

Chapter 14

Regulating Quality of Service

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1.0 The Need to Regulate Quality of Service

Regulating telecom quality of service is a considerable challenge for any regulator. Before becoming committed to this uphill task, the regulator must be convinced of its importance. Three rather different arguments are often advanced as to why quality of service must be regulated.

- **The price-quality trade-off** – price control of dominant companies is one of the first and most basic regulatory tasks. Few question the need for price control. Yet it has become accepted wisdom that “a fall in quality of service is a hidden price increase.” An easy way for a price-capped company to achieve its target prices is to cut costs without worrying too much about service quality. If quality is not regulated, then the expected result is that quality will get worse – at least in some respects.
- **Protect consumers from monopoly power** – a related but nonetheless distinct argument is that a dominant company (irrespective of price controls) may be insensitive to its customers’ quality preferences. Some aspects of service, such as speed of fault repair, may be offered at a level which is lower than customers want (and may be prepared to pay more for). Others, such as probability of avoiding congestion, may only be so good as to be imperceptible (for example, consumers will probably not be able to tell the difference between one call in 1000 failing and one in 10,000 failing, due to congestion), while incurring extra unnecessary cost.
- **Informed choice** – both of the preceding arguments relate to the common state before competition has become fully established. But even if and when full competition arrives, there is a strong argument that published, comparable quality of service indicators will be needed to enable customers to choose properly. This may be seen as analogous to food product labelling in a standard format (e.g., lists of ingredients in order of proportion).

2.0 Which Service Aspects Need Regulation?

Having accepted the need for regulation of service quality, the next question must be: which aspects of quality and for which services? One of the reasons that quality regulation is a challenge is that the vast number of disparate aspects that it can cover.

There is also, of course, a range of services and market segments. This chapter focuses on ordinary telephony (PSTN) as experienced by residential and small business customers, but there will also be pressure for regulation of service quality for leased circuits, cellular, and indirect long-distance services, and others.

To decide which aspects of service to focus on, ideally one should survey users and consult their own public. But it may be useful to look first at what is going on in other countries. This chapter provides a brief overview of European developments, with a more detailed look at the UK experience.

In 1989, Jeremy Mitchell and Claire Milne carried out a modest study of this subject for DGXIII of the European Commission. By combining those service aspects which were of concern to consumer organisations with those which were practical for telephone companies to measure and monitor, they arrived at eight main areas for quality of service indicators to be defined and published on a comparable basis:

- service provision;
- fault incidence;
- fault clearance;
- call connection;
- voice transmission;
- payphones;
- billing; and
- operator services.

This set of quality of service indicators was very similar to those identified by the OECD for similar purposes (the OECD set added dialtone delay, while regarding voice transmission quality and billing as of secondary importance). The CEU has incorporated our recommendations into the Directive on Open Network Provision (ONP) and Voice Telephony. Targets and performance are to be published for:

- supply time for initial network connection;
- fault rate per connection;
- fault repair time;
- call failure rates for national, intra-community and extra-community calls;
- dial tone delay;
- call set up delay;
- transmission quality statistics;
- response time for operator services;
- availability of coin and card-operated telephones in public telephone boxes; and

- billing accuracy.

The European Telecommunications Standards Institute (ETSI) has been asked to draw up European standards for common definitions and measurement methods for all these areas.

It is now some time since the completion of the original study and one must ask if its results are still valid. It would appear they are, although as we shall see below, for any one country, regular review will be needed. An area for measures may remain relevant, although the units that are appropriate for a given type of measure may well change. For example, “supply time for initial network connection” may best be measured at first in months or even years, later in days and finally in terms of adherence to agreed appointment times. These measures, however, may eventually be reduced to a “core” of essential ongoing monitoring, while the main focus of consumer interest shifts to a changing periphery of more subjective measures.

3.0 Approaches to Regulating Quality of Service

Two approaches to regulating quality of service may be distinguished – encouragement and enforcement. The first, which has a good theoretical basis, has tended to be adopted in Europe, and may be seen as the softer (and less effective) option. Most of this chapter is about this first approach, but we mention the second (which tends to prevail in North America) here for completeness.

