SWP 2191 STRATEGIES FOR PRODUCT AND CUSTOMER SUPPORT - A RESEARCH REPORT

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SUMMARY

This document reports on a questionnaire survey aimed at discovering whether there are identifiable elements contained in Product and Customer Support strategies which relate to the differing demands of product and market. This was prompted by the fact that with increasing levels of both product standardisation and product quality, attention has turned to the area of support to give differentiation and to ensure that the customers' expectations are met in every part of their dealings with the company.

The survey has achieved three things. There are clear indications of identifiable differences in approach having considered the task facing the service organisation, some areas for further work in developing tools to assist the service manager have been identified, and lastly, the survey has provided input into work carried out by Colin Armistead and Graham Clark on the effectiveness of different forms of service organisation.

Grateful thanks are due to all those who contributed to this survey by filling in questionnaires and those who gave feedback on the initial form of the survey. Particular thanks go to Heather Woodfield for her assistance with the questionnaire design, data input and analysis, and for her general interest in the survey.

Graham Clark Cranfield, October 1990

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1. INTRODUCTION

In the last few years increasing attention has been paid to the way that manufacturing companies manage both pre and post sales support. For some, the "spares and repairs" business in particular has always been a source of sizeable profit, but nonetheless did not receive the degree of senior management attention it deserved.

Today, customer support, customer service or customer care has become one of the latest areas for attention of the management "guru's" as product quality is increasingly consistent and thus Service or Support is the means to win customers and, perhaps more importantly, the means to increase the customer retention rate. Recognising that it is possible to make money by giving the customer something of value has moved Service away from a cost centre mentality to being a profit centre or business in its own right.

An indication of the importance of this area is given by examining the following data from the survey. The question asked how important a good reputation for service is in making the original equipment sale:

Essential to be considered at all	30%
A major differentiating factor	47%
The only differentiating factor	1%
Important but not critical	22%

One of the problems raised by Service Managers themselves is the relatively low level of professionalism in their function. This is not to say that service personnel are not technically competent. The problem lies in identifying priorities for management action. This survey aims to contribute to knowledge in this area by discovering to what extent Service and Support activities are directed by clear competitive strategies which relate to customer needs.

This survey has provided input into further research by Armistead and Clark at Cranfield, in particular relating the shape and direction of the Customer Support activity to the degree of In House Control over service activities desired by the manufacturer. Factors which would tend to increase the desired degree of in house control include safety factors, the extent to which the customer is inconvenienced by product failure and the rate of product innovation. The data gathered in this survey would indicate that there is a clear link between the way the service organisation competes and operates and the degree of tight control of service required and/or possible.

2. PRODUCT INFORMATION

2.1 Introduction

The first section of the survey document was dedicated to describing the company's product. A number of product attributes will affect the service task. A relatively cheap product will be replaced when it fails, an automobile must be repaired in reasonable time at reasonable cost, but an expensive machine tool which is at the heart of a customer's business must either be repaired almost immediately or be so designed that failure can be avoided or predicted.

2.2 Response rate

The survey questionnaire had a response rate of 10% with 139 replies. This is slightly lower than hoped for, but this is perhaps not surprising given the complexity of the survey document.

The companies fall into two broad industry sectors, 45% being electrical, electronic or computer related, and 55% in predominantly mechanical or automotive related product groups.

2.3 Customer profile

Companies serve a variety of customers, but most of those taking part in the survey are serving organisations rather than individual consumers. This is true even when the product is a consumer product, because the manufacturer is supporting and enabling dealers or agents to deliver good customer service, rather than dealing directly with consumers.

Most businesses serve a mixture of customers, but 84% indicated that more than 60% of their business fell into the following categories:

Service Customer	No. of companies
OEM's	24
Retailers	18
Industrial companies	55
Public Authorities	16
Consumers	5

Although the amount of business carried out directly with end consumers is relatively small, most companies have some, albeit limited, contact with the consumer. This raises the question as to how well this contact is carried out given that it may be a non routine activity. More positively, it may be that there are opportunities to be exploited further.

