



**SWP 30/92 SERVICE QUALITY:
THE ROLE OF CAPACITY MANAGEMENT**

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RESEARCH REPORT SUMMARY

The primary aim of this research was to discover the extent to which service organisations are able to make a link between the quality level perceived by their customers and the policy they adopt to manage the capacity of their resources.

In discussion with service managers it is clear that at an intuitive level at least, there is more than a nodding agreement that a prime task is to "juggle" supply and demand so that quality is rarely compromised, but neither is productivity so low that profitability is reduced. Excess capacity may be good for customer service, but at what price? We would like to know the extent to which this intuitive management of capacity utilisation is understood and explicitly managed by service organisations.

This document is the result of a survey carried out in 1991. Outline results were published in "Managing Service Quality" (IFS Publications) in November 1991. This report describes our conclusions from the research as well as detailing the data gathered.

The overall conclusion which we drew from this survey is that whereas some service organisations appear to be implementing clear capacity strategies, many do not manage proactively. This is critical when demand exceeds supply. The evidence would suggest that organisations react rather than manage in these circumstances.

The report concludes with some general questions on the effectiveness of quality management approaches and a ranking of quality dimensions most critical for competitive success.

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The Research Report

SERVICE QUALITY: THE ROLE OF CAPACITY MANAGEMENT

THE RESEARCH REPORT

Introduction

Service quality and customer service has been investigated by a large number of researchers in Europe and America in recent years. Many organisations have introduced a mixture of customer care and total quality management programmes with a varying degree of success judged on the basis of anecdotal evidence. There have been those who claim outstanding successes which have been acknowledged by the award of quality prizes like the Deming Award, The Malcolm Baldrige National Quality Awards, the European Quality Prize and Award. Others have been less successful for a variety of reasons and they outnumber the successful candidates. The reasons for failure vary from organisation to organisation but perhaps they all reflect an inability to manage the change of culture of the organisation.

We are interested in the way in which service organisations formulate and implement service strategies and we have worked with a number of organisations to review service delivery against intended strategies. One of the factors which has started to emerge from this work is the importance of the link between capacity management and the ability to meet targets set for service quality and resource productivity. At the simplest level we visualise the balancing act which service managers face day to day in attempting to match the level of demand with the available capacity as something like a see-saw effect. When there is a perfect balance between the demand for the services and the resources giving the capacity to satisfy them, the services are delivered to the desired service quality standards whilst still meeting resource productivity targets. However as all service managers know, it is difficult to achieve this perfect balance either by controlling the level of resources or by influencing demand. Consequently service delivery is often in an unbalanced state. Either there is more resource capacity than is needed for the level of demand, or demand from customers is in excess of available capacity.

When demand from customers is greater than resource capacity, service quality is likely to suffer. This might be because customers have to wait for long periods in queues or because the service which is given is rushed with the result that service quality is lower. On the other hand, when there is insufficient demand, resources cannot be used productively. There may be effects on service quality in those instances where a certain level of utilisation of resources is part of the quality assessment. Near empty restaurants, leisure parks, or theatres lead to a reduction in service quality. The effects of imbalances in supply and demand are often most important for customer satisfaction over short periods of time, perhaps ranging from minutes to hours.

While we have been able to build some knowledge of how service managers are addressing these issues we have not known how service managers in a range of different types of service organisations manage resource capacity and the effect this has on service quality. The findings in this report are the result of a survey which was conducted by Cranfield School of Management in association with IFS.

Aims of the Survey

The aims for the survey were to investigate the following questions:

- What are the most important features of service quality for service organisations?
- How do service organisations manage the balance between demand and capacity to satisfy the demand?
- Which aspects of service quality suffer when demand exceeds supply?
- What measures are taken to minimise the loss of service quality in these circumstances?
- What actions are taken to recover from mistakes or crises which are caused either by the service organisation or by the customers?

The Nature of the Sample

The respondents totalled 167 spread across the service sector (1.1). All are assumed to have some interest in service improvement and quality of services because of the original source of the mailing list.

The majority of respondents are involved in "business to business" services rather than service provision to the general public (1.3). A consequence of this profile is that most are concerned with the delivery to a limited number of large customers rather than many small customers (1.4). The services provided tend to fall into the category of standard services rather than being customised (1.5).

The Important Features of Service Quality

It perhaps comes as no real surprise to find that the most important features of service quality across all respondents are:

- reliability of service delivery
- competence of the service organisation
- attitudes of staff to customers
- the ability to put things right when they go wrong for the customer
- the time to deliver the total service

Customers are also concerned with the perceived value of the service in terms of value for money. All of these factors indicate the need on the part of the operations management in the service organisation to build consistency into service delivery and to manage the process rather than hoping things will turn out alright.

Managing the Service Delivery Process

Managing the service delivery process involves knowing the service task ie "what has to be done" and resourcing and managing to match the task.

The Service Task and the Service Encounter

In most cases for our respondents most added value as perceived by customers comes from the direct encounter between the service organisation and the customers (2.4).

In our sample this service encounter is more likely to occur on customers premises and be directed from a multi site operation (2.2). This is consistent with a large organisation with a network of offices. The delivery of the service consequently involves many different service staff performing many activities to make up the completed service (2.3).

The picture is of a high level of complexity in the service delivery involving a high proportion of contact service providers managing the service encounter supported by a smaller number of support staff (2.7).

The role of the customer in the service encounter in these circumstances is most likely to be to provide information to start the process and to give feed back on progress during service delivery and on completion (2.10).

The frequency of the contact with customers for the majority of the respondents is daily or weekly which again aligns with a high level of customer contact (1.8,1.9).

Resourcing and Managing Service Delivery

An important aspect of managing service delivery is concerned with having the right level of resources to match customer demand.