The **encouragement** approach relies on the power of publicity, and ultimately competition. Companies are simply required regularly to measure and publish specified aspects of their performance. Variants on this approach may include:

- requiring performance indicators to be comparable among all operators in a single country, or internationally;
- requiring publication of separate figures for different regions of the country; and
- setting targets or standards for achievement of the main indicators.

The third variant moves toward the direction of the enforcement approach. Simply displaying that a target has not been met, and to what degree, may already put significant pressure on a company to improve its performance. But **enforcement** implies imposing penalties if targets are not met. Again this may take various forms:

- standards may be set at the individual level and customer compensation (or alternative service) be required if standards are not met. For example, customers may be entitled to a cash payment for each day that their line is unserviceable;
- targets may be set at the aggregate level, with overall penalties imposed for missed targets. The penalties, for example, may include stiffer price control, or a requirement to pay cash out towards some good cause.

Enforcement sounds like a good idea, but it is peculiarly difficult to design a system that accurately reflects customer preferences and avoids unwanted distortions in performance. It is all too likely to lead to a focus of company management attention on a few areas of performance, to the possible detriment of others.

4.0 The UK Experience

4.1 *Quality of Service Regulation in the UK*

During 1983-84, when BT's licence was being drafted, a condition designed to regulate quality of service was considered. BT argued strongly against this on grounds of the difficulty in defining quality of service requirements both precisely and flexibly. BT's view prevailed and no such condition was included in the licence.

BT had previously published an annual set of quality of service indicators. Upon privatisation in 1984, BT stopped publishing quality of service information on grounds of "commercial confidentiality". The same measurements did however continue and were available to OFTEL. In 1987, after a number of quality of service problems, OFTEL required BT to resume publication of a similar set of indicators. Mercury also published a corresponding (but not comparable) set of indicators.

The RPI-X control on BT's prices has been reviewed several times (with the main effect of increasing the value of the required annual efficiency improvement, X). At the same time it has been reaffirmed that quality must be seen as the "other side of the coin" of price control, as a quality decrease can be seen as a hidden price increase. The question has been raised as to whether price control mechanisms should be extended to deal explicitly with quality. For example, some sort of quality index could be devised which would have to rise at a prescribed rate, or else trigger price cuts. To date, this approach has been rejected, although not conclusively. OFTEL has stated "if significant deterioration in service quality were to occur, this could be regarded as a reason for looking again at the level of the price cap".

BT's current Customer Guarantee Scheme was introduced in April 1989. This offers customers financial compensation on set scales if specified standards of service are not met. Further pressure was put on BT through OFTEL's annual reports on telephone service quality. As well as publicising BT's measurements, these reports have included the results of various surveys carried out by or for OFTEL itself. Concerns that OFTEL has explored include: unsolicited sales calls and malicious calls; public call box service; directory enquiry response; and 999 (emergency) response.

In the autumn of 1993, OFTEL launched what has become known as the Comparable Performance Indicator (CPI) initiative. The industry was asked to agree on a set of quality of service indicators covering the service aspects of main concern to consumers, which all operators would measure in a truly consistent way so as to make possible objective comparisons between operators. An ambitious work program, involving innumerable working groups and significant outside consultancy resources finally resulted (in January 1996) in the first of what is to be a regular series of publications of audited comparable indicators. Separate booklets for residential and business customers currently cover "hard" (objective) measures in the areas of:

- service provision;
- customer reported faults;
- fault repairs;
- complaint handling; and

- billing accuracy.

These are soon to be supplemented by corresponding “soft” (subjective) measures based on customer opinion surveys, and followed by new measures covering new service aspects which have yet to be agreed upon.

The results of this exercise are being fed through into European standards circles, where it may be expected that, as the first of their kind, they will have considerable influence. In due course, the internal working documents of the group will probably be made available on suitable commercial terms.

The status of this initiative is interesting. From the outset OFTEL has emphasised that it wanted the industry to “own” the process, which would not be managed by OFTEL. It has also been made abundantly clear that participation is not voluntary, and that any licensed operator which did not toe the line could expect to feel OFTEL’s powers. At times progress has seemed slow, and OFTEL’s intervention has helped to move things on. To other regulators contemplating a parallel initiative, it is suggested that the task will be made easier by clearly requiring compulsory, with regulatory involvement from the start.