2.4 Product Price

The cost of typical product or product family was distributed as follows:

< £1,00000	32%
£1,0000 - £9,9999	2 1%
f 10,000 - £999,99999	27%
>£ 100,000	20%

2.5 Product Volume

The bias towards the lower priced products was reflected in the profile of annual product volumes.

1 - 100	16%
101 - 500	1 8 9⁄0.
501 - 1,000	6%
1,001-10,000	15%
> 10,000	45%

Whereas the number of units produced may indicate the size of the company, a deeper investigation should also include measures relating to the total number of units supported and the volume of service transactions per period.

2.6 Economic Lifetime

The economic lifetime of the product clearly has a significant effect on the degree of support required, at this is reflected in the responses.

< 1 year	2 %
1 - 5 years	17%
6 - 10 years	37%
> 10 years	44%

Thus, over 80% of those companies responding have products with an economic life in excess of 5 years This is not surprising when considering that 50% have a price in excess of f 10,000 and are therefore not throwaway products!.

2.7 Inconvenience of product failure

Again, it is also not a surprise to discover that professional customer support is required by companies whose customers are likely to be seriously inconvenienced by product breakdown. Taking out multiple responses, the profile of inconvenience to customer in the event of failure is as follows:

Disastrous, customer's business totally dependent	21%
Serious, capacity much reduced	52%
Inconvenient, alternatives available	23%
Relatively unimportant, replacement purchased	4 %

2.8 **Safety**

The final factor in determining whether a manufacturer would attempt to retain in house control of service is that of the implications for safety in the event of product failure.

Lives at risk	20%
Small risk	22%
No danger	53%
Unknown	5%

It should be said that it would appear that respondents were rather shy of saying that product failure could put lives at risk! There are a few examples of companies who must consider safety carefully such as aircraft or defence equipment manufacturers.

2.9 Why the customer requires service

In answer to a question about why the customer requires service rather than "DIY", the responses were broadly grouped as follows:

Customer lacks technical capability	64%
Supply of high specification components	15%
Not economic for customer	1 1%
Special Equipment required	7 %
Certification or approval required	7 %
Fast response required	2 %
Safety issues	4%

Companies with products with loecenomic lifetime tend to be more complex and therefore are more likely to have "ignorant" customers who do not possess the necessary expertise to service the product. These companies also set up barriers against other service bodies being involved by the requirement for high specification components It is unlikely that there is sufficient volume or standardisation to justify incorporation of "plug in" replacement modules in the event of failure. It is likely that these products are technically more complex and therefore emphasise repair rather than replacement.

Those companies giving the economic reason for service tended to be in the group which stated that breakdown would have a serious rather than disastrous effect on their customer's business.

3 SERVICE PHILOSOPHY

3.1 Introduction

This section was aimed at describing the basic task of the service/support function. In order to succeed the company must be able to describe its service philosophy and key values simply asuccinally so that there is no confusion and frontline employees, support staff and people in other business functions may work consistently and effectively together company must be able to describe what the customer is buying and what, if anything, makes it different from the competition.

3.2 Repair Policy

This question concentrated on repair (dealing with product failure) rather than on planned maintenance. The table below shows firstly the percentage of companies adopting each approach and the percentage of business it represents.

	% companies using this approach	% company's repair business
Product replacement	35	39
Module replacement	44	30
Repair atcust. site	66	49
Repair off site	48	30
Loan m/c during repair	19 *	9
Product repair by user	35	20
Third party repair	37	34
Module replacement Repair atcust. site Repair off site Loan m/c during repair Product repair by user	44 66 48 19 35	30 49 30 9 20

Electrical/electronic companies use the first two approaches more heavily than others, product replacement being on averege 46% and module replacement 39% of company's business. In both cases electrical companies tended to be at one end or other of the spectrum at 100% or **0%** of company's business whereas the percentages for mechanical companies were spread more evenly across the range.

It was surprising that 17 companies with a product economic lifetime over 10 years averaged over 39% of their business on product replacement rather than repair. These tend to be in the consumer goods area such as furniture, where perhaps the working environment is not as demanding, and the product complexity is rather less than most. For three of such companies product replacement constitutes in excess of 90% of their business.

Products with an annual sales volume below 10,000 are rarely repaired by authorised third parties. For companies with sales above 10,000, third party or dealer repair constitutes over 45% of their service business.