Nature of Demand

The requirement for most companies in the sample is towards satisfying demand from customers within days rather than hours or minutes (3.1).

The ability to satisfy demand in a set time scale depends on the ability to predict demand. Most of the group predict demand on a weekly basis with some longer term prediction on an annual cycle (1.7).

There seems some inconsistency between the main time frame for forecasting ie weekly and the daily to weekly frequency of use of the service by the customer. This would indicate that the service delivery process was not *managed* but relying more on a *firefighting* reaction to demand.

Managing Resource Capacity

Most of the group of respondents alter their resource capacity to try to keep it in line with demand rather than trying to influence demand so that it corresponds to available resources (3.2).

The things which help in this balancing process are considered to be forecasting of demand and the ability to schedule resources (3.3). Of course these will only help if the forecasting process is reliable in itself.

The balancing process is frustrated by the lack of information on forecasts of demand and on the availability of resources (3.6). The most critical factor seems to

be the availability of staff. This is not surprising given the importance of the service contact for most of the group. Staff or equipment are considered to be the most common bottle-neck resources (3.4) which prevent capacity being increased without adding resources.

The level of utilisation of key resources impacts on the cost of the provision of the service and on the ability to react to unpredictable changes in demand. Most organisations in the sample have a utilisation of the key resources of over 70% with a significant number over 90% (3.5).

These figures indicate the importance of having good information on the demand. Otherwise there are going to be times when the demand outstrips immediate supply of the service.

Management Time

Managing the service process requires managers to allocate their time to different aspects of the process. Most managers in the group appear to concentrate on managing the contact staff, the customers, and information (although the nature of the information was not specified) (2.9).

What happens when resource capacity runs out?

Even the best attempts at matching resource capacity to demand are going to fail for short periods of time unless there are no constraints on costs and hence resource levels. The questions which are important to ask in these circumstances are:

- How do we know when we are running out of capacity ie what are the early warning signals?
- What aspects of service quality suffers?
- What can be done to manage the situation better?

Early Warnings

Most of the examples of early warning signals which were given could not be described as being "early" and there is little evidence of measurement of the situation as it develops. Clearly service providers recognise that they are busy and they may themselves start to complain to managers. Customers themselves may start to complain. Overall the result is usually a fall in service levels (3.8).

How does Quality suffer?

It is perhaps inevitable that some aspects of service quality will suffer when resource capacity runs out, especially if the process is not managed. The sample group identified timeliness of the service, the level of attention to the customers, and the loss of accuracy and attention to detail as being the main aspects of service quality which suffer (3.9).

So the factors which suffer as capacity runs out are those aspects of service quality which were identified earlier as the *most important* for the customers, namely, reliability, customer contact, and competence. It is clear from the responses that there is little attempt in the majority of cases to measure the fall off in real time. Most of the measurements record what has happened after the event. So how do

organisations try to minimise the effect of a shortfall in resources at times when demand is greater?

Managing the Queues or Waits

Most of the efforts to ameliorate the damage from falling service quality can be described as managing those customers who are forced to queue or wait for the service. There appears to be a high emphasis placed on informing customers on the length of the delay and allaying fears that they have been forgotten. Surprisingly given the nature of the customers for the majority of the sample there was relatively little indication of prioritising customers although this would correspond with the failure to track events in real time (3.7).

The indications from the survey are that organisations are not well equipped to measure when they are running out of capacity and they do not have strategies to cope in these circumstances. Measurement where it does occur generally lags the event (3.9). The result is that it is inevitable that customers will sometimes experience a fall in service quality. Whether this is significant may well be a function of whether other service providers are getting better at managing the service delivery to minimise this effect on their customers.

There may be an analogy here with the sinking of the Titanic. The captain and crew knew icebergs were about but failed to measure what was happening. When things did go wrong and an iceberg was struck the expectation was that this would not sink the ship. It did and more quickly than expected! A lesson in the need to plan for a crisis and have a coping strategy.

Recovering from other Mistakes and Failings

As well as a failure to balance demand with resources, other mistakes can occur which are either caused by the customer or by the service organisation. There is considerable evidence to show that the way in which a service organisation recovers from any visible mistakes affects the perception of service quality on the part of the customer.

The Nature of the Mistakes or Failings

The factors which the respondent group identified as being the most likely to upset customers are (2.12):

- Broken promises and delays
- Attitudes of staff
- Poor communication with customers
- Poor quality of information or of a product

All of these factors are caused by the organisation. In addition the customers may do things which reduce the ability to meet service quality targets. The worst actions of the customers are seen to be (2.11):

- giving poor information on their needs or changing their requirements
- having an unrealistic expectation of what is possible (this sounds like

blaming the customer for a failing on the part of the service provider)

- not doing what they should do. For example providing facilities or looking after equipment properly

Given the importance of good information from the customers it is not surprising that respondents generally felt that customers had a greater influence on their ability to meet quality targets at the start of the process and in giving feedback on progress.

Actions taken to Recover

The resources which were considered to have the greatest influence on the ability of service organisations to recover from mistakes were seen to be front line contact staff, support staff, and support systems (2.10). This may not seem unreasonable. The question is "How well are these and other resources used in the recovery process?"

The actions taken to recover from mistakes do seem to vary depending on whether the mistake is seen by the service organisation to be caused by it or by the customer.

When the mistake or crisis is acknowledged to be caused by the service organisation, there are efforts made to inform the customer of what is happening and to rely on either a predetermined escalation procedure to gain resources or to form action teams to resolve the crisis (2.13, 2.14). These actions could be summarised as "Getting organised and keeping the customer informed"

When the mistake is perceived to be caused by the customer, what is said to the customers seems to be more directed at deciding what to do next (2.13). There is the implication that blame and costs are being negotiated at this stage. Where there is action, it is initially directed towards helping customers to solve the problem rather than making sure resources are available to put things right.