4.2 *Changes in BT’s Quality of Service*

Since privatisation, most of the global measures of BT’s service quality have improved most of the time. BT’s quality of service results for its different geographical areas are not published (for perhaps more sustainable “commercial reasons”), but are available to OFTEL. Anecdotal evidence strongly suggests that the national average figures mask significant geographic variations, sometimes including unacceptable performance levels.

John Harper (retired Director of BT) has drawn attention to the long-term improvements in BT’s network performance. Over the past 25 years, call failures due to the network have decreased dramatically, to levels which are now negligible. This improvement is almost totally due to the removal of Strowger switching equipment from the network, an initiative well under way before liberalisation was in prospect. Network modernisation is an imperative under any regime

There have also been notable periods when some aspects of service deteriorated, public payphones and directory enquiry congestion being the most striking examples of these. Both were plainly associated with staffing economies.

In summary, factors contributing to quality improvements have included:

- BT’s continuing network modernisation program (itself motivated largely by savings in running costs);
- BT’s changing culture, aiming for commercial reasons at customer satisfaction (supported by regular customer satisfaction surveys);
- public protest when quality declines, and the pressure resulting from publicity; and
- the desire to avoid paying compensation.

Factors working in the opposite direction have included:

- unusually bad weather;

- staff shortages or poor organisation through cuts made too fast (an indirect result of pressures for efficiency through price control);
- poor morale among remaining staff.

5.0 Changing Priorities

Consumers' priorities for quality of service measurement evolve with time. "Basic" aspects such as call connection become less interesting, and are supplanted in the public eye by new aspects such as the ability to control calling line identification display. However, for basic aspects to stay out of view, they must remain at excellent levels. Therefore, monitoring of them cannot stop, although widespread distribution of the results may not be warranted.

It is a sort of "hierarchy of needs" in which higher level needs are experienced as lower level needs are met. Typically, different service aspects are of primary concern as a network develops. In a developing country with a long waiting list, the number of years to get a telephone installed may be the main focus of interest. As the network expands, the ease of making a successful call may predominate. Once the network is full-grown and adequately dimensioned, support services such as billing attract most complaints. In parallel, basic measures remain of interest but the way they are measured may be refined. For example, service provision may come to be measured in days rather than in years, and eventually in customers' specific requests which are met.

This last example illustrates another evolution over time – from "hard" to "soft" (satisfaction) measures. We may summarise the situation as a shifting of focus from objective measures of mechanical service (e.g. percentage of successfully completed calls) towards subjective measures of human service (e.g. percentage of customers satisfied with operator courtesy).

Questions of international comparability have focused on the objective measures (and have not progressed quickly). It may be unwise to try to achieve international comparability with subjective measures. Satisfaction is a highly variable notion even within, let alone between, cultures. A questionnaire designed to be comparable between countries might well shed little light on the true picture in any one of those countries.

6.0 Vulnerability Under Competition of Different Service Aspects¹

A list follows of various aspects of telecom service which affect residential consumers. Note that this list goes beyond aspects traditionally included under the heading of "quality of service". In so doing, however, it may correspond to customers' perceptions, in that the ordinary person does not necessarily observe the same fine distinctions as does the telecom professional.

Access

- physical availability of network connection at home (N)
- affordability of network connection at home (initial and ongoing charges) (C)
- for those with no phone at home, availability of a suitable alternative

- suitable and reliable terminal equipment available and affordable (*) (S)

Calls

- physical ability to make and receive calls (this refers mainly to people with various disabilities)
- affordability of “basic” level of usage

Cost

- real price of complete bundle of actual or desired telephone use (C)
- prices of components of total bill (C)
- control over use of phone/level of bill (C) (S)

Quality

- successful calls (no problems with call set-up or conversation quality) (N) (C) (S)
- acceptable billing and payment mechanisms (accuracy, understanding, suitable payment options) (C) (S)
- public phones (there when needed, ease/pleasantness of use)
- supplier response (to faults, service requests, operator services, complaints – special reference to non-English speakers)
- unwanted calls (sales calls, malevolent calls, wrong numbers) (*)
- directories (accuracy, ease of use, control over release of own number) (C) (S)

Choice

- enhanced offerings from main supplier (digital network services etc.) (N)
- offerings from other suppliers (long distance, mobile etc.) (*)
- awareness of and interest in choice (confusion, transaction costs) (*)
- ancillary effects of competition (special offers, sales approaches, road works) (*)

Rights

- contract terms, dispute and redress procedures (C)
- representation of views
- control over environmental effects

- equity

The items in the list are classified according to:

N – whether they are determined by the network;

C – whether they are provided by a single central point in the telco;

S – whether a single standard for all is cheapest for the telco; and

* – an asterisk means that this item is not affected by the incumbent telco.