Other trends were as follows:

- * For 1 company, the loan m/c approach is adopted in all cases.
- * Product replacement averages 53% of business for product values below f 1,000.
- * Module replacement is rarely used for product values below f 10,000
- * There was no significant difference in approach with respect to degree of risk to life or limb.

Respondents were asked to explain their approach to repair. Productivity is clearly a major issue as 44% of those responding included cost in their reply.

15% were concerned with fulfilling warranty obligations and only 16% specifically mentioned quality in any respect.

10% emphasised the need for fast response and 13% concentrated on maintaining customer uptime.

7% of companies had no repair requirements at all, the product being replaced on failure.

Points of **difference** between groups were as follows:

- * More mechanical based companies emphasise cost.
- * More electrical based companies emphasise time.
- * Those companies emphasising warranty not surprisingly had high product volumes. Few of these companies stressed quality.
- * Those companies who stressed time factors were those where product failure had serious or disastrous consequences for the customer's business.

3.3 Maintenance policy

The following table summarises the responses to a question as to the fundamental approach to maintenance.

	% companies using this approach	% company's maintenance business
No maintenance req'd	27	80
Regular maint. contract	53	55
Maintenance dependent on product availability	9	36
Some routine maintenance carried out by customer	43	36
All customer maintenance	20	48
3rd party maintenance	26	34
Remote diagnostics	9	19

Within these categories the following differences were observed:

- * For electrical companies, the no maintenance percentage approached 90%
- * High product volume tends towards a larger degree of little or no maintenance.
- * There was more "no maintenance" if there was no safety risk.
- * There are more maintenance contracts when disruption to customer's business is likely to be high on **prioduct** failure.
- * Maintenance carried out by customer's staff increases as product price increases. Users of an expensive machine tool are more likely to be equipped to carry out routine tasks to ensure uptime, though the data suggested that the customer was less likely to undertake some maintenance if the potential disruption to business in the event of failure was high. This is likely to be those situations where an expensive piece of capital equipment is both complex and represents the heart of the customers' process.
- * Maintenance carried out by customer's staff also increases as product economic lifetime increases.
- * Only 2 electrical companies reported having products where all maintenance is carried out by the customer. For 7 mechanical companies this applies to more than **90%** of their maintenance business.
- * Authorised third party maintenance decreases as product price increases.
- * Authorised third party maintenance is much reduced if the consequence of breakdown is disastrous to customer's business..

3.4 Who carries out the service?

The responses are summarised in the table below:

	% companies using this approach	% company's activity
No servicing required	19	82
Manufacturer's staff	66	56
Authorised agent	33	35
Other 3rd party	31	27
Customer's staff	53	Not available

- *" No service required" represents 96% of the activity for those electrical companies it applies to.
- * "No service" is more likely for high volume companies.
- * % service by manufacturer's staff decreases above an annual sales volume of 100,000 units per year
- * Service is less likely to be carried out by authorised agent or third party above f 10,000 unit price, but more likely to be carried out by customer's staff.

3.5 Fundamental approach to Service

Companies Using Approach

Low cost, basic service	4
Premium price, value added service	26
Fast response, component exchange	23
Fast response, component repair	22
Customer support rather than service	22
Parts and service only	4

- * Electrical companies were weighted towards fast response, component exchange, whereas mechanical companies tended towards fast response, component repair. Does this indicate that the electrical sector is further advanced in design for serviceability?
- * Manufacturers with higher priced products tend to provide premium price, value added service.
- * All companies providing parts and advice only are in the low cost/high volume range.
- * 34% of low cost group emphasise customer support.
- * Fast response is clearly more important for those with high disruption to customer factors.

3.6 Summarise service activity

Respondents were asked to summarise their service activity in one or two sentences:

Largely based on response time	24%
Specific mention of Customer focus	21%
Image of premium quality	20%
Giving competitive edge	15%
Informatio & support to customer	10%
Room for improveme(!)t	5 %
Parts supply	4 %
Support for dealer/agent	3 %

- * Twice as many electrical as mechanical companies emphasise premium quality service.
- * Twice as many mechanical as electrical companies emphasise customer focus.
- * Service is particularly seen as giving competitive edge for those with high product volumes (and presumeably mature products).
- * Customer focus is emphasised by those with long economic lifetimes.
- * Time response is emphasised by those where breakdown is disastrous/serious to customer.