It is not at all clear that service organisations manage their service recovery well. A majority of respondents do not have set procedures for service recovery either because they do not recognise the importance of any recovery on customer perception of service quality or because they know they are essentially incapable of recovering well.

Conclusions

While the present results can only be taken as a snap shot of what is happening, there are some findings which should cause service organisations to review their management of the service process if they are intent on consistency in the quality of service they give to their customers.

- * When things go wrong either because there are insufficient resources, or mistakes are made within the service organisation or by the customers, the aspects of service quality which suffer are precisely those which customers perceive to be the most important!
- * The use of forecasting to predict demand is recognised as being useful but the indications are that it is poorly implemented. Forecasts are not in line with the frequency of use by customers or are not given in a form which is useful for planning purposes.

- * There is little evidence of the management of resource capacity which recognises the need to manage in periods where demand exceeds resources.
- * When things do go wrong there seems to be a greater emphasis on talking to customers rather than on actions to put things right. This is especially the case where the customer is perceived to be the cause of the crisis.
- * Reliability of service delivery is seen as a winning quality dimension. The ability to deliver consistently to promise is central to success. It may be, perhaps, an indictment of services generally that customers may not have confidence in service delivery and therefore those organisations that are consistent are perceived to have high quality levels.
- * It is therefore not surprising that organisations rate the ability to recover very highly. To some extent this may always be a requirement as fluctuations in demand may not always be matched effectively. On the other hand, poor capacity management may encourage the "firefighting" culture.
- * The incidence of customer quality surveys has increased dramatically over the last five years. In this sample, some 75% of organisations now carry out regular customer surveys. 81% have regular internal quality measures, though this information reaches board level in only 50% of organisations.
- * TQM is seen as the most effective approach to quality improvement. Seeking BS5750 approval has been tried by almost as many as those with TQM programmes, but with lower success rates. 61% of respondents rated TQM as "effective" or "very effective".
- * Quality success is not rewarded in a consistent manner. Some 31% of organisations make some form of payment for quality or link it to appraisal schemes. The problem is that this is almost solely for management personnel. 21% give formal recognition for quality success, but 46% give no reward or feel that job satisfaction is its own reward.

Appendix 1

Characteristics of the Respondents

APPENDIX 1

CHARACTERISTICS OF THE RESPONDENTS

In this section the respondents are described according to:

- * Sector and Customers
- * Nature of the Services
- * Nature of the Demand

Introduction

The survey was mailed to about 3000 managers, some on a Cranfield School of Management data base and others who were readers of the IFS journal "Managing Service Quality". The responses received numbered 167. While this is not high in percentage terms, it is about the expected level given the length and complexity of the survey.

1.1 The Composition of the Respondents:

The respondents came from a wide range of the services sector with consultancy having the greatest representation. The complete distribution is shown in Table 1.1

Service	Percentage
Distribution	8
Transport	2
Building services	2
Consultancy	16
Catering	2
Financial services	2
Building societies	1
Banking	2
Computer services	5
After sales support	11
Education	3
Public sector	10
Retail	1
Insurance	2
Professional services	7
Telecommunications	2
Manufacturing	12
Multiple sectors	7
Other	4

Distribution of Respondents (n = 167)
Table 1.1

1.2 Level of Unit used in answering the Questionnaire

Respondents were asked to indicate the level in their organisation which was used to give answers to the questionnaire. Table 1.2 shows the results with the largest proportion considering a network of service covering either a region or area of the country.

Unit	Percentage
One person	9
Branch	9
Area/Region	19
National	37
International	20
Brand/Product	6

Level of resource considered in answering the questionnaire
(n = 166)
Table 1.2

Respondents were also asked to specify their basic unit of service delivery ie the level which delivers all but the most specialised service. The majority of respondents said it was an individual service provider for instance a consultant or service engineer. Fewer respondents listed a service unit for example a branch office and only a small majority considered the network for a region or a larger geographic area.

1.3 Nature of the Service Business

We were interested in the types of customers which our respondents dealt with, and the nature of the services. Table 1.3 shows a breakdown of the sample based on the nature of the primary customer.

Many of the respondents are serving more than one customer group which explains a total percentage greater than 100. The majority though are delivering service "business to business" rather than to individual members of the general public.

Type of Customer	Percentage
General Public	25
Companies	63
Local Government	19
Retailers	12
Dealers	9
NHS or Utilities	14
Others	6

Primary Customers
Table 1.3

1.4 Profile of Customers

Respondents were asked to give the profile of their customers. The results in Table 1.4 show a tendency towards serving a small number of large customers and many small customers. This would be consistent with the majority of respondents having

business to business relationships.

Customer Profile	Percentage
Many relatively small customers	12
Few relatively large customers	21
Few large and many small customers	64
One major customer	3

Customer Profile (n = 164)
Table 1.4

1.5 Description of the variety of the demand on the service unit

Respondents were asked about the variety of services which they were required to deliver. The results in Table 1.5 show a greater proportion delivering mainly standard services often having a large number of different standard services with in some cases a small proportion customised products

Type of Service	Percentage
Limited range of standard products	17
Wide range of standard products	22
Mainly standard products with some customised	34
Largely customised with few standard products	27

Type of Service Delivered
Table 1.5

This mix was considered to be constant by 90% of respondents so, even though generally demand was considered to be growing or stable, the variety of the mix is not considered to be changing.

1.6 Volume of Demand

Respondents were asked questions about how they measured the volume of demand, their present level of demand and whether this was growing, stable, or declining.