For example, physical availability of network connection, and a high probability of successful calls, are network-determined, while supplier response to faults and directory provision are not. Again, billing and payment mechanisms are provided by a single central point in the telco, while payphone cleaning is not.

The significance of these distinctions is in the permanence and the extent of changes in service levels:

- Once investments have been made in a modernised network that provides improved service, this improvement will remain for many years, even if maintenance manpower is cut and further investment curtailed. Non-network determined service levels, however, can degrade quickly if keeping them high is not a priority. (This has been seen in the UK – good examples are BT’s public payphone service in 1987 and its directory enquiry response time in 1992).
- Centrally provided services will improve for all customers if they improve for any. (To give another UK example, BT’s bills have been transformed for all customers because Mercury’s clear, itemised bills gave them a real competitive edge in the small business sector). Services that are provided on a distributed basis can easily be at different levels for different customer groups. While the latter feature is in principle laudable, and can be used to meet different needs, it is also dangerous in that it permits discrimination in favour of those customers who are vulnerable to competition and against those perceived as “safe”. As a very broad generalisation, residential customers are more likely to be in the latter group.
- A further distinction is the cost or saving implied for the telco by discrimination among customer groups. To a degree, in a unitary telco, all aspects of customer service will be influenced by central policy. For the foreseeable future, for example, areas are unlikely to set their own prices. But only for aspects where it is actually likely to be cheapest for the telco to have a single national standard can we be confident that all customers will benefit from localised competition. (These aspects are marked by S in the list.)

Each of N, C and S implies a degree of protection for customers. One might hypothesize that aspects with two or more letters are relatively “safe” in a competitive environment, whereas those with none may well be at risk for some consumer groups. Empirical research in this area would be needed to test the hypothesis.

7.0 The Way Forward

The situation described in this chapter may be summed up as follows:

- Continuous improvement in many dimensions of telecom service quality has come to be the norm in all advanced economies.
- At any one time, only a few dimensions of service quality tend to be of public interest. The consequent focus on these may divert management attention from other aspects and lead to the next problem area(s).
- Quality improvements are brought about by all sorts of management techniques. Those which result from capital investment (e.g. network faults) are likely to be permanent once achieved, while those which depend on human resources (e.g. operator time to answer) are always vulnerable.
- Strong pressure to reduce prices or to increase efficiency can have adverse effects on service quality unless specific attention is paid to avoid this.
- Publishing quality of service indicators gives companies a strong incentive to improve the relevant dimensions of quality, regardless of explicit targets or penalties which may be set.

A short set of recommendations for the regulator might run as follows:

- Require all telephone companies to publish an agreed set of comparable quality of service measures from whenever they pass a modest size threshold.
- In any country, the set of measures should be evolutionary – a regular review is needed (perhaps annually), consulting all interested parties.
- The measures should between them cover all aspects of consumer service of current concern to consumers. A “core” of nationally and eventually internationally comparable objective measures should be supplemented by subjective measures of satisfaction with current areas of consumer concern.
- Importantly, measures should cover variations in performance as well as averages. A single national average can mask quite serious divergence from average in certain regions or other customer groupings. “The worst ten percent” is not a bad starting point for measuring variation.
- When numerical values are sought for targets or compensation levels, these need to be considered jointly across all standards, not one-at-a-time. This exercise, which again should probably be annual, could be a valuable tool for matching consumer priorities with telco practicalities. Regulation should focus management attention on the right areas, rather than cause neglect of some important items or excessive interest in minor ones
- An argument often raised against publication of performance measures is that this could prejudice the operator’s legitimate commercial interests. Too often this is a convenient smokescreen. On the occasions when the argument is justified, the

answer may well be to ensure that all competitors publish equivalent and comparable information.

Endnote

¹ The material in this section was originally developed for a study carried out by the Australian Consumers' Telecommunications Network of residential consumers and competition in telecoms.