4. COMPETITIVE PERFORMANCE

4.1 Performance standards

Respondents were asked to rate their performance in each of the following areas, and to indicate which were relevant to them. Perhaps it is not surprising that they judged their on performance to be better for all factors than the industry standard. The relative position of the factors does, however, give a guide to strengths and weaknesses.

The ratings were scored as follows:

Below industry standard	1
Equal to standard	2
Above industry standard	3
Excellent	4

	Score	%Reli*	Diff (%)**	Rank
Time to fix	2.53	94	-4	11
Mean time bet. failure	2.78	85	+5	4
Mean time to repair	2.55	90	-4	I 11
Ease of use	2.61	83	-2	10
Maintenance contracts	2.75	58	4-4	5
Documentation	2.53	92	-4	11
Dealer network	2.64	54	0	7
Dealer expertise	2.33	54	-12	17
Warranties	2.48	91	-6	1 4
Product	3.02	96	+I4	2
Serviceability	2.65	88	0	7
Distribution	3.18	69	+20	1
Consultancy	2.65	64	0	7
Customer training	2.43	86	-8	15
Customer care	2.72	93	+3	6
Price	2.41	94	-9	16
Service personnel	2.8 1	85	+6	3

^{* %}Rel is the percentage of companies in the survey the attribute was relevant for.

^{**} Diff (%)) is the percentage difference between the rating for each item when compared with the average for all ratings of 2.65. Thus Distribution was rated 20% higher than average whereas dealer expertise was rated at 12% below average.

The fact that the base product is rated very highly confirms the need for service to both complement this in quality terms and also to act as a differentiator in order to compete.

Other differences as follows:

- * 80% of situations where time to fix is not relevant, the product price is below f 1,000.
- * Time to fix improves with price. Low price rating = 2.46, High price rating = 2.7.
- * Time to fix deteriorates with volume.
- * Mean time to repair improves with volume.
- * Dealer expertise was rated more highly for products with shorter economic lifetimes. This would relate to products which are relatively simple, requiring only restricted service.
- * The rating for maintenance contracts for electrical companies was 2.46 whilst it was 3.97 for mechanical companies.
- * Maintenance contracts are believed to be better from manufacturers of long economic lifetime products.
- * It would appear that maintenance contracts are irrelevant for 60% of companies with high safety risk on product failure(?). Some of this work is handled by customers own staff.
- * Serviceability rating improves with volume.
- * Distribution and dealer network ratings are above the survey average for low price, high volume products.
- * Consultancy is rated higher for products above f 10,000.
- * Customer training is seen to be better for products above f 100,000.
- * Customer training was stated to be not relevant for 60% of compainines annual sales volume above 10,000.
- * Customer care was rated more highly at short economic lifetimes, perhaps because there would be more purchase and fewer service contacts?
- * The rating for service personnel was considerably higher for low volume products.

Other areas critical for service business, highlighted by a few companies, not rated were spares supply, technical advice, access and remote diagnostics.

4.2 Areas most important for success

Respondents were asked to identify three areas of their business which must be done well to keep the customer happy.

/ u COI	% companies	
Time to fix 45		
Customer care 35		
Price 23		
Mtbf 21		
Product 17		
mttr 17		
Service personnel 15		
Serviceability 11		
Ease of use 10		

In order of importance the following were also mentioned but by less than 10% of companies:

Maintenance contracts, Dealer expertise, Distribution, Warranties, Spares supply, Customer training, advice and documentation.

It would seem that the time dimension is still the most important measure for creating customer confidence. Companies believe that attention must still be paid to this area as witnessed in section 3.1.

4.3 Improvement areas

The following are the areas that companies had decided to improve in the 12 months prior to the survey.

	% Companies
Customer Care	20
Time to fix	17
Product Training	10
Customer Training	10
Communication/access	10
Quality & performance	10

4.4 Barriers to consistent service quality

This question identifies the operational issues which must be addressed in order to improve performance. The question asked the respondent to identify the main barriers to delivering good service quality

22.	
22	
13	
12	
10	
9	
7	
	12

Other problems highlighted were:

Customer specification, customer misuse of equipment, suppliers, delivery reliability, product quality, customers' need for individual attention, rapid quotations, conflicting incentives and coverage/location.