The state of the demand is shown in Table 1.6 with the majority of organisations reporting increasing demand for services.

Trend in Demand	Percentage
Growing	58
Stable	28
Declining	10
Variable	4

Trends in Demand (n = 162)
Table 1.6

1.7 Ability to Predict Demand

Respondents were asked about their ability to predict demand and the time scale for forecasting. The results are shown in Table 1.7.

Statement	Percentage
We predict demand on a weekly basis	26
We predict demand on a daily basis	7
We predict demand on an hourly basis	5
It is impossible to predict other than annually	20
The demand pattern is seasonal	21
Demand is linked to particular business indicators.	22

Time Scale for Forecasting (n = 153)
Table 1.7

It may be a consequence of the sample but it is surprising that a larger number of organisations did not report predicting demand on at least a daily basis given the responses to question 1.8 and 1.9.

1.8 Frequency of use by the "average" customer

We asked our respondents how often the average customer was in contact with their organisation. The results are shown in Table 1.8.

Frequency	Percentage
Hourly	8
Daily	22
Weekly	16
Monthly	20
Quarterly	10
Yearly	8
Other	16

Frequency of use of the service by a customer (n = 124)
Table 1.8

The respondents included in the "other" category include those who have a mix of customer contacts which spread across the frequencies, those circumstances where there is a one off contact, and those for whom the contact with a customer may vary during the lifetime of the relationship.

We also asked whether our respondents anticipated the use by the average customer would change in future. Of the 122 responses 43% anticipated no change and of those who saw a change, 31% specified an increase and 12% a decrease. The remainder were not specific. The most common reason given for a decrease in contact frequency was increasing reliability of equipment.

1.9 Frequency of personal contact by the "average" customer

Respondents were asked to identify the average frequency with which an "average" customer talks to a member of the staff. The results are shown in Table 1.9.

Frequency	Percentage
Hourly	5
Daily	38
Weekly	29
Monthly	16
Quarterly	4
Yearly	3
More than yearly	1
Mixed	10
Don't know	1

Frequency with which a customer talks to a contact person
(n = 133)
Table 1.9

Appendix 2

Description of the Service Delivery Process

APPENDIX 2

DESCRIPTION OF THE SERVICE DELIVERY PROCESS

In this section the service delivery systems are described:

- * Nature of Service Delivery
- * The Roles of Contact and Support staff and the Customer
- * Factors which cause Crises in Service Delivery
- * Approaches to Recovering from Crises

Introduction

This section is devoted to characterising the way in which the services are delivered against the following features:

- * Whether the process is standardised for each service or changed to accommodate different customer specifications
- * The degree of involvement of the customer in the production and delivery of the service
- * The extent to which the service is delivered through people or technology
- * The level of human resources in front line roles and in support roles
- * The allocation of management time
- * The role of the customer in the delivery process
- * The place and nature of service delivery
- * The number of stages in service delivery
- * The stage in the delivery process where most "added value" occurs
- * The actions/incidents most likely to interfere with the delivery process and thus lead to poor quality of service
- * The ability to deal with a crisis and to recover from mistakes.

2.1 The Nature of the Service and Service Delivery

Respondents were asked to position a service or family of services which most closely represented the majority of their business on a 5 point scale between:

- a) Standardised (1) and customised (5)
- b) Low customer involvement in the process (1) and high customer involvement

(5)

- c) The service being delivered by equipment (1) or predominantly by people (5)

The results indicate a slight bias in the sample towards customised services (2.9) delivered to a greater extent by people (3.0) and requiring relatively high involvement by the customers (3.6)

2.2 The Location of Service Delivery

The location and method of delivery of the service for the sample of replies are shown in Table 2.1. Some respondents indicated more than one aspect. The high figure for service being delivered on customer premises is consistent with the sample being biased towards business to business services.

Location	Percentage
Single site	13
Multi site	40
Customers premises	57
By mail	12
Phone/telecommunications	17
Other	8

Location of Service Delivery
Table 2.1

2.3 The Nature of the Customer Contact Point

The way in which customer contact takes place can be characterised according to the number of services and the number of tasks need to complete the service delivery. The responses are shown in Table 2.2.

Nature of the Contact	Percentage
Single server, single task	19
Many servers, single task	14
Single server, multi task	22
Many servers, multi task	45

Nature of the Customer Contact (n = 164)
Table 2.2

The results are consistent with mainly complex service delivery requiring a number of stages in the production and delivery of the services.

2.4 Where is most value added in the delivery process?

The question is directed towards finding out where the main added value in the service delivery occurs. We suggested the areas:- in the front office from direct contact with customers, in a back room activity in a service unit, or in a central processing back room facility. The percentage of positive replies to each are shown in Table 2.3

Added Value	Percentage of Positive Replies
During direct contact with customer	58
In the back room of an individual unit	14
In a centralised processing function	18

Main Value Added Function
Table 2.3

2.5 Unit Costing of the Major Product

The unit costing of the major service product for each organisation was requested. These have been displayed as the percentage of the total unit costs consumed by a resource or activity for three cumulative bands of respondents, up to 25%, up to 50%, and up to 75% of respondents. These are shown in Table 2.4.

Cost Element	Up to 25%	Respondents Up to 50%	Up to 75%
Direct labour cost	<20%	<46%	<68%
Raw materials	<3%	<18%	<40%
Equipment charges	<2%	<5%	<10%
Facilities	<4%	<5%	<10%
Marketing	<1%	<4%	<10%
Administration	<4%	<9%	<10%
Product Development	<2%	<4%	<9%
Other costs	<2%	<5%	<10%

Unit Costs
Table 2.4

2.6 Stages in Service Delivery

Respondents were asked to say how many stages or changes in responsibility were required to deliver their service. The results from the sample indicated that, except in areas where there was a project manager working with support activities, the great majority of respondents who answered the question reliably had 2 to 5 stages (ie 60 out of 75 replies). This compares to 12 respondents with 6 to 10 stages and only 3 respondents claiming more than 10 major stages.

