones would ever become as cheap as fixed lines.

9.325. Blah said that *What Mobile and Cellphone Magazine* received many letters from readers. The main sources of complaint were disputes with service providers where customers wanted to get out of their existing contract, and the cost of replacing a lost or damaged handset. There were few complaints about the cost of calls-to-mobiles. Its readership was well informed and knew these calls were expensive.

9.326. Blah said that the four MNOs were not trying to take customers from other networks. They were seeking to recruit new customers, and it was quite possible that the UK market which was currently at 15 per cent penetration would reach the Scandinavian level of 40 per cent in the next three years. To some extent MNOs faced a dilemma. To grow the market and attract new customers, lower prices were desirable, but at the same time they did not want to erode their revenue bases by reducing prices to existing customers. The networks of the four MNOs were different and this was reflected in their different costs. Even so, there was evidence of collusion with, for example, both Orange and One2One in January 1997 raising the price of inbound calls from 17 to 31 ppm. Blah thought that if the price of calling to Vodafone and Cellnet came down, the other two MNOs would have to follow, so there was no need to regulate Orange and One2One. It acknowledged, however, that, to date, reductions in Cellnet's and Vodafone's prices for calls-to-mobiles had not had any downward impact on the prices charged by Orange and One2One. Prices for calls-to-mobiles would come down but not before pressure was applied to the operators. Blah favoured common termination charges, and the regulation of the whole retail charge to a level at which the average person did not think it horribly

expensive to call a mobile phone. Another advantage of regulation would be that it would have the indirect effect of reducing the level of handset subsidies.

9.327. Blah said that in coming to a decision on a mobile phone, there were three factors to consider: the network, the tariff and the handset itself. The network decision should be based on area coverage. Tariff considerations were also important and one should try to buy a phone that was on the same network as other mobiles to be phoned because charges were very much lower for staying on the same network than for phoning between networks. In comparing the 900 MHz and 1800 MHz wavebands there was no good way of measuring coverage and capacity together. The cost of providing coverage on the 1800 MHz waveband was significantly more expensive because of the lower power at which it operated, but the 1800 MHz waveband tended to perform better in densely populated city areas.

9.328. Initially UMTS was likely to push up mobile telephony costs because of the increased infrastructure costs and the fact that the handsets would only be produced in small quantities.

9.329. Blah was surprised that greater use was not made of call-back. It said that numbering was complicated and was a mess that needed to be sorted out. Tariffs were very complicated but were generally constructed very carefully by the operator concerned. Operators understood their tariffs but failed to realize that customers did not share this understanding. As there were 37 providers each with different tariffs it was not possible for *What Mobile and Cellphone Magazine* to give details of all retail prices.

9.330. Service providers had failed to inject competition into the market. MNOs had found that incentives to ISPs had had relatively little effect and so now focused their main marketing schemes on dealers.

9.331. Blah did not see pagers, private wire access and calling cards as ready substitutes for the mobile phone. Pagers were, and would increasingly become, a niche market. Although called-party-pays was established in the USA, it did not fit in with the mind-set of the way people used phones in the UK. Nor did people in the UK expect to pay for unanswered and diverted calls.

Central Computer and Telecommunications Agency

9.332. The Central Computer and Telecommunications Agency said that it was an executive agency of the Cabinet Office. It had reservations about the current practice of charging for fixed-to-mobile calls that were not connected to the subscriber but were answered by the Cellnet or Vodafone systems.

European Competitive Carriers' Organisation

9.333. The European Competitive Carriers' Organisation (ECCO) said that it was a European grouping of telecommunications companies whose members invested in mobile and fixed telecommunications infrastructure connecting to end-users and offering public service throughout Europe. It had 17 member companies with operations throughout Europe including UK and Europe-wide operators. The ECCO believed that regulatory intervention should be limited to demonstrable market failure and should be unbiased in its application.

9.334. In the UK mobile market, network competition was in an advanced state. The UK was one of the first countries to examine seriously whether it was necessary to apply price regulation to mobile services. The ECCO believed that the critical test for regulatory intervention was whether or not there was proven and continuing market failure which could be rectified by intervention without fundamentally distorting the beneficial dynamics of competition. In competitive terms, the UK mobile market had evolved rapidly with considerable changes and innovation since the first two MNOs were licensed in 1983. Since that time there had been considerable growth and the share of new customers connecting to the four networks was broadly equal. Any regulatory intervention at the present time ran the risk of interfering with the dynamics and growth of the market. The developing market had seen

the following benefits to consumers: a halving of prices since 1992; improved network coverage and performance; an increase in the range of services and distribution channels; and growing levels of network investment. The benefits of this intense competition were seen in the high levels of churn between networks and low barriers to change.