It can be seen that many of the barriers in the "top 7" are in fact interlinked and relate to the ability of the organisation to match supply of service to the demand placed on it. Availability of service personnel relates both to the ability of the company to recruit the required level of personnel and to match availability to demand. Companies must pay more attention to this area if their performance in the customers' eyes is to improve.

5. STRATEGY FORMULATION

5.1 Existence of formal Service Strategy

Companies were asked if they had a formal statement of service strategy, being more than a mission statement and/or statement of basic policy. 58% of companies stated they had such a strategy.

This is an area which would bear rather more investigation, particularly concentrating on how strategies are to be formulated in periods when the basic of service are changing, for example addressing how the service function must respond as customer support and care becomes more important than reacting to product breakdown.

tasks

It is interesting to note that over 75% of companies with formal service strategies had reviewed or revised them in the previous 12 months and only 2% were over 5 years old.

5.2 Service Strategy Contents

% Companies
78
38
84
59
30
32
45
51
36
30

Other areas specifically mentioned were profitability and business development goals.

- * Low price products were more likely to emphasise labour cost and inventory reduction goals
- * Companies with high product volume were more likely to include mission statements, reliability and inventory reduction goals and description of niches.

5.3 Customer Audits

It is generally recognised that companies need **to take** time and effort to find out what their customers think of the service they receive, and also what else they would like or require.

63% of companies stated that they had carried out a customer audit. This figure compares very favourably with the After Sales Service survey conducted two years earlier where the comparable figure was 32%. In addition, this type of survey is part of an ongoing audit programme for 39% of companies.

The age of the surveys was as follows:

	% Companies
1 - 6 months	37
7 - 12 months	21
13 - 24 months	21
25 - 60 months	11
About to issue	2
Constant monitor	7

The influence of customer audit on service policies:

	% Companies
Confirmed service level	16
Initiated service programme	16
Information for ongoing improvement	14
Understood customer perception	10
Improved response	10

Other areas mentioned by more than one company were price, spares availability, training, documentation, access and delivery.

Single responses were task teams, appearance of equipment, business influence, performance of agents, sales reorganisation, contracts and supplier changes.

6. PRICING POLICIES

6.1 Basic pricing strategy

The most common approaches are:

Cost of service plus margin	54%
Related to cost of product	25%
Related to "value in use" to customer	I7%.

In addition, 32% stated their contracts include penalties for poor performance, and only 4% include bonuses for good performance.

6.2 Customer influence on price

Companies were asked to indicate to what extent pricing policies were constrained by customer awareness of the costs involved.

	% Companies
Industry standard price Not constrained by cust . Detailed quote required	27 19 11
Published prices	10
Perceived value	10
3rd party competition	9
Customer audit	6
Tied to product sale	3
Limited by retailer	1
	1

6.3 Elements of service cost

Companies were asked to indicate approximate percentages of cost breakdown for service. For some companies, this information was not available in this form, or was deemed to be confidential. The following table shows the proportion of companies each element applies to (expressed as a percentage of companies supplying figures), the average percentage cost, and an adjusted average for all companies.

	% Comp's measuring	Avge (‰)	Adjusted Avge (%1)
	(A))	(B)	A x B /1000
Service Engineers	92	44	41
Repair centre staff	72	22	16
Administration	92	14	12
Training	80	6	5
Travel	92	12	11
Inventory	65	17	11
Logistics	27	8	2
Marketing	36	4	2

Some companies were not able to differentiate between all the costs, in some cases administration for instance would contain some cost from other categories. Inventory is a relatively low figure because some companies charge it to a separate marketing division.

People costs are the most significant item, being over 60% if training is included. Only 360% of companies reported spending money on marketing, representing 2% of total spend. This is an area which will almost certainly increase as service becomes more competitive.