2.7 Relative roles of service staff

Respondents were asked to state the ratio of their people whose primary role was customer contact to those whose primary role was support or "back room". The results are shown in Table 2.5. A significant number of organisations have a high proportion of front line contact staff.

Proportion of Contact Staff	Percentage
Less than 25 %	28
26 % to 50 %	12
51 % to 75 %	17
More than 75 %	43

Proportion of Contact Staff (n = 163)
Table 2.5

2.8 The Role of the Customer

The customer may play an important role in delivering good quality of service. Respondents were asked to identify the role played by their customers in carrying out part of the service, giving information which allows the process to start, creating atmosphere or image by being there (as in a theatrical performance or a restaurant), and giving feedback on the quality of the service. The results shown in Table 2.6 are assessed on a 5 point scale between there being very little contribution from the customer (1) to a large involvement (5)

Role of the Customer	Extent of Involvement
Carries out part of the service	2.3
Gives information to start the process	3.9
Creates atmosphere or image	2.6
Gives feedback	3.5

Role of the Customer
Table 2.6

2.9 Allocation of Management Time

The respondents were asked to identify the amount of time managers were engaged in a range of activities weighted on a 5 point scale between very little (1) and a large amount (5). The results are shown in Table 2.7.

Nature of the Task	Weighting of Time
Managing contact staff	3.5
Managing the customer	3.3
Managing information	3.6
Managing suppliers	2.5
Managing computer systems	2.6

Allocation of Managers' Time between Tasks (n = 164)
Table 2.7

Other areas which some managers identified as consuming a high proportion of time were managing quality and managing changes in design.

2.10 Factors influencing Customer Satisfaction in the event of a failure or mistake

The respondents were asked to indicate the extent to which factors listed in Table 2.8 have an effect on customer satisfaction in the event of a mistake or failure

taking place. Responses were asked to weight each factor on a 5 point scale from no effect (1) to a great effect (5). Contact staff are considered to have by far the greatest effect for the majority of respondents.

Factor	Weighting
Contact staff	4.7
Support staff	3.6
Support systems	3.6
Suppliers	3.2
Equipment	2.4
Customers	2.8
Information Systems	3.2
Premises/Facilities	2.3

Effect on Customer Satisfaction in the Event of Service Failure
Table 2.8

2.11 The Influence of the Customer on the Outcome of the Service

Respondents were asked to indicate where, in their opinion, in service delivery customers were most likely to have an influence either for the good or for the bad on the outcome of the service.

Most respondents considered the customers had most influence at the start of the service process for both good and bad. Answering the question, "where does the customer affect things for the good?", a sample of 111 split as follows:

At the start	62 mentions
During the process	24 mentions
At the end	17 mentions
Throughout the whole process	13 mentions

The main ways in which the customers have an affect for the good are:

- in the accuracy and timeliness of information either as specifications or terms of reference or reporting of faults
- in giving good feedback at the end of the process

The ways in which customers are perceived to affect things for the worse are associated with:

- unrealistic expectation of what they are to receive
- the quality of the information they give
- the actions they take which frustrate the delivery of good service.

Examples of poor information relate to:

- * Specifications which are inaccurate
- * Late or sudden changes to specifications

- * Late orders or delaying decisions to start
- * Customers not being updated so misunderstanding what is happening

Examples given of customers action resulting in poor service delivery were:

- * Mistreating equipment or systems
- * Failure to provide facilities
- * Failure to give access
- * Poor training of users of the product/service

2.12 Actions most likely to Upset Customers

Respondents were asked to identify which actions on their part were most likely to upset customers. The actions have been clustered into the following categories and quantified by the number of times they were mentioned:

- * Poor quality of product or information (24 mentions)
- * Broken promises and delays (77 mentions)

Broken promises and delays have been grouped together as there was considerable overlap in the replies. Failure to deliver what has been promised or not to deliver at the time promised is a major component. Failure to respond in a timely fashion or to leave customers waiting in queues is a common component as is failure to deliver product or to turn up on time.

- * Attitudes of Staff (25 mentions)

The way in which customers are treated by contact staff include, rudeness and arrogance, taking the customers for granted or, as was mentioned, by several respondents simply ignoring customers!

- * Communications with customers (20 mentions)

Failure to keep the customers informed of what is happening or failure to listen carefully to what they want are common responses in this section.

- * High costs (6 mentions)

This section seems to relate more to higher than expected costs or prices, for example charges made by banks.

2.13 How do service organisations deal with a crisis of their own or the customers' making

When there is a crisis in service delivery this may be of the service organisations own making or be due to a failing on the part of the customer. The respondents were asked to identify the approaches which they adopt to deal with both types of crisis. The results are shown in Table 2.9.

Approach to Crisis	Organisations Making (No. of Mentions)	Customer's Making (No of Mentions)
Contact with the customer	68	61
Action Teams	17	2
Escalation Procedures	17	9
Quality systems/procedures	10	1
Spare resources / re-planning	18	6
Train/empower staff	4	8
Elimination of problem	17	9
Restitution or money	5	8
Selling contracts		2
Avoid customer	1	
Joint problem solving		19
Anticipate crisis	1	
No formal plans	1	1
Total number of mentions	152	122

Approaches to a Crisis of the Organisation or the Customer's Making
Table 2.9

Contact with the customer is the most common approach and respondents emphasised aspects of honesty and open communication. The contact was in some cases linked with an escalation process where the contact was then made with either a more senior manager or a specialist. The use of action teams often cross functional in composition appears more common in dealing with crises caused by the organisation. The allocation of spare capacity or the ability to re plan work demonstrates some proactive thinking. The willingness to accept a no blame approach when customers cause a crisis was in evidence in the joint problem solving approach to a crisis caused by customers.