9.335. The ECCO said that the UK mobile industry had evolved from a duopoly investing in an unknown market in 1985 into a high-growth, highly competitive market. An analysis of the market for calls from mobiles showed that it was functioning successfully with rapid growth, lowering prices, increased functionality and quality, and shifting market shares.

9.336. The ECCO identified three possible sources of potential market failure: spectrum scarcity, calls-to-mobiles and number portability as a barrier to customer choice. Spectrum was a limited resource and this scarcity was potentially a barrier to entry for new competition. This was being addressed in the UK through the adoption of spectrum pricing policies which placed greater reliance on market forces. This meant that any abuses of market power should be capable of being resolved through existing fair trading conditions within the operators' licence terms.

9.337. The ECCO said that the focus of concern on fixed-to-mobile calls was that any operator with direct connection to a customer had control over the termination of calls to that customer. This had led to concerns about the effectiveness of market forces on call termination pricing, and the conclusion was increasingly drawn that there was a need for regulatory intervention. There was a tendency to seek to apply solutions for fixed networks to mobile networks without a proper analysis of the relevant circumstances. The differences between mobile and fixed networks needed to be carefully considered.

9.338. The ECCO believed that (unlike in the fixed network environment) because of the relative equality of market shares for new connections, and the degree of competitive maturity, calls-to-mobiles were increasingly subject to market pressures. It considered that rigidly imposed price regulation in this market would pre-empt market outcomes. It said that there was emerging evidence of competition for calls-to-mobiles, while the rapid development of competitive pressures in mobile-to-fixed call prices suggested that the market would deliver a rich variety of competitive services as opposed to a standardized single regulatory solution.

9.339. The ECCO said that the DGT had placed great emphasis on the benefits of MNP and the resultant need for uniform retail pricing for all fixed-to-mobile calls. The ECCO believed that although MNP was desirable in reducing barriers to customer choice, there was a danger that the simple application of the fixed network solution to the mobile environment had not been adequately thought through. The MNOs targeted different albeit overlapping segments of the market, and network costs varied accordingly. The ECCO said that it would expect quite marked differences, particularly in terms of time of day, with one operator's peak period being another operator's off-peak period. This allowed different price packages for calls-to-mobiles to emerge, and with them network choice. By definition, price regulation could not deliver this richness of choice.

9.340. The ECCO said that to move towards a standardized retail price for calls-to-mobiles confused concepts of efficiency and effectiveness and ran the risk of driving towards a single standardized utility network concept. There was a danger of sacrificing the benefits of competition on the altar of number portability. Above all, it was important to take a forward-looking approach consistent with the dynamic development of the market. The UK mobile market was a great success story. There was now a real danger that over-regulation would replace competitive forces. This would be to the detriment of consumer choice and value.

9.341. In summary the ECCO said that it believed that:

(a) competition was preferable to regulation;

(b) rigid price regulation in the UK mobile market would be pre-emptive;

(c) emerging competitive pressures on fixed-to-mobile call prices should be encouraged, perhaps through regulatory intervention such as greater transparency at the point of sale;

(*d*) the concepts of call termination on mobiles should be developed from first principles rather than simply read across from the different fixed network environment; and

(*e*) MNP should be re-examined to ensure that the limited consumer benefits were not delivered at the expense of greater competitive benefits.

Other Licensed Operator Group

9.342. The OLO Group, a group of telecommunications companies which included all the major investors in UK telecommunications other than BT, said that the unanimous view of those operating in the industry was that UK telecommunications policy had now to enter a consciously deregulatory phase if investment in the industry was not to be jeopardized. It said that it had urged the DGT to develop a clear strategy for lifting controls on BT's retail prices. Intense competition was now developing for fixed-line customers and the time was approaching when regulation of prices as a substitute for competition would no longer be necessary. Indeed it might be positively harmful if it led to the continuation of certain price distortions.

9.343. The OLO Group had been dismayed that the DGT had chosen to include the issue of BT's retail charges in its referral to the MMC. If the outcome of the inquiry were to be an extension of retail price controls, this would run counter to any deregulatory policy of progressively lifting retail price controls and would constitute a significant setback in the development of competition in the sector.