6.4 Profit margin

	% Companies
Loss	4
Break even	7
0 - 9%	13
10-24%	42
25 - 49%	24
> 50%	9

For those companies that indicated they maderofit (766% of survey), the average profit was approximate 256%. There appeared to be no difference in profit for most of the control factors, though companies where breakdown was likely to be disastrous made a slightly higher than average profit, perhaps as they are selling "peace of mind" as well as uptime.

7. GENERAL

7.1 Communication service strategies

The following were identified as the most common methods for communicating service strategies to company employees.

% Companies

Departmental procedures	81
Company manual	55
Videos	34
Presentations to service personnel	68
Presentations to manufacturing pers.	40
Presentations to design personnel	42
Company newsletter	54

Other methods used included electronic mail, staff conferences and team briefing.

7.2 Communicating service strategies to customers

Companies were asked to nominate the most effective methods for communicating strategies to customers:

	% Companies
Face to Face, personal contact	59
Face to Face, personal contact Customer seminars	12
Newsletters	12
By producing excellent results	11
Dealer marketing	6 .
Advertising	. 3

Other methods included videos, conferences and user group meetings.

7.3 Marketing Service

Companies were asked what image they attempt to portray in marketing service. The most significant attribute was ranked as 1, with others following as appropriate.

Average rank

Professional competence	2.31
High quality	2.70
Efficient service	3.18
Rapid response	3.19
Comprehensive support	3.72
Personal service	4.59

It would appear that companies do not emphasise personal service at all! This is perhaps rather surprising in that in many sectors, the basic level of service delivered is much the same from each manufacturEhere would appear to be room for differentiation here. Other comments:

- * One company portrays an innovative approach, whilst another emphasises flexibility.
- * More electrical companies emhasise rapid response.
- * Companies with high priced products emphasise professional competence, but not high quality(?).
- * Low volume companies also emphasise professional competence.
- * Companies with products with long economic lifetimes emphasise professional competence and comprehensive support.
- * Where breakdown is disastrous, professional competence is emphasised.

A general comment would be that marketing of service is not well developed by most companies, and there is room for a more innovative approach to this area.

7.4 Future changes affecting service

The following are the areas of future change seen as affecting the way that companies will support their customers.

	% Companies
Products simpler & more reliable	13
Companies making greater commitment	
to service	9
More legislation inc liability	9
Faster turnaround required	7
More remote diagnostics	7
More information available to both	
companies and customers	6
More trained staff	5
Faster product change	5
Greater geographical coverage	5
Lower price for service	4
Selling systems rather than	
individual products	4
1992 etc	4
Reduction in service	3
Rising customer expectations	3

Single mentions included more fixed cost contracts, skill shortatge, more customer "DIY", better advertising, traffic congestion on motorways and changes in customers' lifestyles.

7.5 Challenges in motivating Service personnel

Given that a significant proportion of cost is related to people, and most of the marketing of service is carried out by personal contact, what are the areas which need addressing?

% Companies

	r
Engendering customer responsiveness	
in service engineers	29
Improved product training	14
Providing variety	8
Incentives	8
Career progression	7
Selection procedures	6
Engineer retention	6
Engineer overload	6
Building teamwork	6
Setting service standards	5
Status of service	4

Single mentions included keeping the customer informed, **Emphasisings** delivery integrity, resistance to change, unsocial hours and problems relating to long overseas' trips.

8. DISCUSSION

The following trends may be extracted from the previous sections:

8.1 **Price**

With High price:

- * Service tends to be carried out by a combination of manufacturer's and customers' own staff. Agents and other third parties are rarely used on equipment ovef 100,000 purchase price.
- * Time to fix performance improves.
- * More attention is paid to customer training and consultancy.
- * An image of professional competence is preferred, probably matching the image of well engineered capital goods.

With low price:

- * Below f 1,000 product price, total replacement is much more common, whereas module replacement is extremely rare.
- * Labour and inventory cost goals are emphasised.

8.2 Volume

With high volume:

- * The emphasis is firmly on ensuring that warranties are managed, with product replacement rather than repail where repair is economic, service is likely to be carried out by third parties.
- *Service is seen as giving competitive edge, especially as products are likely to be mature.
- * Serviceability and Mean Time to Repair are likely to be faster, but Time to Fix is likely to be worseMore resources will be available for design for service, but the logistics of service delivery place greater demands on the system.
- * Low price, high volume producers rate their distribution facilities above average.
- * Customer training is seen to be less relevant.
- * Service strategies are likely to be more extensive and contain mission statements, product reliability and inventory reduction gandsclear descriptions of target markets.