There was little emphasis on ensuring restitution or compensation for the customer in either of the circumstances causing a crisis.

A number of organisations saw the quality approach of quality systems and the need to eliminate problems as their main approach.

2.14 Actions taken to recover from mistakes

When things go wrong in service delivery service organisations respond in different ways ranging from very structured recovery procedures to plain fire fighting.

The responses have been analysed against a number of categories according to the number of mentions of the category. These are shown in Table 2.10.

Action	Number of Mentions
Quick restitution	13
Restitution a some point	23
Agreement with customer on course of action	16
Corrective teams	2
Escalation	4
Customer contact	6
Quality systems	10
Review of procedures & elimination of problems	43
Complaint handling	5
Firefighting	2
Plans for recovery	
Complaint handling	5
Total mentions	109

Actions taken to recovery from mistakes
Table 2.10

Respondents were also asked separately if they had standard recovery procedures. The results are shown as number of replies against each category in Table 2.11.

Standard Procedure for Recovery	Number of replies
Yes	47
Yes in part	24
None	65
Within BS5750	6
Developing	4
Not applicable	1
Not necessary if mistakes prevented	1

Presence of Standard Recovery Procedures
Table 2.11

Appendix 3

Matching Supply and Demand

APPENDIX 3

MATCHING SUPPLY AND DEMAND

In this section the management of capacity and demand is presented:

- * The Nature of the Demand
- * The Approaches to Managing Capacity
- * Resource Bottle-Necks and Utilisation
- * Factors which Prevent Balancing Supply and Demand
- * How Quality Suffers when Capacity Runs Out

Introduction

How successful an organisation is at controlling its load and capacity balance will be reflected in the quality of its service. We define load as the demand that customers place on the system, and capacity as the rate at which the company is able to work off this load. A company may employ a number of methods to match supply and demand, some of which may be more effective than others in maintaining constant quality standards. For customers who demand instant response, an appointments systems will not be seen to be delivering good quality, though the company may be utilising its resources more efficiently. This section aims to discover which tactics are the most effective.

3.1 The Nature of Demand

Respondents were asked to indicate the time scale in which they needed to satisfy demand and whether this caused a compromise on the cost of service and meeting customers demands. The time scales are given in Table 3.1

Time Scale to satisfy demand	Percentage
Within minutes	12
Within hours	23
Within days	65

Time scale in which demand must be satisfied (n = 161)
Table 3.1

The emphasis for most of the respondents is more on satisfying customer demand (and by inference service quality) rather than on service cost. On a five point scale between service cost being most important (1) and meeting customer need being the most important factor (5) the weighted mean was 4 for the 165 replies.

3.2 The Types of Strategies used for Managing Capacity

There are two basic approaches for capacity management: a "level" strategy in which the organisation maintains a constant output and attempts to influence demand to suit; or a "chase" strategy in which the company flexes its output to match fluctuations in customer demand. Most organisations employ both approaches to some extent.

Respondents were asked to state which approach predominates in their organisation the replies split in the following percentages (n = 161):

Predominantly "Level" Strategy	22%
Predominantly "Chase" Strategy	78%

Several mechanisms can be used to put a "level" or "chase" strategy into effect. The responses for the different mechanisms are shown in Tables 3.2 and 3.3 on a weighted scale of importance with a maximum of 3 points.

Approach	Weighting (max 3)
Queues	2.2
Appointments	1.1
Off peak discounts	1.1
Price increases	0.9
Other	0.7

Mechanisms for "Level" Strategy
Table 3.2

Other mechanisms here refer to increasing resources eg of people by recruitment.

Approach	Weighting (max 3)
Overtime	2.3
Sub contracting	1.8
Alternative services	1.1
Other	0.8

Mechanisms for "Chase" Strategies
Table 3.3

The other mechanisms quoted included purchase of more resources, changing the specification, use of temporary staff, use of freelance staff, and mechanisation.

3.3 Techniques used in Managing Capacity

Respondents were asked to indicated which techniques were most effective in managing capacity. As can be seen from Table 3.4 using a five point scale of importance then forecasting is viewed as the most effective tool.

Capacity Management Technique	Weighting (max 5)
Forecasting	4.9
Computer scheduling	3.3
Booking models	2.6
Yield management	2.5
Others	0.5

Techniques for Capacity Management
Table 3.4

3.4 Resource Bottle-necks

Resource bottle-necks are considered to be the resources which prevent an increase in the rate of output unless more of the resource is purchased. Table 3.5 shows the spread of responses across the major resources. People and equipment are generally considered to be the most important bottle-neck resource or resources. The results are presented as number of mentions as many respondents indicated more than one resource. There were two mentions for external influences of traffic. Only one respondent admitted not understanding their bottle-necks - an honest reply. Another sole response suggested there were no bottle-necks!

Bottle-neck Resource	Number of Mentions
People	93
Equipment	43
Facilities	16
Materials	16
Money	9
Information	9

Bottle-neck Resources
Table 3.5

Respondents were also asked what they did to ensure the maximum output from these bottle-neck resources. The responses are shown in Table 3.6. In addition there were single mentions for "Run round in circles", "Work harder", "Very little", and "I wish I knew".

Action	Number of Mentions
Plan	46
Set targets and monitor	35
Training and motivation	29
Improve processes	22
Flex capacity	9
Maintenance	3

Actions to ensure maximum output from Bottle-neck Resources
Table 3.6

3.5 Utilisation of the most Costly Resource

Respondents were asked to indicate the level of utilisation they achieve from their most expensive resource. The replies are shown in Table 3.7.