Police Information Technology Organisation

9.344. The Police Information Technology Organisation (PITO) said that the police service had a high proportion of mobile phone users. The additional charges incurred by police officers using fixed lines to call colleagues with mobile phones were significant. It was not easy to quantify these additional costs and their 'hidden' nature made it difficult for police communications managers to make informed decisions when planning for the mixed use of mobile and fixed telephony.

9.345. Of greater concern was the effect of charges on members of the public wishing to contact police officers having mobile phones. There was some, albeit anecdotal, evidence that the public was deterred from telephoning police mobile numbers partly on account of cost. This had a detrimental effect on the relationship between public and police. Public callers found it vexing when they were charged for unanswered calls, which occurred when police officers turned off their mobiles when on a police operation or when attending court. Similar issues arose for fixed-line public telephone users making connection to cable or virtual private networks, both of which were used by the police.

Radiocommunications Agency

9.346. The RA, at the MMC's request, provided information about the competition implications of UMTS and in particular the auction of UMTS licences. The RA said that an auction of UMTS licences (often referred to as third generation mobile or '3G') was planned for summer 1999. The Government's view was that UMTS was not expected to be used for voice alone, but also for data services such as Internet access.

9.347. The RA said that one of the objectives for the auction was the promotion of effective and sustainable competition for the provision of UMTS services. The auction of UMTS licences would provide an opportunity for one or more new MNOs. Details of how and when the auction would be held would be announced in due course, but meanwhile the Government's financial advisers were in discussion with potential new entrant bidders. These discussions showed a perceived difference in ability to provide 3G mobile services between incumbents (ie those who already operated a second generation (2G) network) and new entrants. Incumbents had a number of advantages including provision of 2G voice and low data rate services over much of the country, experience in the UK telecommunications industry, a current subscriber base and a network of base station sites. New entrants regarded access to 2G networks as very important, and ways of achieving this were under

consideration. The RA said that it was also looking at ways in which infrastructure sharing between operators might be further encouraged. In addition the Government had expressed disappointment that GSM/PCN mobile users as a whole were currently denied the facility of national roaming (ie a customer of one MNO using another MNO's network anywhere within the UK) and it was possible that a provision to ensure that the early introduction of UMTS national roaming might be included in UMTS licences.[1] The extent to which incumbents might be better placed than potential new entrants depended in part on these factors of access and infrastructure (where regulation could help ensure fairness) and in part on market factors (such as customer base) which bidders would need to address.

9.348. Service providers supplied an element of competition in the present mobile market in addition to that generated by the MNOs. The introduction of UMTS was expected to increase the ability of service providers to offer value-added services as well as being simple resellers of airtime. The range of multimedia services available, for example banking, entertainment and news, might allow service providers to provide tailored packages which competed more effectively with those of the MNOs' tied service providers. The RA said that the position of service providers would naturally be affected by any changes in the means of regulating their access to networks, something which was currently under consideration by the DGT.

Securicor PLC

9.349. Securicor PLC (Securicor) said that the mobile telephony market was highly competitive, dynamic and uncertain, and that prices had fallen by 50 per cent in the last three years. These factors suggested that extra regulation was totally inappropriate.

9.350. Securicor said that it had been a shareholder in Cellnet since its inception in 1984. When the industry began, there was no incumbent network, no customers, no precedent, no distribution and no marketing. Nobody at the time was predicting a penetration of 1 million, never mind 10 million or even 20 million, by 2000. Securicor and other investors in Cellnet and Vodafone took a huge risk in putting capital into a totally untried venture. Securicor said that it found it perverse that it might now in effect be penalized for the stunning success of that venture, particularly as it had brought huge consequential benefits to the UK mobile manufacturing and service industries and to the UK economy as a whole. Extra regulation would deter future investment which could have immediate relevance with the forthcoming expansion of GSM networks and the UMTS auction.

Others

9.351. Some people wrote about matters unrelated to the inquiry.

D J MORRIS (*Chairman*)

S C FINCH

J C HANRATTY

C E HENDERSON

T S RICHMOND

P A BOYS *(Secretary)*

4 December 1998

[1]Towards the end of our inquiry, the RA told us that its recent consultation paper on the subject and a draft mobile licence recently issued for consultation did not contain a provision for national roaming.