With low volume:

- * Third party repair is rare.
- **Quality of Service Personnel is higher.
- * Professional competence is the preferred image.

8.3 Product Economic lifetime

With long lifetimes:

- * Product replacement was relatively common. This comment applies to relatively simple products such as pieces of furniture rather than capital equipment.
- * Where maintenance is required, it is likely that the customer will provide a greater percentage of it, but maintenance contracts are better.
- * The benefits of customer focus are likely to be emphasised in the policy statement.
- * Professional competence and comprehensive support are emphasised.

With short lifetimes:

- * Dealer expertise was rated more highly.
- * Customer care improves.

8.4 Inconvenience of Breakdown

Where breakdown is disastrous or serious:

- * Time will be emphasised in the company's repair policy.
- * There will be a greater emphasis on maintenance contracts.
- * There tends to be less maintenance carried out by customers' staff or third parties.
- * Professional competence is again emphasised.

8.5 Safety implications

Where lives are at risk on product failure:

* Maintenance contracts are used less often.

Where there is little or no risk:

* There are more instances of products without maintenance requirements.

8.6 Industry Sector

For Electrical/electronic related industries:

- * Service strategies are more likely to be based on no maintenance/product replacement.
- * Premium quality service is seen as backing up product quality.
- * Maintenance contracts are seen to be poorly administered.
- * Rapid response is more likely to be part of the image portrayed.

For Mechanical related products

- * Service strategies are more likely to be based on cost rather than time considerations.
- * More customer maintenance is likely.
- * Customer focus receives greater emphasis.
- * Maintenance contracts are believed to be well administered.

8.7 Relating strategy to degree of control required

As indicated in Section 1, it is proposed that the degree of "In house control" of the service and support function will be high when some or all of the following apply:

- * Product purchase price is high.
- * Inconvenience of breakdown to customer is high (and costly).
- * Safety implications of failure are high.
- * Rate of product innovation is high
- * Product complexity is high.
- * Product economic lifetime is long and therefore, the need exists to generate a strong and profitable customer relationship through professional service.

From the research to date, there are indications that this model holds true. From this survey, the following statements apply to the high in house control position:

- * Service is carried out by manufacturers' staff or customers' staff with support from the original equipment vendor. Third party or dealer service is rarely used. Maintenance contracts may be a key feature.
- * Time is emphasised, in shorter "Time to Fix" and rapid response.
- * The cost of service is relatively high, with the quality of service personnel being correspondingly high.
- * "Added value" service is more common, with customer training and consultancy being offered.
- * An image of professional competence is portrayed.

It may be felt that the ideal situation is for the manufacturer to retain control of service and support in all circumstances, but this may be impossible as volume increases and geographical coverage widens. The organisation must change to cope with these new demands. From the survey the following can be observed as volume increases and /or the need for in house control lessens:

- * There was evidence of a move towards third party service with the emphasis now placed on supporting the dealer.
- * Distribution networks are more developed.
- * High volume, low price products are designed for replacement rather than repair. Where products are serviced, they are designed more thoroughly for service to simplify and speed the task.
- * Service is seen as a competitive weapon, but the emphasis is on customer care rather than on adding more service options.
- * Because the total organisation delivering service to the end consumer is likely to be larger, more effort is taken in developing clear statements of strategy to attempt to coordinate and direct the service effort.

9 CONCLUSION

There is clear **evimence** that service organisations are responding to the environment to develop consistent service strategies. **As** yet there is insufficient to distinguish what has evolved out of necessity from what has been a **concious** effort to compete.

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Strategies must be developed to suit each situation which will be reflected the competence of the organisation set up to deliver them. Future research at Cranfield is directed at this area of understanding which organisation form is best suited to a set of competitive requirements.

REFERENCES

Clark, G R. After Sales Service in UK Manufacturing. Cranfield, April 1988.

Armistead, C G, and Clark, G R. After Sales Support Strategy. Cranfield 1990.