Utilisation	Percentage
Less than 50%	4
51% - 60%	10
61% - 70%	16
71% - 80%	24
81% - 90%	23
91% - 100%	23

Utilisation of the Most Costly Resource (n = 153)
Table 3.7

3.6 Factors which influence ability to Match Demand Short Term

The ability to match demand short term is thought to have a great influence on service quality. Short term in this context is considered to be when it is not possible to add any more capacity to the bottle-neck resources. The factors which affect the ability of the respondents organisations is shown in Table 3.8. Each factor is weighed on a five point scale where 1 would indicate no effect and 5 a great effect. The two most important influences are the availability of demand forecast information and the availability of key staff.

Factor	Weighting (max = 5)
Employee availability	4.0
Demand forecast availability	3.8
Capacity availability information	3.4
Not having schedules	3.2
Customer availability	2.9
Flexibility of facilities	2.8
Material supply	2.8
Size of facilities	2.4
Supplier's personnel	2.1

Factors influencing ability to Match Demand Short Term
Table 3.8

3.7 Techniques used to Manage Queues

When queues form a number of techniques can be used to keep customers happy during the wait. The responses are shown in Table 3.9 on as weightings on a five point scale where "not used" is 1 and "frequently used" is 5.

Queuing Action	Weighting (max 5)
Informing customers of the length of the wait	3.8
Making sure sometime happens to allay fears of being forgotten	3.1
Ensuring that "first come, first served"	3.0
Providing entertainment or distraction	1.3

Actions taken to keep Customers happy in Queues
Table 3.9

Respondents provided some additional information on the actions they take to manage queues. The actions taken and the number of mentions are shown in Table 3.10

Action	Number of Mentions
Give information of length of the delay	17
Prioritise customers	8
Re-negotiate delivery of the service with the customer	4
Add resources	4
Do nothing	2

Actions to Manage Queues
Table 3.10

3.8 Early Warning that Supply and Demand are out of Balance

If organisations are to be in a position to react when demand is exceeding capacity it is important to have "early warning signals" which alert the service providers that something needs to be done. Respondents were asked to say what were their signals. The results as shown in Table 3.11.

Early Warning Signal	Number of Mentions
Falling Service Standards	42
- Lead times	
- Times missed	
- Material shortages	
Customers	25
- Complaining	
- Waiting	
- Taking business away	
Overloads	25
- Backlogs	
- Overtime	

Planning and Monitoring	21
- Forecast v capacity	
- Plan against actual	
Staff	7
- Complaining	
- Irritable	
- Walking out	

Early Warning Signals that there is not enough Capacity
Table 3.12

3.9 The Aspects of Quality which Suffer when Capacity runs out

When a service organisation runs out of capacity even in the short term quality of service is likely to suffer. Respondents were asked to indicate which aspects of quality suffered in their case when they had insufficient capacity to meet demand. The responses are shown in Table 3.13. Most respondents indicate a fall in service levels and in the timeliness of the service.

Quality Factor	Number of Mentions
Timeliness	64
- Responsiveness	
- Lead times	
Customer Service	46
- Service levels	
- Personalisation	
- Communication	
Capability/Consistency	25
- Accuracy	
- Attention to detail	
Inability to Supply	4
No Effect	9

Quality Factors which suffer when Capacity runs out
Table 3.13

Respondents we asked to say how they measured any degradation in service quality and the replies are shown in Table 3.14. While it was not absolutely clear from the replies whether the measurement was carried out at the time when the effects were being experienced by the customers or latter, some attempt has been made to make this separation by inference. The results suggest a greater reliance on internal measures, made by service providers or the organisation, than on external measures which involve the customer.

Measure	Number of Mentions
Internal	
- At the time	9
- After the event (Actual v Standard) (Quality Audits)	107
External	
- At the time (Talking to customers)	9
- After the event (Complaints) (Surveys)	25
No measurements made	11

Measurement of Quality Degradation
Table 3.14

Appendix 4

Defining and Managing the output

APPENDIX 4

DEFINING AND MANAGING THE OUTPUT

In This section, critical dimensions of service quality and how output might be measured are described:

- * Critical Quality Dimensions
- * The Measurement of Quality
- * Quality Management Approaches
- * Rewards for Quality Success

4.1 Dimensions of Quality

Organisations were asked to rank the importance of various descriptors of quality on a scale from 1 to 5. A score of 1 indicates that the dimension is unimportant or not relevant, a score of 3 indicates a neutral or qualifying dimension, and a score of 5 indicates that the organisation believes that the dimension is a winning measure.

Table 4.1 lists the average scores for each quality dimension.

Quality Dimension	Importance
Competence	4.6
Perceived value of service	4.6
Reliability	4.6
Courtesy of staff	4.5
Ability to put things right:	
- when customer in trouble	4.5
- when you have failed	4.5
Communication with customer	4.5
Time to deliver service	4.4
Staff friendliness	4.2
Initial response time	4.2
Availability of service	4.2
How important customers feel	4.1
Accessibility to right person	4.0
Product Image	3.9
Customers feeling in control	3.8
Accessibility: location	3.7
Customers view of their	
financial risk	3.6
Time with frontline staff	3.5
Individually designed service	3.3
Clean environment	3.3
Strength of guarantees	3.2
Supporting goods	2.9
Comfort of environment	2.8
Customer's view of their risk:	

- personal	2.8
- physical	2.6

Service Quality Dimensions
Table 4.1

The rankings probably reflect the bias in the sample towards business to business services, which may explain the relatively low rating given to dimensions such as environment and time with frontline staff.

It may be possible to infer that those attributes with higher scores are perceived to be more important in building a positive quality image for the organisation. This might be so for dimensions with a score of more than 4.0. Those between 3.0 and 4.0 could be viewed as neutral, not adding positively to the perception of quality, but capable of detracting from it if not up to expectations. Dimensions with a score below 3.0 are not perceived to be important by the surveyed organisations.

The broad conclusions to be drawn might be:

- * Organisations must work hard to establish competence, and to deliver reliably to expectations
- * Positive staff attitudes, represented by friendliness and courtesy are seen as attributes which enhance the quality of service.
- * The time dimension, which includes the time to make an initial response, is a key customer measure. This is supported by other research, and it is worth noting that time may be used as a surrogate for an assessment of other quality dimensions such as efficiency and responsiveness.
- * Finally, the ability to recover from problems or mistakes is seen as extremely important.

All of these conclusions have some bearing on how an organisation should measure the effectiveness of its capacity management.

4.2 The Measurement of Quality

Table 4.2 shows the methods used in collecting quality information, whilst Table 4.3 indicates the frequency of measurement.

Method	Percentage
Internal Measures	80.6
Mystery Customers	9.4
Industry Audits	25.3
Employee Surveys	35.9
Customer Surveys	74.7
Independent Surveys	27.1
Audit by Customer	28.8

Service Quality Measurement
Table 4.2

Frequency of Collection	Percentage
Daily	20.0
Weekly	14.0
Monthly	30.7
Quarterly	10.0
Six Monthly	6.7
Yearly	7.3

Frequency of Measurement
Table 4.3

It is clear from this and previous surveys that the number of organisations carrying out formal customer research has risen dramatically in the past five years. It is also encouraging to see that 81% have internal quality measures. This again, is an improvement on the previous situation where such measures as existed were largely financial.

The value of quality information is clearly recognised. Table 4.3 indicates that 65% of organisations collect such information at least monthly.

Recipient of Quality Information	Percentage
Board Members	51.2
Service Managers	45.3
Contact Staff	35.3
Service Director	27.6
All Company Management	55.9

Quality Information Recipients
Table 4.4

Table 4.4 depicts the spread of quality information. Organisations were asked to tell us which groups receive information *as often as it is produced*. It is disappointing to see that in only 51% of organisations, Board members see such information, though perhaps encouraging that in 35% of cases, contact staff receive it.

We asked a specific question about follow up post service delivery. About 12% of respondents indicated that they surveyed customers at some point after completion. The interval depends on the type of service, the less complex, consumer services follow up taking place within a matter of days, whereas more complex projects might be followed up between six and twelve months after completion.

4.3 Quality Management Approaches

Table 4.5 shows the degree to which each approach is used and the extent to which it is felt to be effective. This question was scored on a scale from 1 to 5, where a score of 1 indicated that the approach was not used, and a score of 5 indicated "very effective". In Table 4.5, we have combined scores of 4 and 5 to produce the effective column.

Approach	Percentage Used	Percentage Effective
Standard Procedures	90.6	59.6
BS 5750	72.4	44.7
TQM	84.2	70.6
Customer Care	76.5	46.4
Quality Circles	64.2	24.2
Cust. Satisfaction index	64.7	40.0

Effectiveness of Quality Approaches
Table 4.5

The sample being drawn from those with more than a passing interest in quality is likely to bias the results somewhat, which may explain the perhaps surprisingly high percentage that rated TQM as effective or very effective. Nevertheless, it is clear that the TQM approach is felt to have a higher likelihood of success than others.

We asked respondents to rate how successful they had been in improving quality. Table 4.6 shows the results.

Quality Success	Percentage
Very Successful	27.8
Reasonable Success	34.4
Fair or Slow	16.6
Too Early to Tell	16.6
No Progress	4.6

Success in Improving Quality
Table 4.6

These results roughly line up with those who are implementing TQM programmes, the effectiveness rating in Table 4.5 reflecting in some cases, early success. Many respondents expressed the view that quality should be viewed in terms of process rather than results. Nevertheless a number of organisations quoted specific measures of success. A sample is reproduced below:

- * Mean Time Between Failure improved from 24 to 60 months over a period of three years.
- * BS5750 achieved in 4 months from start.
- * Quality Costs reduced from £700k in 1988 to £40k in 1991.
- * Step function in the last two years.
- * A 5750 programme has assisted greatly in refining our call control statistics, enabling us to use and measure what we are doing.
- * Increasing use of TQM techniques with initial use of customer partnerships.
- * Launch of TQM programme at the end of 1990 has improved quality within order processing departments in addition to assisting in employee motivation and morale.

- * Implementation failures halved in three years.
- * Reduced complaints by 50%
- * Testing times reduced to half the time taken three years ago, with 50% increase in load, reduced human resources and costs maintained well below inflation.

4.4 Rewards for Quality Success

We were interested in the way that companies reward quality success, if at all. Table 4.7 shows the breakdown of these responses.

Form of Reward	Percentage
Bonus Payment	15.5
Appraisal schemes or Performance related pay	15.5
Job Satisfaction	8.1
Recognition	21.6
No Reward	38.4

Rewards for Quality Success
Table 4.7

It would appear that for nearly half of the sample, there is no form of reward for quality. A number of respondents felt that quality was its own reward, leading to greater job satisfaction or simply continued employment. Only one respondent felt that payment was demotivational. A number of payment schemes, though were for management and above, frontline staff receiving nothing.

A number of the answers would appear to be somewhat cynical in content:

- * "Success is not recognised by top management"
- * "Senior Manager's bonus, nothing for staff below"
- * "It is not recognised, the focus is still back to cost cutting"
- * "Rewarded by absence of criticism"

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